APPENDIX A:
AIR QUALITY AND GREENHOUSE GAS EMISSIONS MODELING DATA

1. Air Quality

Ambient air quality standards (AAQS) have been adopted at State and federal levels for criteria air pollutants. In addition, both the State and federal government regulate the release of toxic air contaminants (TACs). The Town of Colma is in the San Francisco Bay Area Air Basin (SFBAAB) and is subject to the rules and regulations imposed by the Bay Area Air Quality Management District (BAAQMD), as well as the California AAQS adopted by the California Air Resources Board (CARB) and national AAQS adopted by the United States Environmental Protection Agency (EPA). Federal, State, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed Project are summarized below. The discussion also identifies the natural factors in the air basin that affect air pollution.

1.1 REGULATORY FRAMEWORK

1.1.1 Ambient Air Quality Standards

The Clean Air Act (CAA) was passed in 1963 by the U.S. Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act, signed into law in 1988, requires all areas of the State to achieve and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS.

Criteria air pollutants are the air pollutants for which AAQS have been developed that are regulated under the CAA. The National and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect "sensitive receptors" most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants, which are shown in Table 1. These pollutants are ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	*[a]	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	*[a]	
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	
Respirable Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarterly	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)	24 hours	25 µg/m^3	*	Industrial processes.

Table 1 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: California Air Resources Board (CARB), 2015, October 1. Ambient Air Quality Standards, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.
Notes: ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter
* Standard has not been established for this pollutant/duration by this entity.
[a] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

1.1.2 Air Pollutants of Concern

A substance in the air that can cause harm to humans and the environment is known as an air pollutant. Pollutants can be in the form of solid particles, liquid droplets, or gases. In addition, they may be natural or man-made.

1.1.2.1 CRITERIA AIR POLLUTANTS

The pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State law. Air pollutants are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_x), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb) are primary air pollutants. Of these, CO, SO_2, nitrogen dioxide (NO_2), PM_{10}, and $PM_{2.5}$ are "criteria

air pollutants," which means that AAQS have been established for them. ROG and NO_x are criteria pollutant precursors that form secondary criteria air pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and NO_2 are the principal secondary pollutants.

A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

- **Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little or no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, motor vehicles operating at slow speeds are the primary source of CO in the air basin. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and when a vehicle is moving at low speeds. New findings indicate that CO emissions per mile are lowest at about 45 miles per hour (mph) for the average light-duty motor vehicle and begin to increase again at higher speeds. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces its oxygen-carrying capacity. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.[1] The air basin is designated under the California and National AAQS as being in attainment of CO criteria levels.[2]

- **Reactive Organic Gases (ROGs)** are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as O_3. There are no AAQS established for ROGs. However, because they contribute to the formation of O_3, BAAQMD has established a significance threshold for this pollutant.

- **Nitrogen Oxides (NO_x)** are a by-product of fuel combustion and contribute to the formation of O_3, PM_{10}, and $PM_{2.5}$. The two major components of NO_x are nitric oxide (NO) and NO_2. The principal component of NO_x produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_x. NO_2 is an acute irritant and at equal concentrations more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high

[1] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011), Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

[2] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

pressure.[3] The air basin is designated an attainment area for NO_2 under the National AAQS and California AAQS.[4]

- **Sulfur Dioxide (SO_2)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO_2. When SO_2 forms sulfates (SO_4) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_x). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue.[5] The air basin is designated an attainment area for SO_2 under the California and National AAQS.[6]

- **Suspended Particulate Matter (PM_{10} and $PM_{2.5}$)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM_{10}, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004-inch) or less. Inhalable fine particles, or $PM_{2.5}$, have an aerodynamic diameter of 2.5 microns or less (i.e., 2.5 millionths of a meter or 0.0001 inch).

  Some particulate matter, such as pollen, occurs naturally. Most particulate matter in the air basin is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Extended exposure to particulate matter can increase the risk of chronic respiratory disease. PM_{10} bypasses the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. An EPA scientific review concluded that $PM_{2.5}$ penetrates even more deeply into the lungs, and this is more likely to contribute to health effects—at concentrations well below current PM_{10} standards. These health effects include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, increased respiratory symptoms (e.g. irritation of the airways, coughing, or difficulty breathing). Motor vehicles are currently responsible for about half of particulates in the air basin. Wood burning in fireplaces and stoves is another large source of fine particulates.[7]

  Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individual with asthma); and alterations in lung tissue and structure and in respiratory tract defense

[3] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

[4] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

[5] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

[6] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

[7] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

mechanisms.[8] Diesel particulate matter (DPM) is classified a carcinogen by CARB. The air basin is designated nonattainment under the California AAQS for PM_{10} and nonattainment under both the California and National AAQS for $PM_{2.5}$.[9,10]

- **Ozone (O_3)** is commonly referred to as "smog" and is a gas that is formed when ROGs and NO_x,—both by-products of internal combustion engine exhaust—undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions to the formation of this pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. O_3 levels usually build up during the day and peak in the afternoon. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. O_3 can also damage plants and trees and materials such as rubber and fabrics.[11] The air basin is designated nonattainment of the 1-hour California AAQS and 8-hour California and National AAQS for O_3.[12]

- **Lead (Pb)** is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. 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.

  Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.[13] The air basin is designated in attainment of the California and National AAQS for lead.[14] Because emissions of lead are found only in projects that are permitted by BAAQMD, lead is not an air quality of concern for the proposed Project.

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[8] South Coast Air Quality Management District (SCAQMD), 2005. Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.

[9] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

[10] On January 9, 2013, the EPA issued a final rule to determine that the SFBAAB has attained the 24-hour $PM_{2.5}$ National AAQS. This action suspends federal State Implementation Plan planning requirements for the Bay Area. The SFBAAB will continue to be designated nonattainment for the National 24-hour $PM_{2.5}$ standard until such time as BAAQMD elects to submit a redesignation request and a maintenance plan to EPA and EPA approves the proposed redesignation.

[11] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

[12] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

[13] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

[14] California Air Resources Board (CARB), 2014. Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June.

1.1.2.2 TOXIC AIR CONTAMINANTS

Public exposure to TACs is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to Section 112(b) of the federal Clean Air Act (42 U.S. Code Section 7412[b]) is a toxic air contaminant. Under State law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it is an air pollutant that may cause or contribute to an increase in mortality or serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets up a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e. a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs that it identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public through notices and public meetings.

At the time of the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs.[15] Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

In 1998, CARB identified DPM as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particles are 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 lungs.

CARB has promulgated the following specific rules to limit TAC emissions:

- CARB Rule 2485 (13 CCR Chapter 10, Section 2485), Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- CARB Rule 2480 (13 CCR Chapter 10, Section 2480), Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools

[15] California Air Resources Board (CARB), 1999. Final Staff Report: Update to the Toxic Air Contaminant List.

- CARB Rule 2477 (13 CCR Section 2477 and Article 8), Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3 butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

1.1.3 Bay Area Air Quality Management District

BAAQMD is the agency responsible for assuring that the National and California AAQS are attained and maintained in the SFBAAB. BAAQMD is 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.
- Air quality management planning.

Air quality conditions in the air basin have improved significantly since the BAAQMD was created in 1955.[16] The BAAQMD prepares air quality management plans (AQMPs) to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans (OAPs) for the National O_3 standard and clean air plans for the California O_3 standard. The BAAQMD prepares these AQMPs in coordination with the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). The most recent adopted comprehensive plan is the 2010 Bay Area Clean Air Plan, which was adopted on September 15, 2010, and incorporates significant new scientific data, primarily in the form of updated

[16] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools.

1.1.3.1 BAAQMD 2010 BAY AREA CLEAN AIR PLAN

The purpose of the 2010 Bay Area Clean Air Plan is to: 1) update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement all feasible measures to reduce O_3; 2) consider the impacts of O_3 control measures on PM, TAC, and greenhouse gases (GHGs) in a single, integrated plan; 3) review progress in improving air quality in recent years; and 4) establish emission control measures in the 2009 to 2012 timeframe. The 2010 Bay Area Clean Air Plan also provides the framework for SFBAAB to achieve attainment of the California AAQS. Areas that meet AAQS are classified attainment areas, and areas that do not meet these standards are classified nonattainment areas. Severity classifications for O_3 range from marginal, moderate, and serious to severe and extreme. The attainment status for the SFBAAB is shown in Table 2. The SFBAAB is currently designated a nonattainment area for California and National O_3, California and National $PM_{2.5}$, and California PM_{10} AAQS.

1.1.3.2 BAAQMD'S COMMUNITY AIR RISK EVALUATION PROGRAM (CARE)

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor TACs in the Bay Area. Based on findings of the latest report, DPM was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed 4 percent of the cancer risk-weighted emissions, and benzene contributed 3 percent. Collectively, five compounds—DPM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk–weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015 when the inventory accounted for CARB's diesel regulations. Overall, cancer risk from TACs dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for State diesel regulations and other reductions.[17]

Modeled cancer risks from TAC in 2005 were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. The highest modeled risks were found east of San Francisco, near West Oakland, and the Maritime Port of Oakland. BAAQMD has identified seven impacted communities in the Bay Area:

1. Western Contra Costa County and the cities of Richmond and San Pablo
2. Western Alameda County along the Interstate 880 (I-880) corridor and the cities of Berkeley, Alameda, Oakland, and Hayward
3. San Jose

[17] Bay Area Air Quality Management District (BAAQMD), 2014. Improving Air Quality & Health in Bay Area Communities, Community Air Risk Program (CARE) Retrospective and Path Forward (2004–2013), April.

4. Eastern side of San Francisco

5. Concord

6. Vallejo

7. Pittsburgh and Antioch

The Project site is within the Town of Colma, which is not within or proximate to any of the seven CARE program impacted communities in the Bay Area.

The major contributor to acute and chronic non-cancer health effects in the air basin is acrolein (C_3H_4O). Major sources of acrolein are on-road mobile sources and aircraft near freeways and commercial and military airports.[18] Currently CARB does not have certified emission factors or an analytical test method for acrolein. Since the appropriate tools needed to implement and enforce acrolein emission limits are not available, the BAAQMD does not conduct health risk screening analysis for acrolein emissions.[19]

1.1.3.3 REGULATION 7, ODOROUS SUBSTANCES

Sources of objectionable odors may occur within the Town. BAAQMD's Regulation 7, Odorous Substances, places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that "no person shall 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 the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property." Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance.

1.1.3.4 OTHER BAAQMD REGULATIONS

In addition to the plans and programs described above, BAAQMD administers a number of specific regulations on various sources of pollutant emissions that would apply to individual development projects allowed under the proposed General Plan, including:

- BAAQMD, Regulation 2, Rule 2, New Source Review
- BAAQMD, Regulation 2, Rule 5, New Source Review of Toxic Air Contaminants
- BAAQMD Regulation 6, Rule 1, General Requirements
- BAAQMD Regulation 6, Rule 2, Commercial Cooking Equipment
- BAAQMD Regulation 8, Rule 3, Architectural Coatings

[18] Bay Area Air Quality Management District (BAAQMD), 2006. Community Air Risk Evaluation Program, Phase I Findings and Policy Recommendations Related to Toxic Air Contaminants in the San Francisco Bay Area.

[19] Bay Area Air Quality Management District (BAAQMD), 2010. Air Toxics NSR Program, Health Risk Screening Analysis Guidelines.

- BAAQMD Regulation 8, Rule 4, General Solvent and Surface Coatings Operations
- BAAQMD Regulation 8, Rule 7, Gasoline Dispensing Facilities
- BAAQMD Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing)

1.1.3.5 CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY (C/CAG)

The City/County Association of Governments of San Mateo County (C/CAG) is the congestion management agency (CMA) for San Mateo County. C/CAG is tasked with developing a comprehensive transportation improvement program among local jurisdictions that will reduce traffic congestion and improve land use decision-making and air quality. C/CAG's latest congestion management program (CMP) is the *2013 Congestion Management Program for San Mateo County*. C/CAG's countywide transportation model must be consistent with the regional transportation model developed by the Metropolitan Transportation Commission (MTC) with the Association of Bay Area Governments (ABAG) data. The countywide transportation model is used to help evaluate cumulative transportation impacts of local land use decisions on the CMP system. In addition, C/CAG's updated CMP includes programs and policies regarding transportation systems management (TSM) and transportation demand management (TDM), which address efforts to increase efficiency of the existing system and encourage utilization of alternative modes of transportation consistent with the goals of reducing regional Vehicle Miles Traveled (VMT) in accordance with Senate Bill 375 (SB 375). Strategies identified in the 2013 CMP for San Mateo County, where local jurisdictions are a responsible agency, include:[20]

- **CMP Roadway System**: Specify a system of highways and roadways for which traffic level of service (LOS) standards shall be established and monitored.
- **Traffic Level of Service (LOS) Standards**: Establish LOS standards to describe a roadway's operating condition for the roadways and intersections designated to be in the CMP Roadway System.
- **Performance Element**: Identify measures that, either individually or taken as a group, evaluate how the countywide transportation system (including all modes) is performing, and to present the results of the evaluation.
- **Trip Reduction and Travel Demand Element**: Describe San Mateo County's ongoing efforts to reduce congestion and attain the Traffic LOS Standards through a variety of actions.
- **Land Use Impact Analysis Program**: Determine the impacts of land use decisions upon regional transportation routes and air quality.
- **Deficiency Plan Guidelines**: Guidelines for local jurisdictions (cities and the County) to remain in conformance with the CMP when the LOS for a CMP roadway segment or intersection deteriorates below the established standard.

[20] City/County Association of Governments of San Mateo County (C/CAG), 2013. *Congestion Management Program for San Mateo County*. http://ccag.ca.gov/wp-content/uploads/2014/05/2013-CMP_Final-Nov13.pdf, November.

- **Seven-Year Capital Improvement Program**: To maintain or improve the traffic LOS standards and to mitigate impacts to the regional transportation system of land use decisions made by local jurisdictions (cities and the County).
- **Data Base and Travel Model**: Develop a uniform data base to support a countywide transportation computer model that can be used to project traffic impacts associated with proposed land developments.
- **Monitoring and Updating the CMP**: Establish monitoring programs to determine local government conformance with the San Mateo County CMP and ensure all elements of the CMP be monitored on at least a biennial basis by the designated CMA.
- **Vehicle Registration Fee Program**: Impose an annual fee on motor vehicles registered in San Mateo County for transportation-related congestion mitigation and pollution mitigation programs and projects.
- **Traffic Impact Analysis Policy**: Provide uniform procedures to analyze traffic impacts on the CMP network from projects and cumulative traffic impacts on the CMP network from General Plans and Specific Area Plans, and to set thresholds for mitigations.

1.2 ENVIRONMENTAL SETTING

1.2.1 San Francisco Bay Area Air Basin

The BAAQMD is the regional air quality agency for the SFBAAB, which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties; the southern portion of Sonoma County; and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions.[21]

1.2.1.1 METEOROLOGY

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits, resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the California coast.

[21] This section describing the air basin is from Bay Area Air Quality Management District, 2010 (Revised 2011), Appendix C: Sample Air Quality Setting, in *California Environmental Quality Act Air Quality Guidelines*.

The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band, resulting in condensation and the presence of fog and stratus clouds along the Northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

1.2.1.2 WIND PATTERNS

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills.

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate, or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3:00 p.m. to 4:00 p.m.), compared with only 7 knots at San Jose and less than 6 knots at the Farallon Islands.

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result.

In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB.

1.2.1.3 TEMPERATURE

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold water from the ocean bottom along the coast. On summer afternoons the temperatures at the coast can be 35 degrees Fahrenheit (ºF) cooler than temperatures 15 to 20 miles inland. At night this contrast usually decreases to less than 10ºF.

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large.

1.2.1.4 PRECIPITATION

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains (November through March) account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another, even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys.

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing (an upward and downward movement of air) are usually high, and thus pollution levels tend to be low (i.e. air pollutants are dispersed more readily into the atmosphere rather than accumulate under stagnant conditions). However, during the winter, frequent dry periods do occur, when mixing and ventilation are low and pollutant levels build up.

1.2.1.5 WIND CIRCULATION

Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commuter traffic (early morning) and wood-burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants up-valley during the day, and cold air drainage flows move the air mass down-valley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels.

1.2.1.6 INVERSIONS

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e. the vertical depth in the atmosphere available for diluting air contaminants near the ground. There are two types of inversions that occur regularly in the SFBAAB. Elevation inversions are more common in the summer and fall, and radiation inversions are more common during the winter. The highest air pollutant concentrations in the SFBAAB generally occur during inversions.

1.2.2 Existing Ambient Air Quality

1.2.2.1 ATTAINMENT STATUS OF THE SFBAAB

Areas that meet AAQS are classified attainment areas, and areas that do not meet these standards are classified nonattainment areas. Severity classifications for O_3 range from marginal, moderate, and serious to severe and extreme. The attainment status for the air basin is shown in Table 2. The air basin is currently designated a nonattainment area for California and National O_3, California and National $PM_{2.5}$, and California PM_{10} AAQS.

Table 2 Attainment Status of Criteria Pollutants in the San Francisco Bay Area Air Basin

Pollutant	State	Federal
Ozone – 1-hour	Nonattainment	Nonattainment
Ozone – 8-hour	Nonattainment (serious)	Classification revoked (2005)

Table 2 Attainment Status of Criteria Pollutants in the San Francisco Bay Area Air Basin

Pollutant	State	Federal
PM_{10}	Nonattainment	Unclassified/Attainment
$PM_{2.5}$	Nonattainment	Nonattainment[a]
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	Attainment	Unclassified/Attainment
All others	Unclassified/Attainment	Unclassified/Attainment

Source: California Air Resources Board, 2014, Area Designations: Activities and Maps, http://www.arb.ca.gov/desig/adm/adm.htm, June 4.

[a] On January 9, 2013, the EPA issued a final rule to determine that the SFBAAB has attained the 24-hour $PM_{2.5}$ National AAQ This action suspends federal State Implementation Plan planning requirements for the Bay Area. The SFBAAB will continue to be designated nonattainment for the National 24-hour $PM_{2.5}$ standard until BAAQMD elects to submit a redesignation request and a maintenance plan to EPA and EPA approves the proposed redesignation.

1.2.2.2 EXISTING AMBIENT AIR QUALITY

Existing levels of ambient air quality and historical trends and projections in the vicinity of the Project site are best documented by measurements made by the BAAQMD. The air quality monitoring station closest to the Project site is the San Francisco – Arkansas Street Monitoring Station. The most current five years of data monitored at these monitoring stations are included in Table 3. The NO_2, State PM_{10}, and federal $PM_{2.5}$ standards have been exceeded occasionally in the last five years. The O_3 and CO standards have not been exceeded in the last five years.

Table 3 Ambient Air Quality Monitoring Summary

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2010	2011	2012	2013	2014
Ozone (O_3)[a]					
State 1-Hour ≥ 0.09 ppm	0	0	0	0	0
State 8-hour ≥ 0.07 ppm	0	0	0	0	0
Federal 8-Hour > 0.075 ppm	0	0	0	0	0
Maximum 1-Hour Conc. (ppm)	0.079	0.070	0.069	0.069	0.079
Maximum 8-Hour Conc. (ppm)	0.051	0.054	0.049	0.060	0.069
Carbon Monoxide (CO)[a]					
State 8-Hour > 9.0 ppm	0	0	0	*	*
Federal 8-Hour ≥ 9.0 ppm	0	0	0	*	*
Maximum 8-Hour Conc. (ppm)	1.37	1.20	1.19	*	*
Nitrogen Dioxide (NO_2)[a]					
State 1-Hour ≥ 0.18 ppm	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm	0	0	1	0	0
Maximum 1-Hour Conc. (ppb)	92.9	93.3	124.0	72.6	83.7
Coarse Particulates (PM_{10})[a]					
State 24-Hour > 50 µg/m^3	0	0	1	0	0
Federal 24-Hour > 150 µg/m^3	0	0	0	0	0
Maximum 24-Hour Conc. (µg/^{m3})	39.7	45.6	50.6	44.3	35.9
Fine Particulates ($PM_{2.5}$)[a]					
Federal 24-Hour > 35 µg/m^3	3	2	1	2	0
Maximum 24-Hour Conc. (µg/m^3)	45.3	47.5	35.7	48.5	33.2

Source: California Air Resources Board, 2015, Air Pollution Data Monitoring Cards (2010, 2011, 2012, 2013, and 2014), Accessed October 1, 2015, http://www.arb.ca.gov/adam/index.html.
Notes: ppm: parts per million; ppb: parts per billion; µg/m^3: or micrograms per cubic meter
* = insufficient data
[a] Data from the San Francisco – Arkansas Street Monitoring Station.

1.2.2.3 EXISTING EMISSIONS

The Project site is currently developed with 3 buildings that have been used for auto service related uses, which generates criteria air pollutants emissions from vehicle trips, energy use (e.g., heating and cooling), and other area sources on-site (e.g., landscape fuel use, aerosols, and architectural coatings).

1.2.3 Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases. Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Other sensitive receptors include retirement facilities, hospitals, and schools. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial, commercial, retail, and office areas are considered the least sensitive to air

pollution. Exposure periods are relatively short and intermittent, since the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the population.

The closest sensitive receptors proximate to the Project site are the residences to the northwest.

1.3 METHODOLOGY

The BAAQMD "CEQA Air Quality Guidelines" were prepared to assist in the evaluation of air quality impacts of projects and plans proposed in the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines. In May 2011, the updated guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA.

Following the court's order, the BAAQMD released revised CEQA Air Quality Guidelines in May of 2012 that include guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and that set aside the significance thresholds. The BAAQMD recognizes that lead agencies may rely on the previously recommended thresholds of significance in its CEQA Guidelines adopted in 1999. The Alameda County Superior Court, in ordering BAAQMD to set aside the thresholds, did not address the merits of the science or evidence supporting the thresholds. The Town finds, therefore, that despite the Superior Court's ruling, and in light of the subsequent case history discussed below, the science and reasoning in the BAAQMD 2011 CEQA Air Quality Guidelines provide the latest state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the BAAQMD 2011 CEQA Air Quality Guidelines.

On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA Guidelines in *California Building Industry Association versus Bay Area Air Quality Management District*, Case Nos. A135335 and A136212 (Court of Appeal, First District, August 13, 2013). In addition to the Town's independent determination that use of the BAAQMD's CEQA Guidelines is supported by substantial evidence, they have been found to be valid guidelines by the Town for use in the CEQA environmental review process. On November 26, 2013, the California Supreme Court granted review on the issue of whether the toxic air contaminants thresholds are consistent with CEQA; specifically, whether CEQA requires analysis of exposing project residents or users to existing environmental hazards. Briefing was completed on May 27, 2014, but the hearing has not yet been set.

Although the outcome of this case presents uncertainty for current project applicants and local agencies regarding proper evaluation of toxic air contaminants in CEQA documents as the Air Districts cannot support the use of these guidelines, local agencies still have a duty to evaluate impacts related to air quality and greenhouse gas emissions. In addition, CEQA grants local agencies broad discretion to develop their own thresholds of significance or to rely on thresholds previously adopted or recommended by other public agencies or experts so long as they are supported by substantial evidence. Accordingly, the Town of Colma is using the BAAQMD's 2011 thresholds to evaluate Project impacts in order to protectively evaluate the potential effects of the Project on air quality and greenhouse gas emissions.

1.3.1 Criteria Air Pollutant Emissions

The proposed Project qualifies as a project-level project under BAAQMD's criteria. For project-level analyses, BAAQMD has adopted screening criteria and significance criteria that would be applicable to the proposed Project. If a project exceeds the screening level, it would be required to conduct a full analysis using BAAQMD's significance criteria.

Regional Significance Criteria

BAAQMD's criteria for regional significance for projects that exceed the screening thresholds are shown in Table 4. Criteria for both construction and operational phases of the Project are shown.

Table 4 BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds

	Construction Phase	Operational Phase	
Pollutant	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (Tons/year)
ROG	54	54	10
NO_x	54	54	10
PM10	82 (Exhaust)	82	15
PM2.5	54 (Exhaust)	54	10
PM10 and PM2.5 Fugitive Dust	Best Management Practices	None	None

Source: Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

Local CO Hotspots

Congested intersections have the potential to create elevated concentrations of CO, referred to as CO hotspots. The significance criteria for CO hotspots are based on the California AAQS for CO, which is 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). However, with the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in attainment of the California and National AAQS, and CO concentrations in the SFBAAB have steadily declined. Because CO concentrations have improved, BAAQMD does not require a CO hotspot analysis if the following criteria are met:

- Project is consistent with an applicable congestion management program established by the County Congestion Management Agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.

- The Project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

- The Project traffic would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g. tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).[22]

Odors

BAAQMD's thresholds for odors are qualitative based on BAAQMD's Regulation 7, Odorous Substances. This rule places general limitations on odorous substances and specific emission limitations on certain odorous compounds. In addition, odors are also regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that no person shall 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 the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property. Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30 day period can be declared a public nuisance. BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants.[23]

1.3.2 Community Risk and Hazards

The BAAQMD's significance thresholds for local community risk and hazard impacts apply to both the siting of a new source and to the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level.

For assessing community risk and hazards, sources within a 1,000-foot radius are considered. Sources are defined as freeways, high volume roadways (with volume of 10,000 vehicles or more per day or 1,000 trucks per day), and permitted sources.[24,25]

The proposed Project would generate TACs and $PM_{2.5}$ during construction activities that could elevate concentrations of air pollutants at the surrounding residential receptors. The BAAQMD has adopted

[22] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

[23] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). *California Environmental Quality Act Air Quality Guidelines*.

[24] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.

[25] Bay Area Air Quality Management District, 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards.

screening tables for air toxics evaluation during construction.[26] Construction-related TAC and $PM_{2.5}$ impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors, as applicable.[27]

The thresholds identified below are applied to the proposed Project:

Community Risk and Hazards – Project

Project-level construction emissions of TACs or $PM_{2.5}$ from the proposed Project to individual sensitive receptors within 1,000 feet of the Project site that exceed any of the thresholds listed below are considered a potentially significant community health risk:

- Non-compliance with a qualified Community Risk Reduction Plan;
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e. chronic or acute) hazard index greater than 1.0 would be a significant cumulatively considerable contribution;
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from a single source would be a significant, cumulatively considerable contribution.[28]

Community Risk and Hazards – Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone.

A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the Project, exceeds the following:

- Non-compliance with a qualified Community Risk Reduction Plan; or
- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.[29]

Current BAAQMD guidance recommends the determination of cancer risks using the Office of Environmental Health Hazard Assessment's (OEHHA) methodology, which was originally adopted in 2003.[30,31] In February 2015, OEHHA adopted new health risk assessment guidance which includes several

[26] Bay Area Air Quality Management District, 2010, Screening Tables for Air Toxics Evaluations during Construction.
[27] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[28] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[29] Bay Area Air Quality Management District (BAAQMD), 2010 (Revised 2011). California Environmental Quality Act Air Quality Guidelines, Appendix D: Threshold of Significance Justification.
[30] Bay Area Air Quality Management District, 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards.

efforts to be more protective of children's health. These updated procedures include the use of age sensitivity factors to account for the higher sensitivity of infants and young children to cancer causing chemicals, and age-specific breathing rates.[32] However, BAAQMD has not formally adopted the new OEHHA methodology into their CEQA guidance. To be conservative, the cancer risks associated with project implementation and significance conclusions were determined using the new 2015 OEHHA guidance for risk assessments. The cancer risks determined using BAAQMD's adopted 2003 OEHHA guidance are included for informational purposes and comparison.

The proposed Project does not introduce new sensitive receptors; therefore, there would be no on-site operation community risk and hazards.

[31] Office of Environmental Health Hazard Assessment (OEHHA), 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.
[32] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.

2. Greenhouse Gas Emissions

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor, carbon dioxide (CO_2), methane (CH_4), and ozone (O_3)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons.[33,34,35] The major GHG are briefly described below.

- **Carbon dioxide (CO_2)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

- **Methane (CH_4)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.

- **Nitrous oxide (N_2O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global warming potential (GWP) gases.

    - ***Chlorofluorocarbons (CFCs)*** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere,

[33] Intergovernmental Panel on Climate Change, 2001. Third Assessment Report: Climate Change 2001, New York: Cambridge University Press.

[34] Water vapor (H2O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant because it is considered part of the feedback loop of changing radiative forcing rather than a primary cause of change.

[35] Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2014a). However, state and national GHG inventories do not include black carbon yet due to ongoing work related to resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- ***Hydrofluorocarbons (HFCs)*** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.

- ***Perfluorocarbons (PFCs)*** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF_4] and perfluoroethane [C_2F_6]) were introduced, along with HFCs, as alternatives to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.

- ***Sulfur Hexafluoride (SF_6)*** is a colorless gas, soluble in alcohol and ether and slightly soluble in water. SF_6 is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- ***Hydrochlorofluorocarbons (HCFCs)*** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs. [36,37]

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high global warming potential (GWP) gases. Table 5 lists the GHG and their relative GWP compared to CO_2. The GWP is used to convert GHGs to CO_2-equivalent (CO_2e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC's Second Assessment Report, GWP values for CH_4 are such that a project generating 10 metric tons (MT) of CH_4 would be equivalent to 210 MT of CO_2.

[36] United States Environmental Protection Agency, 2012. Greenhouse Gas Emissions, http://www.epa.gov/climatechange/ghgemissions/gases.html.

[37] Intergovernmental Panel on Climate Change, 2001. Third Assessment Report: Climate Change 2001, New York: Cambridge University Press.

Table 5 GHG Emissions and their Relative Global Warming Potential Compared to CO_2

GHGs	Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO_2[1]	Fourth Assessment Report Global Warming Potential Relative to CO_2[1]
Carbon Dioxide (CO_2)	50 to 200	1	1
Methane[2] (CH_4)	12 (±3)	21	25
Nitrous Oxide (N_2O)	120	310	298
Hydrofluorocarbons:			
HFC-23	264	11,700	14,800
HFC-32	5.6	650	675
HFC-125	32.6	2,800	3,500
HFC-134a	14.6	1,300	1,430
HFC-143a	48.3	3,800	4,470
HFC-152a	1.5	140	124
HFC-227ea	36.5	2,900	3,220
HFC-236fa	209	6,300	9,810
HFC-4310mee	17.1	1,300	1,030
Perfluoromethane: CF_4	50,000	6,500	7,390
Perfluoroethane: C_2F_6	10,000	9,200	12,200
Perfluorobutane: C_4F_{10}	2,600	7,000	8,860
Perfluoro-2-methylpentane: C_6F_{14}	3,200	7,400	9,300
Sulfur Hexafluoride (SF_6)	3,200	23,900	22,800

Source: Intergovernmental Panel on Climate Change, 2001, Third Assessment Report: Climate Change 2001, New York: Cambridge University Press; and Intergovernmental Panel on Climate Change, 2007, Fourth Assessment Report: Climate Change 2007, New York: Cambridge University Press.

Notes: The IPCC has published updated global warming potential (GWP) values in its Fifth Assessment Report (2013) that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. However, GWP values identified in the Second Assessment Report are still used by SCAQMD to maintain consistency in GHG emissions modeling. In addition, the 2008 Scoping Plan was based on the GWP values in the Second Assessment Report.

1 Based on 100-year time horizon of the GWP of the air pollutant relative to CO_2.

2 The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO_2 is not included.

2.1 CALIFORNIA'S GREENHOUSE GAS SOURCES AND RELATIVE CONTRIBUTION

California is the second largest emitter of GHG in the United States, only surpassed by Texas, and the tenth largest GHG emitter in the world.[38] However, California also has over 12 million more people than the State of Texas. Because of more stringent air emission regulations, in 2001 California ranked fourth lowest in carbon emissions per capita and fifth lowest among states in CO_2 emissions from fossil fuel consumption per unit of Gross State Product (total economic output of goods and services).[39]

CARB's latest update to the statewide GHG emissions inventory was conducted in 2012 for year 2009 emissions.[40] In 2009, California produced 457 million metric tons (MMT) of CO_2-equivalent (CO_2e) GHG

[38] California Energy Commission (CEC), 2005. Climate Change Emissions Estimates from Bemis, Gerry and Jennifer Allen, Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2002 Update, California Energy Commission Staff Paper CEC-600-2005-025, Sacramento, California, June.

[39] California Energy Commission (CEC), 2006. Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004, Report CEC-600-2006-013-SF, December.

[40] Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (AB 32) (2006).

emissions.[41] California's transportation sector is the single largest generator of GHG emissions, producing 37.9 percent of the State's total emissions. Electricity consumption is the second largest source, comprising 22.7 percent. Industrial activities are California's third largest source of GHG emissions, comprising 17.8 percent of the State's total emissions. Other major sectors of GHG emissions include commercial and residential, recycling and waste, high global warming potential GHGs, agriculture, and forestry. [42]

In 2015, the statewide GHG emissions inventory was updated for 2000 to 2013 emissions using the GWPs in IPCC's Fourth Assessment Report. Based on these GWPs, California produced 459 million metric tons (MMT) CO_2e GHG emissions in 2013. California's transportation sector remains the single largest generator of GHG emissions, producing 36.8 percent of the State's total emissions. Electricity consumption made up 19.7 percent, and industrial activities produced 20.2 percent. Other major sectors of GHG emissions include commercial and residential, recycling and waste, high global warming potential GHGs, and agriculture.[43]

2.2 HUMAN INFLUENCE ON CLIMATE CHANGE

For approximately 1,000 years before the Industrial Revolution, the amount of GHG in the atmosphere remained relatively constant. During the 20th century, however, scientists observed a rapid change in the climate and the quantity of climate change pollutants in the Earth's atmosphere that are attributable to human activities. The amount of CO_2 in the Earth's atmosphere has increased by more than 35 percent since preindustrial times, and the concentration of CO_2 in the atmosphere has increased at an average rate of 1.4 parts per million (ppm) per year since 1960, mainly due to combustion of fossil fuels and deforestation.[44] These recent changes in the quantity and concentration of climate change pollutants far exceed the extremes of the ice ages, and the global mean temperature is warming at a rate that cannot be explained by natural causes alone.[45] Human activities are directly altering the chemical composition of the atmosphere through the buildup of climate change pollutants.[46] In the past, gradual changes in the earth's temperature changed the distribution of species, availability of water, etc. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime.[47]

Like the variability in the projections of the expected increase in global surface temperatures, the environmental consequences of gradual changes in the Earth's temperature are also hard to predict. Projections of climate change depend heavily upon future human activity. Therefore, climate models are

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[41] CO_2-equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere.

[42] California Air Resources Board (CARB), 2012. California Greenhouse Gas Inventory for 2000–2009. By Category as Defined by the Scoping Plan. April.

[43] California Air Resources Board (CARB). 2015, April 24. California Greenhouse Gas Inventory for 2000–2013: By Category as Defined by the Scoping Plan.

[44] Intergovernmental Panel on Climate Change (IPCC), 2007. Fourth Assessment Report: Climate Change 2007, New York: Cambridge University Press.

[45] At the end of the last ice age, the concentration of CO_2 increased by around 100 ppm (parts per million) over about 8,000 years, or approximately 1.25 ppm per century. Since the start of the industrial revolution, the rate of increase has accelerated markedly. The rate of CO_2 accumulation currently stands at around 150 ppm/century—more than 200 times faster than the background rate for the past 15,000 years.

[46] California Climate Action Team (CAT), 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature, March.

[47] Intergovernmental Panel on Climate Change, 2007. *Fourth Assessment Report: Climate Change 2007,* New York: Cambridge University Press.

based on different emission scenarios that account for historic trends in emissions and on observations of the climate record that assess the human influence of the trend and projections for extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty. For example, there are varying degrees of certainty on the magnitude of the trends for:

- Warmer and fewer cold days and nights over most land areas;
- Warmer and more frequent hot days and nights over most land areas;
- An increase in frequency of warm spells/heat waves over most land areas;
- An increase in frequency of heavy precipitation events (or proportion of total rainfall from heavy falls) over most areas;
- Areas affected by drought increases;
- Intense tropical cyclone activity increases;
- Increased incidence of extreme high sea level (excluding tsunamis).

2.3 POTENTIAL CLIMATE CHANGE IMPACTS FOR CALIFORNIA

Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada. By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1–8.6°F, depending on emissions levels.[48]

In California and western North America, observations of the climate have shown: 1) a trend toward warmer winter and spring temperatures, 2) a smaller fraction of precipitation falling as snow, 3) a decrease in the amount of spring snow accumulation in the lower and middle elevation mountain zones, 4) an advance snowmelt of 5 to 30 days earlier in the springs, and 5) a similar shift (5 to 30 days earlier) in the timing of spring flower blooms.[49] According to the California Climate Action Team, even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 5), and the inertia of the Earth's climate system could produce as much as 0.6°C (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are shown in Table 6 and include public health impacts, water resources impacts, agricultural impacts, coastal sea level impacts, forest and biological resource impacts, and energy impacts.

[48] California Climate Change Center. 2012. Our Changing Climate 2012, Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. July

[49] California Climate Action Team (CAT), 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. March.

Table 6 Summary of GHG Emissions Risks to California

Impact Category	Potential Risk
Public Health Impacts	Heat waves will be more frequent, hotter, and longer Fewer extremely cold nights Poor air quality made worse Higher temperatures increase ground-level ozone levels
Water Resources Impacts	Decreasing Sierra Nevada snow pack Challenges in securing adequate water supply Potential reduction in hydropower Loss of winter recreation
Agricultural Impacts	Increasing temperature Increasing threats from pests and pathogens Expanded ranges of agricultural weeds Declining productivity Irregular blooms and harvests
Coastal Sea Level Impacts	Accelerated sea level rise Increasing coastal floods Shrinking beaches Worsened impacts on infrastructure
Forest and Biological Resource Impacts	Increased risk and severity of wildfires Lengthening of the wildfire season Movement of forest areas Conversion of forest to grassland Declining forest productivity Increasing threats from pest and pathogens Shifting vegetation and species distribution Altered timing of migration and mating habits Loss of sensitive or slow-moving species
Energy Demand Impacts	Potential reduction in hydropower Increased energy demand

Sources: California Energy Commission, 2006, Our Changing Climate: Assessing the Risks to California, 2006 Biennial Report, California Climate Change Center, CEC-500-2006-077; California Energy Commission, 2008, The Future Is Now: An Update on Climate Change Science, Impacts, and Response Options for California, CEC-500-2008-0077. California Climate Change Center. 2012. Our Changing Climate 2012, Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. July.

Specific climate change impacts that could affect the project include:

- ***Water Resources Impacts.*** By late-century, all projections show drying, and half of the projections suggest 30-year average precipitation will decline by more than 10 percent below the historical average. This drying trend is caused by an apparent decline in the frequency of rain and snowfall. Even in projections with relatively small or no declines in precipitation, central and southern parts of the State can be expected to be drier from the warming effects alone as the spring snowpack will melt sooner, and the moisture contained in soils will evaporate during long dry summer months.[50]

- ***Wildfire Risks***. Earlier snowmelt, higher temperatures and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. Human activities will

[50] California Climate Change Center. 2012. Our Changing Climate 2012, Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. July.

continue to be the biggest factor in ignition risk. The number of large fires statewide are estimated to increase from 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location.[51]

- ***Health Impacts.*** Many of the gravest threats to public health in California stem from the increase of extreme conditions, principally more frequent, more intense, and longer heat waves. Particular concern centers on the increasing tendency for multiple hot days in succession, and heat waves occurring simultaneously in several regions throughout the State. Public health could also be affected by climate change impacts on air quality, food production, the amount and quality of water supplies, energy pricing and availability, and the spread of infectious diseases. Higher temperatures also increase ground-level ozone levels. Furthermore, wildfires can increase particulate air pollution in the major air basins of California.[52]

- ***Increase Energy Demand.*** Increases in average temperature and higher frequency of extreme heat events combined with new residential development across the State will drive up the demand for cooling in the increasingly hot and longer summer season and decrease demand for heating in the cooler season. Warmer, drier summers also increase system losses at natural gas plants (reduced efficiency in the electricity generation process from higher temperatures) and hydropower plants (lower reservoir levels). Transmission of electricity will also be affected by climate change. Transmission lines lose 7 percent to 8 percent of transmitting capacity in high temperatures while needing to transport greater loads. This means that more electricity needs to be produced to make up for the loss in capacity and the growing demand.[53]

2.1 REGULATORY FRAMEWORK

2.1.1 Federal Laws

The U.S. Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements, but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.[54]

The EPA's endangerment finding covers emissions of six key GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world The first three are applicable to the proposed Project

[51] California Climate Change Center. 2012. Our Changing Climate 2012, Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. July.
[52] California Climate Change Center. 2012. Our Changing Climate 2012, Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. July.
[53] California Climate Change Center. 2012. Our Changing Climate 2012, Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. July.
[54] United States Environmental Protection Agency (EPA), 2009. EPA: Greenhouse Gases Threaten Public Health and the Environment, Science overwhelmingly shows greenhouse gas concentrations at unprecedented levels due to human activity, December, http://yosemite.epa.gov/opa/admpress.nsf/0/08D11A451131BCA585257685005BF252.

because they constitute the majority of GHG emissions from the onsite land uses, and per BAAQMD guidance are the GHG emissions that should be evaluated as part of a GHG emissions inventory.

2.1.1.1 US MANDATORY REPORTING RULE FOR GREENHOUSE GASES (2009)

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 metric tons (MT) or more of CO_2 per year are required to submit an annual report.

2.1.1.2 UPDATE TO CORPORATE AVERAGE FUEL ECONOMY STANDARDS (2010/2012)

The current Corporate Average Fuel Economy (CAFE) standards (for model years 2011 to 2016) incorporate stricter fuel economy requirements promulgated by the federal government and California into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon [mpg] by 2016). Rulemaking to adopt these new standards was completed in 2010. California agreed to allow automakers who show compliance with the national program to also be considered to be in compliance with State requirements. The federal government issued new standards in 2012 for model years 2017–2025, which will require a fleet average of 54.5 mpg in 2025.

2.1.1.3 EPA REGULATION OF STATIONARY SOURCES UNDER THE CLEAN AIR ACT (ONGOING)

Pursuant to its authority under the Clean Air Act (CAA), the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to the President's 2013 Climate Action Plan, the EPA will be directed to also develop regulations for existing stationary sources.

2.1.2 State Laws

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32 (AB 32), and Senate Bill 375 (SB 375).

2.1.2.1 EXECUTIVE ORDER S-3-05

Executive Order S-3-05, signed June 1, 2005, set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

2.1.2.2 EXECUTIVE ORDER B-30-15

Executive Order B-30-15, signed April 29, 2015, sets a goal of reducing GHG emissions within the State to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directs CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the State and requires state agencies to implement measures to meet the interim 2030 goal of Executive Order B-30-15 as well as the long-term goal for 2050 in Executive Order S-03-5. It also requires the Natural Resources Agency to conduct triennial updates the

California adaption strategy, Safeguarding California, in order to ensure climate change is accounted for in State planning and investment decisions.

2.1.2.3 ASSEMBLY BILL 32, THE GLOBAL WARMING SOLUTIONS ACT

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in Assembly Bill 32 (AB 32), the Global Warming Solutions Act. AB 32 was passed by the California State legislature on August 31, 2006, to place the State on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-3-05.

CARB 2008 Scoping Plan

The final Scoping Plan was adopted by CARB on December 11, 2008. AB 32 directed CARB to adopt discrete early action measures to reduce GHG emissions and outline additional reduction measures to meet the 2020 target. In order to effectively implement the emissions cap, AB 32 directed CARB to establish a mandatory reporting system to track and monitor GHG emissions levels for large stationary sources that generate more than 25,000 MT of CO_2e per year, prepare a plan demonstrating how the 2020 deadline can be met, and develop appropriate regulations and programs to implement the plan by 2012.

The 2008 Scoping Plan identified that GHG emissions in California are anticipated to be approximately 596 $MMTCO_2e$ in 2020. In December 2007, CARB approved a 2020 emissions limit of 427 $MMTCO_2e$ (471 million tons) for the state. The 2020 target requires a total emissions reduction of 169 $MMTCO_2e$, 28.5 percent from the projected emissions of the business-as-usual (BAU) scenario for the year 2020 (i.e., 28.5 percent of 596 $MMTCO_2e$). [55,56]

Since release of the 2008 Scoping Plan, CARB has updated the Statewide GHG emissions inventory to reflect GHG emissions in light of the economic downturn and of measures not previously considered in the 2008 Scoping Plan baseline inventory. The updated forecast predicts emissions to be 545 MMT CO_2e by 2020. The revised BAU 2020 forecast shows that the State would have to reduce GHG emissions by 21.7 percent from BAU. The new inventory also identifies that if the updated 2020 forecast includes the reductions assumed from implementation of Pavley (26 MMT CO_2e of reductions) and the 33 percent RPS (12 MMT CO_2e of reductions) the forecast would be 507 MMT CO_2e in 2020, and then an estimated 80 MMT CO_2e of additional reductions are necessary to achieve the statewide emissions reduction of AB 32 by 2020, or 15.7 percent of the projected emissions compared to BAU in year 2020 (i.e. 15.7 percent of 507 MMT CO_2e).[57]

Key elements of CARB's GHG reduction plan that may be applicable to the proposed Project include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards (adopted and cycle updates in progress);

[55] California Air Resources Board (CARB), 2008. *Climate Change Scoping Plan: A Framework for Change.*

[56] CARB defines 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.

[57] California Air Resources Board (CARB), 2012. *Status of Scoping Plan Recommended Measures.* http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf.

- Achieving a mix of 33 percent for energy generation from renewable sources (anticipated by 2020);

- A California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system for large stationary sources (adopted 2011);

- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets (several Sustainable Communities Strategies have been adopted);

- Adopting and implementing measures pursuant to State laws and policies, including California's clean car standards (amendments to the Pavley Standards adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (LCFS) (adopted 2009);

- Creating target fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation (in progress).

Table 7 shows the anticipated reductions from regulations and programs outlined in the 2008 Scoping Plan. Although local government operations were not accounted for in achieving the 2020 emissions reduction, CARB estimates that land use changes implemented by local governments that integrate jobs, housing, and services result in a reduction of 5 $MMTCO_2e$, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments play in the successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2014 levels by 2020 to ensure that municipal and community-wide emissions match the State's reduction target.[58] Measures that local governments take to support shifts in land use patterns are anticipated to emphasize compact, low-impact growth over development in greenfields, resulting in fewer VMT.[59]

[58] The Scoping Plan references a goal for local governments to reduce community GHG emissions by 15 percent from current (interpreted as 2008) levels by 2020, but it does not rely on local GHG reduction targets established by local governments to meet the State's GHG reduction target of AB 32.

[59] California Air Resources Board (CARB), 2008. *Climate Change Scoping Plan: A Framework for Change.*

Table 7 Scoping Plan GHG Reduction Measures and Reductions toward 2020 Target

Recommended Reduction Measures	Reductions Counted toward 2020 Target of 169 MMT CO2e	Percentage of Statewide 2020 Target
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets[a]	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	**146.7**	**87%**
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%
Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	**27.3**	**16%**
Total Reductions Counted toward 2020 Target	**174**	**100%**
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations[b]	To Be Determined	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	**42.8**	**NA**

Source: California Air Resources Board, 2008, Climate Change Scoping Plan: A Framework for Change.

Notes: The percentages in the right-hand column add up to more than 100 percent because the emissions reduction goal is 169 $MMTCO_2e$ and the Scoping Plan identifies 174 $MTCO_2e$ of emissions reductions strategies.

$MMTCO_{2e}$: million metric tons of CO_2e

[a] Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.

[b] According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO_{2e} (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 target.

First Update to the Scoping Plan

CARB recently completed a five-year update to the 2008 Scoping Plan, as required by AB 32. The final update to the Scoping Plan was released in May, and CARB adopted it at the May 22, 2014, board hearing. The update to the Scoping Plan defines CARB's climate change priorities for the next five years and lays the groundwork to reach post-2020 goals in Executive Orders S-3-05 and B-16-2012. The update includes the latest scientific findings related to climate change and its impacts, including short-lived climate pollutants. The GHG target identified in the 2008 Scoping Plan is based on IPCC's GWPs identified in the Second and Third

Assessment Reports (see Table 5). IPCC's Fourth and Fifth Assessment Reports identified more recent GWP values based on the latest available science. CARB recalculated the 1990 GHG emission levels with the updated GWPs in the Fourth Assessment Report, and the 427 $MMTCO_2e$ 1990 emissions level and 2020 GHG emissions limit, established in response to AB 32, is slightly higher, at 431 $MMTCO_2$.[60]

In the First Update to the Scoping Plan, CARB projects that statewide BAU emissions in 2020 would be approximately 509 million $MTCO_2e$.[61] Therefore, to achieve the AB 32 target of 431 million $MTCO_2e$ (i.e. 1990 emissions levels) by 2020, the State would need to reduce emissions by 78 million $MTCO_2e$ compared to BAU conditions, a reduction of 15.3 percent from BAU in 2020.[62, 63]

The update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals defined in the original 2008 Scoping Plan. As identified in the update to the Scoping Plan, California is on track to meeting the goals of AB 32. However, the update to the Scoping Plan also addresses the State's longer-term GHG goals within a post-2020 element. The post-2020 element provides a high level view of a long-term strategy for meeting the 2050 GHG goals, including a recommendation for the State to adopt a mid-term target. According to the update to the Scoping Plan, local government reduction targets should chart a reduction trajectory that is consistent with, or exceeds, the trajectory created by statewide goals. [64]

According to the update to the Scoping Plan, reducing emissions to 80 percent below 1990 levels will require a fundamental shift to efficient, clean energy in every sector of the economy. Progressing toward California's 2050 climate targets will require significant acceleration of GHG reduction rates. Emissions from 2020 to 2050 will have to decline several times faster than the rate needed to reach the 2020 emissions limit.[65]

Second Update to the Scoping Plan

The new Executive Order B-30-15 requires CARB to prepare another update to the Scoping Plan to address the 2030 target for the State. It is anticipated the Scoping Plan will be updated within the next five years to address the new 2030 interim target to achieve a 40 percent reduction below 1990 levels by 2030.

2.1.2.4 SENATE BILL 375

SB 375, the Sustainable Communities and Climate Protection Act, was adopted in 2005 to connect the Scoping Plan's GHG emissions reductions targets for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans,

[60] California Air Resources Board (CARB), 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006, http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

[61] The BAU forecast includes GHG reductions from Pavley and the 33% Renewable Portfolio Standard (RPS).

[62] California Air Resources Board (CARB). 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

[63] If the GHG emissions reductions from Pavley I and the Renewable Electricity Standard are accounted for as part of the BAU scenario (30 million $MTCO_2e$ total), then the State would need to reduce emissions by 108 million $MTCO_2e$, which is a 20-percent reduction from BAU.

[64] California Air Resources Board (CARB), 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006, http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

[65] California Air Resources Board (CARB), 2014, May 15. First Update to the Climate Change Scoping Plan: Building on the Framework, Pursuant to AB 32, The California Global Warming Solutions Act of 2006, http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the 17 regions in California managed by a metropolitan planning organization (MPO). The Metropolitan Transportation Commission (MTC) is the MPO for the nine-county San Francisco Bay Area region. MTC's targets are a 7 percent per capita reduction in GHG emissions from 2005 by 2020, and 15 percent per capita reduction from 2005 levels by 2035.[66]

Plan Bay Area, Strategy for a Sustainable Region

Plan Bay Area is the Bay Area's Regional Transportation Plan (RTP)/Sustainable Community Strategy (SCS). The Plan Bay Area was adopted jointly by ABAG and MTC July 18, 2013.[67] The SCS lays out a development scenario for the region, which, when integrated with the transportation network and other transportation measures and policies, would reduce GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by CARB. According to Plan Bay Area, the Plan meets a 16 percent per capita reduction of GHG emissions by 2035 and a 10 percent per capita reduction by 2020 from 2005 conditions.

As part of the implementing framework for Plan Bay Area, local governments have identified Priority Development Areas (PDAs) to focus growth. PDAs are transit-oriented, infill development opportunity areas in existing communities. Overall, well over two-thirds of all regional growth in the Bay Area by 2040 is allocated in PDAs. PDAs are expected to accommodate 80 percent (or over 525,570 units) of new housing and 66 percent (or 744,230) of new jobs in the region.[68] Plan Bay Area includes the following PDA that include the Town of Colma:

- **El Camino Corridor –** This multi-city PDA encompasses a quarter-mile buffer along El Camino Real (State Highway 82) through San Mateo County, including the cities of Menlo Park, Redwood City, San Carlos, Belmont, San Mateo, Burlingame, Millbrae, San Bruno, South San Francisco, Colma, Daly City, and neighborhoods in unincorporated San Mateo County. El Camino Real crosses through and connects areas around the downtowns and commercial streets in Menlo Park, Redwood City, San Mateo, Millbrae, San Bruno, and Daly City. Through narrow, the total area covers approximately ten square miles.

  The El Camino Corridor will be transformed into denser, mixed-use neighborhoods, where new residents will reinvigorate the commercial areas and civic spaces can replace parking lots. BART and Caltrain stations are within walking distance from El Camino Real and the San Mateo County Transit District (SamTrans) provides bus service along the corridor San Francisco to Menlo Park. Each city will have a bicycle- and pedestrian-friendly connection between mixed-use communities with shopping centers and downtowns while maintaining the elements that give each area its sense of place. New homes and retail along the corridor will be able to use Caltrain and bus transit service, which in turn, will also justify increased frequency. The new streetscape and retail will encourage walking.

[66] California Air Resources Board (CARB), 2010. Staff Report, Proposed Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375, August.

[67] It should be noted that the Bay Area Citizens filed a lawsuit on MTC's and ABAG's adoption of Plan Bay Area.

[68] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. Plan Bay Area: Strategy for a Sustainable Region, July 18.

With denser housing, retail, and a more inviting streetscape, the highway corridor will become a series of neighborhoods, or a "grand boulevard of meaningful destinations." A re –design of El Camino Real to a walkable urban boulevard will make this possible.[69,70]

2.1.2.5 ASSEMBLY BILL 1493

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model year 2017 through 2025 light-duty vehicles.[71] In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.[72]

2.1.2.6 EXECUTIVE ORDER S-1-07

On January 18, 2007, the State set a new Low Carbon Fuel Standard (LCFS) for transportation fuels sold in California. Executive Order S-1-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The LCFS requires a reduction of 2.5 percent in the carbon intensity of California's transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The LCFS applies to refiners, blenders, producers, and importers of transportation fuels and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the "fuel cycle," using the most economically feasible methods.

2.1.2.7 EXECUTIVE ORDER B-16-2012

On March 23, 2012, the State identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate zero-emissions vehicles in major metropolitan areas, including infrastructure to support them (e.g. electric vehicle charging stations). The

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[69] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. *Plan Bay Area,* http://geocommons.com/maps/141979.

[70] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2012. *Visions for Priority Development Areas Jobs-Housing Connection Strategy,* May. http://onebayarea.org/file10010.html.

[71] See also the discussion on the update to the CAFE standards under federal laws, above. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

[72] See also the discussion on the update to the CAFE standards under Federal Laws, above. In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards. Under California's Advanced Clean Car program, by 2025, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

executive order also directs the number of zero-emission vehicles in California's State vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are zero-emission by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions from the transportation sector 80 percent below 1990 levels.

2.1.2.8 SENATE BILLS 1078 AND 107 AND EXECUTIVE ORDER S-14-08

A major component of California's Renewable Energy Program is the renewable portfolio standard (RPS) established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08 was signed in November 2008, which expanded the State's Renewable Energy Standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SBX1-2). The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

2.1.2.9 SENATE BILL 350

Senate Bill 350 (de Leon), was signed into law September 2015. SB 350 establishes tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

2.1.2.10 CALIFORNIA BUILDING STANDARDS CODE

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2013 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On May 31, 2012, the CEC adopted the 2013 Building and Energy Efficiency Standards, which went into effect on July 1, 2014. Buildings that are constructed in accordance with the 2013 Building and Energy Efficiency Standards are 25 percent (residential) to 30 percent (nonresidential) more energy efficient than the 2008 standards as a result of better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

Most recently, the CEC adopted the 2016 Building and Energy Efficiency Standards. The 2016 Standards will continue to improve upon the current 2013 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. These standards will go into effect on January 1, 2017. Under the 2016 Standards, residential buildings are 28 percent more energy efficient than the 2013 Standards while non-residential buildings are 5 percent more energy efficient than the 2013 Standards.[73]

The 2016 standards will not get us to zero net energy (ZNE). However, they do get us very close to the State's goal and make important steps toward changing residential building practices in California. The 2019

[73] California Energy Commission (CEC). 2015, June 10. 2016 Building Energy Efficiency Standards, Adoption Hearing Presentation. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents.

standards will take the final step to achieve ZNE for newly constructed residential buildings throughout California. [74]

2.1.2.11 CALIFORNIA GREEN BUILDING STANDARDS CODE – CALGREEN

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11, Title 24, known as "CALGreen") was adopted as part of the California Building Standards Code (Title 24, CCR). CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.[75] The mandatory provisions of the California Green Building Code Standards became effective January 1, 2011, was updated in 2013, and became effective January 1, 2014.

2.1.2.12 2006 APPLIANCE ENERGY EFFICIENCY REGULATIONS

The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the California Energy Commission on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

2.1.2.13 SOLID WASTE REGULATIONS

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code 40050 et seq.) set a requirement for cities and counties throughout the State to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses.

The California Solid Waste Reuse and Recycling Access Act (AB 1327, California Public Resources Code Sections 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

[74] California Energy Commission (CEC). 2015. 2016 Building Energy and Efficiency Standards Frequently Asked Questions. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.

[75] The green building standards became mandatory in the 2010 edition of the code.

Section 5.408 of the 2013 California Green Building Standards Code (Title 24, California Code of Regulations, Part 11) also requires that at least 50 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

2.1.2.14 WATER EFFICIENCY REGULATIONS

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed "SBX7-7." SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 requires urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the Energy Commission, in consultation with the department, to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

2.1.3 Local Regulations

2.1.3.1 TOWN OF COLMA CLIMATE ACTION PLAN

The Town of Colma adopted a Climate Action Plan (CAP) on May 8, 2013 to achieve the GHG reduction targets of AB 32 for target year 2020. The CAP serves as a guiding document to identify measures and strategies that the Town can implement to reduce GHGs. As such, the CAP outlines measures to ensure that new developments and renovation projects are oriented towards public transit, fuel-efficient vehicles, bicycling, and walking. The CAP also includes measures that promote green building practices, waste reduction, and recycling,[76] The measures established by the Town's CAP are the following:

- Energy Efficiency, Water Conservation and Green Building
    - Implement Residential Energy and Water Efficiency Program
    - Implement Commercial Energy and Water Efficiency Program
    - Replace 80% of commercial parking lot lighting with energy efficient lighting
    - Participate in Bay Area Green Business Program
    - Develop and implement a Green Building Ordinance
- Planning and Land Use/Increased Opportunities for Alternative Transportation

[76] Town of Colma, 2013, Climate Action Plan (CAP). May.

- Implement mandatory Smart Growth development policies
- Increase bicycle lanes and implement mandatory policies to include walkability and bicycling in new projects and renovations
- Implement policies from *San Mateo County Sustainable Green Streets and Parking Lot Design Guidebook*
- Promote mandatory Transportation Demand Management (TDM) strategies to new businesses with more than 50 employees
- Promote TDM strategies for existing businesses with more than 50 employees
- Implement parking policies for new developments and renovation projects that require prioritized parking for low carbon fuel vehicles and bicycle parking and unbundle parking from property costs
- Update the General Plan to be consistent with the CAP
- Implement new planning review requirement for new and redeveloped commercial projects to include preferred parking

- Recycling and Waste Reduction
  - Increase recycling and waste diversion to meet recycling diversion rate of 80%
  - Implement single use bag ban and polystyrene ban
- Municipal Program
  - Develop and implement a Town Sustainability Policy
  - Promote commute alternatives for Town employees and the public
  - Replace 100% street, signal, park and parking lot lighting with energy efficient lighting
  - Adopt Green Building Ordinance for new Town-sponsored projects and major renovations
  - Complete a solar installation feasibility study of Town properties and consider participating in regional joint purchase program for solar where feasible and cost-effective
  - Expand tree planting on public properties and use native and drought tolerant tree/plantings
  - Establish method to integrate CAP measures into Town projects and day-to-day decisions
  - Research methods to reduce methane released from closed landfills and collaborate with landfill owners where feasible
- Solar and Renewable Energy Installations

- Promote solar/renewable energy installations for commercial and residential
- Adopt a Commercial Energy Efficiency Ordinance

2.2 ENVIRONMENTAL SETTING

2.2.1 Existing Emissions

The Project site is currently developed with three buildings. Two of the buildings are vacant while the third building currently operates as an auto collision repair shop, which generates GHG emissions from vehicle trips, energy use (indirectly from purchased electricity use and directly through fuel consumed for building heating), area sources (e.g., equipment used on-site, consumer products, coatings), water/wastewater generation, and waste disposal.

2.3 METHODOLOGY

The BAAQMD CEQA Air Quality Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and GHG emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the CEQA Guidelines.[77]

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD CEQA Air Quality Guidelines. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA.

Following the court's order, the BAAQMD released revised CEOA Air Quality Guidelines in May of 2012 that include guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and set aside the significance thresholds. The BAAQMD recognizes that lead agencies may rely on the previously recommended thresholds of significance in its CEQA Guidelines, adopted in 1999. In ordering BAAQMD to set aside the thresholds, the court did not address the merits of the science or evidence supporting the thresholds. The Town finds, therefore, that despite the Superior Court' ruling, and in light of the subsequent case history discussed below, the science and reasoning in the BAAQMD 2011 CEQA Air Quality Guidelines provide the latest state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the BAAQMD 2011 CEQA Air Quality Guidelines.

[77] In May 2011, the updated BAAQMD CEQA Air Quality Guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA Guidelines. in *California Building Industry Association versus Bay Area Air Quality Management District*, Case Nos. A135335 and A136212 (Court of Appeal, First District, August 13, 2013). In addition to the Town's independent determination that use of the BAAQMD's CEQA Guidelines is supported by substantial evidence, they have been found to be valid guidelines for use in the CEQA environmental review process.[78]

While the outcome of this case presents uncertainty for current project applicants and local agencies as the Air Districts cannot support the use of these guidelines, local agencies still have a duty to evaluate impacts related to air quality and GHG emissions. In addition, CEQA grants local agencies broad discretion to develop their own thresholds of significance, or to rely on thresholds previously adopted or recommended by other public agencies or experts so long as they are supported by substantial evidence. Accordingly, the Town of Colma is using the BAAQMD's 2011 thresholds to evaluate project impacts in order to protectively evaluate the potential effects of the project on air quality and GHG emissions.

2.3.1 Greenhouse Gas Emissions

BAAQMD has a tiered approach for assessing GHG emissions impacts of a project. If a project is within the jurisdiction of an agency that has a "qualified" GHG reduction strategy, the project can assess consistency of its GHG emissions impacts with the reduction strategy.

BAAQMD has adopted screening criteria and significance criteria for development projects that would be applicable for the proposed Project. If a project exceeds the Guidelines' GHG screening-level sizes, the project would be required to conduct a full GHG analysis using the following BAAQMD significance criteria:

- 1,100 MT of CO_2e per year; or
- 4.6 MT of CO_2e per service population (SP)

Land use development projects include residential, commercial, industrial, and public land use facilities. Direct sources of emissions may include on-site combustion of energy, such as natural gas used for heating and cooking, emissions from industrial processes (not applicable for most land use development projects), and fuel combustion from mobile sources. Indirect emissions are emissions produced off-site from energy production, water conveyance due to a project's energy use and water consumption, and non-biogenic emissions from waste disposal. Biogenic CO_2 emissions are not included in the quantification of a project's GHG emissions, because biogenic CO_2 is derived from living biomass (e.g. organic matter present in wood, paper, vegetable oils, animal fat, food, animal, and yard waste) as opposed to fossil fuels. Although GHG emissions from waste generation are included in the GHG inventory for the proposed Project, the efficiency threshold of 4.6 $MTCO_2e$ per service population identified above does not include the waste sector, and it is therefore not considered in the evaluation.

[78] On November 26, 2013, the California Supreme Court granted review on the issue of whether the toxic air contaminants thresholds are consistent with CEQA; specifically, whether CEQA requires analysis of exposing project residents or users to existing environmental hazards. Briefing was completed on May 27, 2014, but the hearing has not yet been set.

BAAQMD does not have thresholds of significance for construction-related GHG emissions, but requires quantification and disclosure of construction-related GHG emissions. GHG emissions from construction activities are short term and therefore not assumed to significantly contribute to cumulative GHG emissions impacts of the proposed Project.[79]

[79] Bay Area Air Quality Management District, 2011 (revised), California Environmental Quality Act Air Quality Guidelines.

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CalEEMod Inputs

Name:	CarMax Project
Project Location:	435, 445, 455 Serramonte Boulevard, Colma CA, 94014
County/Air Basin:	San Mateo County
Climate Zone:	5
Land Use Setting:	Urban
Operational Year:	2017
Utility Company:	Pacific Gas and Electric

Total Project Site Acreage:	8.85	acres
Acreage to be Disturbed:	8.10	acres

Components	SQFT	Acreage
CarMax		
Sales	11,171	
Service	6,141	
Carwash	936	
Presentation	1,965	
	20,213	**0.18**
Surface Parking Lot	175,982	4.04
Non-Parking Asphalt Surfaces	59,355	1.36
Hardscape	25,000	0.57
Landscape	72,000	1.65
Above Ground Detention	12,632	0.29
		8.10

CalEEMod Land Use Inputs

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet
CarMax Buildings	Retail	Automobile Care Center	20.21	1000sqft	0.18	20,213
Parking Lot	Parking	Parking Lot	4.04	acres	4.04	175,982.4
Non-Parking Asphalt Surfaces	Parking	Other Asphalt Surfaces	1.36	acres	1.36	0
Hardscape & Landscaping & Above Ground Detention	Parking	Other Non-Asphalt Surfaces	2.52	acres	2.52	0
					8.10	

CalEEMod Inputs

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Operational Year:	2017
Utility Company:	Pacific Gas and Electric

Demolition Haul

Component	Amount to be Demolished (SQFT)*	Amount to be Demolished (Tons)	Haul Truck Capacity (tons)*	Haul Distance (miles)**	Total Trip Ends	Duration (days)	Trips Ends/Day
Buildings	81,981	N/A	20	30	373***	7	54
Asphalt	N/A	5,850	20	30	585	3	195

**Provided by the Applicant.*
***One-way haul distance to the Ox Mountain Landfill in Half Moon Bay provided by the Applicant.*
****Total trip ends generated by CalEEMod based on the amount of building square feet to be demolished.*

Architectural Coating

Provided by Applicant

Interior Paint VOC content:	50
Exterior Paint VOC content:	250

Non-Residential Architectural Coating

Percentage of Buildings' Interior Painted:	40%
Percentage of Buildings' Exterior Painted:	10%

Non-Residential Structures	Land Use Square Feet	CalEEMod Application Factor	Total Paintable Surface Area[2]	Paintable Interior Area[1]	Paintable Exterior Area[1]
CarMax Buildings	20,213	2	40,426	12,128	1,011
Parking Lot	175,982	0.06	10,559		10,559
				12,128	11,570

Notes:

[1] *CalEEMod methodology calculates the paintable interior and exterior areas by multiplying the total paintable surface area by 75 and 25 percent, respectively. Architectural coatings for the parking lot is based on CalEEMod methodology applied to a surface parking lot (i.e., striping), in which 6% of surface area is painted.

[2] ** Applied CalEEMod Methodology in calculating total

CalEEMod Inputs

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Project Location:	435, 445, 455 Serramonte Boulevard, Colma CA, 94014
County/Air Basin:	San Mateo County
Climate Zone:	5
Land Use Setting:	Urban
Operational Year:	2017
Utility Company:	Pacific Gas and Electric

Trip Generation*

	Existing AutoBody	Proposed Auto Dealership	NET	
Weekday Trip Generation*	360	653	293	ADT
Weekday Trip Rate*	NA	32.3	14.50	trips/ksf
Saturday Trip Generation*	250	601	351	ADT
Saturday Trip Rate*	NA	29.74	17.37	trips/ksf
Sunday Trips	0	276	275.71	ADT
Sunday Trip Rate**	NA	13.64	13.64	trips/ksf

*CarMax, Colma, CA prepared by *Hexagon Transportation Consultants, Inc., 2015.*
***ITE Trip Generation Manual 9th Edition (Land Use Code 841 Automobile Sales).*

Solid Waste*

Generation Rate:	0.9	pounds/100sqft/day
Solid Waste Generation:	182	pounds/day
Solid Waste Generation:	33	TPY

**Consistent with CarMax Project Environmental Review - Initial Study.*

Water Use

Septic Tank	0%	
Aerobic	100%	
Facultative Lagoons	0%	
Indoor Water Use*:	94,081	gal/1000sqft/year
	1,901,379.18	GPY
Outdoor Water Use*:	57,663	gal/1000sqft/year
	1,165,361.43	GPY

**CalEEMod Appendix D.*

CalEEMod Inputs

Name:	CarMax Project
Project Location:	435, 445, 455 Serramonte Boulevard, Colma CA, 94014
County/Air Basin:	San Mateo County
Climate Zone:	5
Land Use Setting:	Urban
Operational Year:	2017
Utility Company:	Pacific Gas and Electric

Water Mitigation

Install Low Flow Bathroom Faucet	32	% Reduction in flow
Install Low Flow Kitchen Faucet	18	% Reduction in flow
Install Low Flow Toilet	20	% Reduction in flow
Install Low Flow Shower	20	% Reduction in flow
Use Water Efficiency Irrigation System	6.1	% Reduction in flow

Energy Mitigation

2013 Building and Energy Efficiency Standards

Buildings constructed after January 1, 2014 are required to meet the 2013 Building and Energy Efficiency Standards. The 2013 Standards are 30% more energy efficient for non-residential buildings and 25% more energy efficient for residential buildings than the 2008 Building and Energy Efficiency Standards.

Exceed Title 24	30%	Improvement

2016 Building and Energy Efficiency Standards

Non-Residential Exceed Title 24	5%	Improvement over 2013[1]
Non-Residential Exceed Title 24	33.5%	Improvement over 2008

Sources:

[1] California Energy Commission. 2015a. 2016 Building Energy Efficiency Standards, Adoption Hearing Presentation. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/ June 10.

Construction - Unmitigated Run

BAAQMD BMPs

Replace Ground Cover	PM10:	5	% Reduction
	PM25:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Unpaved Roads	Vehicle Speed:	15	mph
Clean Paved Road	9	% PM Reduction	

CalEEMod Construction Phase Inputs*

5-Day Work Week/8 hours per day

Phase Name	Phase Type	Start Date	End Date	CalEEMod Total Days	Total Days
Building Demolition	Demolition	12/14/2016	12/22/2016	7	8
Building Demo Debris Haul	Demolition	12/14/2016	12/22/2016	7	8
Asphalt Demolition	Demolition	12/23/2016	12/27/2016	3	4
Asphalt Demo Debris Haul	Demolition	12/23/2016	12/27/2016	3	4
Site Preparation	Site Preparation	12/27/2016	1/4/2017	7	8
Rough Grading	Grading	1/5/2017	1/13/2017	7	8
Utility Trenching	Trenching	1/14/2017	2/9/2017	19	26
Fine Grading	Grading	2/9/2017	2/14/2017	4	5
Building Construction	Building Construction	2/15/2017	9/18/2017	154	215
Asphalt Paving	Paving	8/29/2017	9/18/2017	15	20
Architectural Coating	Architectural Coating	9/5/2017	9/18/2017	10	13
Finishing/Landscaping	Paving	8/29/2017	9/18/2017	15	20

*Based on construction schedule provided by the Applicant.

CalEEMod Construction Off-Road Equipment Inputs

Equipment Type	CalEEMod Equipment Type	Unit Amount	Hours /Day	HP	LF	Vendor Trips	Worker Trips
Building & Asphalt Demolition*							5+15(default)
Concrete/Industrial Saws	Concrete/Industrial Saws	1	8	81	0.73		
Excavators	Excavators	3	8	162	0.38		
Rubber Tired Dozers	Rubber Tired Dozers	2	8	255	0.4		
Water Truck*						4	
Site Preparation*							5+18(default)
Rubber Tired Dozers	Rubber Tired Dozers	3	8	255	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	4	8	97	0.37		
Water Truck*						4	
Rough Grading*							4+15(default)
Excavators	Excavators	1	8	162	0.38		
Graders	Graders	1	8	174	0.41		
Rubber Tired Dozers	Rubber Tired Dozers	1	8	255	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	8	97	0.37		
Water Truck*						4	
Utility Trenching**							10+3(default)
Excavators	Excavators	1	8	162	0.38		
Water Truck*						4	
Fine Grading*							5+15(default)
Excavators	Excavators	1	8	162	0.38		
Graders	Graders	1	8	174	0.41		
Rubber Tired Dozers	Rubber Tired Dozers	1	8	255	0.4		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	8	97	0.37		
Water Truck*						4	
Building Construction*							30+80(default)
Cranes	Cranes	1	7	226	0.2881		
Forklifts	Forklifts	3	8	89	0.2		
Generator Sets	Generator Sets	1	8	84	0.74		
Tractors/Loaders/Backhoes	Tractors/Loaders/Backhoes	3	7	97	0.37		
Welders	Welders	1	8	46	0.45		
Asphalt Paving*							10+15(default)
Pavers	Pavers	2	8	125	0.42		
Paving Equipment	Paving Equipment	2	8	130	0.36		
Rollers	Rollers	2	8	80	0.38		
Architectural Coating*							8+16(default)
Air Compressors	Air Compressors	1	6	78	0.48		
Finishing/Landscaping**							8+3(default)
Skid Steer Loader	Skid Steer Loader	1	8	64	0.37		

*CalEEMod Default

**Assumes use of an excavator for trenching and a skid steer loader for finishing/landscaping.

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.36	Acre	1.36	0.00	0
Other Non-Asphalt Surfaces	2.52	Acre	2.52	0.00	0
Parking Lot	4.04	Acre	4.04	175,982.40	0
Automobile Care Center	20.21	1000sqft	0.18	20,213.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

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1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 0 Land Use Square Feet to exclude striping

Construction Phase - Based on construction schedule provided by the Applicant.

Off-road Equipment - Placeholder only.

Off-road Equipment -

Off-road Equipment - Placeholder only.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Assumes use of an excavator for trenching.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Assumes use of a skid steer loader for finishing/landscaping.

Off-road Equipment -

Grading -

Demolition -

Trips and VMT - 30 miles hauling trip length to the Ox Mountain Landfill in Half Moon Bay.

Architectural Coating - Based on construction information provided by the Applicant.

Vehicle Trips - CarMax, Colma, CA prepared by Hexagon Transportation Consultants, Inc., 2015 & ITE Trip Generation Manual 9th Edition.

Water And Wastewater - 100% Aerobic.

Solid Waste - Consistent with CarMax Project Environmental Review - Initial Study.

Energy Mitigation -

Water Mitigation -

Construction Off-road Equipment Mitigation - BAAQMD BMPs

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Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	12,746.00	11,570.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	38,239.00	12,128.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	250.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstructionPhase	NumDays	20.00	10.00
tblConstructionPhase	NumDays	230.00	154.00
tblConstructionPhase	NumDays	20.00	7.00
tblConstructionPhase	NumDays	20.00	7.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	10.00	7.00
tblConstructionPhase	NumDays	20.00	7.00
tblConstructionPhase	NumDays	20.00	3.00
tblConstructionPhase	NumDays	20.00	3.00
tblConstructionPhase	NumDays	20.00	4.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	PhaseEndDate	10/2/2017	9/18/2017
tblConstructionPhase	PhaseEndDate	10/9/2017	9/18/2017
tblConstructionPhase	PhaseEndDate	1/5/2017	1/4/2017
tblConstructionPhase	PhaseEndDate	1/2/2017	12/22/2016
tblConstructionPhase	PhaseEndDate	12/30/2016	12/27/2016
tblConstructionPhase	PhaseEndDate	2/15/2017	2/14/2017
tblConstructionPhase	PhaseEndDate	10/9/2017	9/18/2017
tblConstructionPhase	PhaseStartDate	9/19/2017	9/5/2017
tblConstructionPhase	PhaseStartDate	9/19/2017	8/29/2017
tblConstructionPhase	PhaseStartDate	12/28/2016	12/27/2016

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tblConstructionPhase	PhaseStartDate	12/23/2016	12/14/2016
tblConstructionPhase	PhaseStartDate	12/28/2016	12/23/2016
tblConstructionPhase	PhaseStartDate	2/10/2017	2/9/2017
tblConstructionPhase	PhaseStartDate	9/19/2017	8/29/2017
tblLandUse	LandUseSquareFeet	59,241.60	0.00
tblLandUse	LandUseSquareFeet	109,771.20	0.00
tblLandUse	LandUseSquareFeet	20,210.00	20,213.00
tblLandUse	LotAcreage	0.46	0.18
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2017
tblSolidWaste	SolidWasteGenerationRate	77.20	33.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripLength	20.00	30.00
tblTripsAndVMT	HaulingTripNumber	578.00	585.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00

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tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	WorkerTripNumber	16.00	24.00
tblTripsAndVMT	WorkerTripNumber	80.00	110.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	19.00
tblTripsAndVMT	WorkerTripNumber	15.00	25.00
tblTripsAndVMT	WorkerTripNumber	18.00	23.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	3.00	11.00
tblTripsAndVMT	WorkerTripNumber	3.00	13.00
tblVehicleTrips	ST_TR	62.00	17.37
tblVehicleTrips	SU_TR	62.00	13.64
tblVehicleTrips	WD_TR	62.00	14.50
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00

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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0479	0.5518	0.4782	8.2000e-004	0.1797	0.0200	0.1997	0.0540	0.0186	0.0726	0.0000	74.9615	74.9615	7.6800e-003	0.0000	75.1227
2017	0.4406	2.7966	2.6073	4.0900e-003	0.1979	0.1682	0.3660	0.0799	0.1574	0.2373	0.0000	352.2473	352.2473	0.0626	0.0000	353.5618
Total	**0.4885**	**3.3484**	**3.0855**	**4.9100e-003**	**0.3775**	**0.1882**	**0.5657**	**0.1339**	**0.1760**	**0.3099**	**0.0000**	**427.2088**	**427.2088**	**0.0703**	**0.0000**	**428.6845**

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Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0479	0.5518	0.4782	8.2000e-004	0.0836	0.0200	0.1036	0.0250	0.0186	0.0436	0.0000	74.9614	74.9614	7.6800e-003	0.0000	75.1226
2017	0.4406	2.7966	2.6073	4.0900e-003	0.1336	0.1682	0.3018	0.0475	0.1574	0.2049	0.0000	352.2470	352.2470	0.0626	0.0000	353.5616
Total	**0.4885**	**3.3484**	**3.0855**	**4.9100e-003**	**0.2172**	**0.1882**	**0.4054**	**0.0725**	**0.1760**	**0.2485**	**0.0000**	**427.2085**	**427.2085**	**0.0703**	**0.0000**	**428.6842**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**42.47**	**0.00**	**28.34**	**45.85**	**0.00**	**19.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7796	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.3000e-004
Energy	2.8000e-003	0.0254	0.0214	1.5000e-004		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	121.3806	121.3806	4.7700e-003	1.3800e-003	121.9098
Mobile	0.1327	0.1627	0.9681	1.5300e-003	0.1100	2.0100e-003	0.1120	0.0295	1.8500e-003	0.0314	0.0000	116.6613	116.6613	5.7100e-003	0.0000	116.7812
Waste						0.0000	0.0000		0.0000	0.0000	6.6987	0.0000	6.6987	0.3959	0.0000	15.0122
Water						0.0000	0.0000		0.0000	0.0000	0.6727	4.1796	4.8523	2.5000e-003	1.5000e-003	5.3705
Total	**0.9150**	**0.1881**	**0.9897**	**1.6800e-003**	**0.1100**	**3.9400e-003**	**0.1139**	**0.0295**	**3.7800e-003**	**0.0333**	**7.3714**	**242.2219**	**249.5933**	**0.4089**	**2.8800e-003**	**259.0742**

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Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7796	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.3000e-004
Energy	2.1100e-003	0.0192	0.0161	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003	0.0000	111.6791	111.6791	4.5100e-003	1.2300e-003	112.1558
Mobile	0.1327	0.1627	0.9681	1.5300e-003	0.1100	2.0100e-003	0.1120	0.0295	1.8500e-003	0.0314	0.0000	116.6613	116.6613	5.7100e-003	0.0000	116.7812
Waste						0.0000	0.0000		0.0000	0.0000	6.6987	0.0000	6.6987	0.3959	0.0000	15.0122
Water						0.0000	0.0000		0.0000	0.0000	0.5382	3.5086	4.0468	2.0000e-003	1.2000e-003	4.4611
Total	**0.9143**	**0.1819**	**0.9845**	**1.6500e-003**	**0.1100**	**3.4700e-003**	**0.1135**	**0.0295**	**3.3100e-003**	**0.0328**	**7.2369**	**231.8495**	**239.0863**	**0.4081**	**2.4300e-003**	**248.4109**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.08**	**3.31**	**0.53**	**1.79**	**0.00**	**11.93**	**0.41**	**0.00**	**12.43**	**1.41**	**1.83**	**4.28**	**4.21**	**0.19**	**15.63**	**4.12**

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Demolition	Demolition	12/14/2016	12/22/2016	5	7	
2	Building Demo Debris Haul	Demolition	12/14/2016	12/22/2016	5	7	
3	Asphalt Demolition	Demolition	12/23/2016	12/27/2016	5	3	
4	Asphalt Demo Debris Haul	Demolition	12/23/2016	12/27/2016	5	3	
5	Site Preparation	Site Preparation	12/27/2016	1/4/2017	5	7	
6	Rough Grading	Grading	1/5/2017	1/13/2017	5	7	
7	Utility Trenching	Trenching	1/14/2017	2/9/2017	5	19	
8	Fine Grading	Grading	2/9/2017	2/14/2017	5	4	
9	Building Construction	Building Construction	2/15/2017	9/18/2017	5	154	
10	Asphalt Paving	Paving	8/29/2017	9/18/2017	5	15	
11	Finishing/Landscaping	Paving	8/29/2017	9/18/2017	5	15	
12	Architectural Coating	Architectural Coating	9/5/2017	9/18/2017	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 12,128; Non-Residential Outdoor: 11,570 (Architectural Coating –

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	226	0.29
Building Demolition	Excavators	3	8.00	162	0.38
Rough Grading	Excavators	1	8.00	162	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Rough Grading	Graders	1	8.00	174	0.41
Asphalt Paving	Pavers	2	8.00	125	0.42
Asphalt Paving	Paving Equipment	2	8.00	130	0.36
Asphalt Paving	Rollers	2	8.00	80	0.38
Building Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Rough Grading	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Rough Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Building Demo Debris Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Asphalt Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Asphalt Demo Debris Haul	Concrete/Industrial Saws	0	8.00	81	0.73
Building Demo Debris Haul	Excavators	0	8.00	162	0.38
Asphalt Demolition	Excavators	3	8.00	162	0.38
Asphalt Demo Debris Haul	Excavators	0	8.00	162	0.38
Fine Grading	Excavators	1	8.00	162	0.38

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Fine Grading	Graders	1	8.00	174	0.41
Finishing/Landscaping	Pavers	0	8.00	125	0.42
Finishing/Landscaping	Paving Equipment	0	8.00	130	0.36
Finishing/Landscaping	Rollers	0	8.00	80	0.38
Building Demo Debris Haul	Rubber Tired Dozers	0	8.00	255	0.40
Asphalt Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Asphalt Demo Debris Haul	Rubber Tired Dozers	0	8.00	255	0.40
Fine Grading	Rubber Tired Dozers	1	8.00	255	0.40
Fine Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Utility Trenching	Excavators	1	8.00	162	0.38
Finishing/Landscaping	Skid Steer Loaders	1	8.00	64	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	24.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	110.00	32.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Demolition	6	20.00	4.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Rough Grading	6	19.00	4.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt Paving	6	25.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	23.00	4.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Demo Debris Haul	0	0.00	0.00	373.00	12.40	7.30	30.00	LD_Mix	HDT_Mix	HHDT
Asphalt Demolition	6	20.00	4.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Asphalt Demo Debris Haul	0	0.00	0.00	585.00	12.40	7.30	30.00	LD_Mix	HDT_Mix	HHDT
Fine Grading	6	20.00	4.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Finishing/Landscaping	1	11.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Utility Trenching	1	13.00	4.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Building Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0150	0.1598	0.1226	1.4000e-004		8.0200e-003	8.0200e-003		7.4800e-003	7.4800e-003	0.0000	12.9841	12.9841	3.5300e-003	0.0000	13.0582
Total	**0.0150**	**0.1598**	**0.1226**	**1.4000e-004**		**8.0200e-003**	**8.0200e-003**		**7.4800e-003**	**7.4800e-003**	**0.0000**	**12.9841**	**12.9841**	**3.5300e-003**	**0.0000**	**13.0582**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	1.4200e-003	2.4300e-003	0.0000	9.0000e-005	2.0000e-005	1.1000e-004	3.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2962	0.2962	0.0000	0.0000	0.2962
Worker	2.5000e-004	3.9000e-004	3.7000e-003	1.0000e-005	6.3000e-004	1.0000e-005	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5706	0.5706	3.0000e-005	0.0000	0.5712
Total	**4.3000e-004**	**1.8100e-003**	**6.1300e-003**	**1.0000e-005**	**7.2000e-004**	**3.0000e-005**	**7.5000e-004**	**2.0000e-004**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**0.8667**	**0.8667**	**3.0000e-005**	**0.0000**	**0.8674**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0150	0.1598	0.1226	1.4000e-004		8.0200e-003	8.0200e-003		7.4800e-003	7.4800e-003	0.0000	12.9841	12.9841	3.5300e-003	0.0000	13.0582
Total	**0.0150**	**0.1598**	**0.1226**	**1.4000e-004**		**8.0200e-003**	**8.0200e-003**		**7.4800e-003**	**7.4800e-003**	**0.0000**	**12.9841**	**12.9841**	**3.5300e-003**	**0.0000**	**13.0582**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	1.4200e-003	2.4300e-003	0.0000	8.0000e-005	2.0000e-005	1.0000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2962	0.2962	0.0000	0.0000	0.2962
Worker	2.5000e-004	3.9000e-004	3.7000e-003	1.0000e-005	5.8000e-004	1.0000e-005	5.9000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5706	0.5706	3.0000e-005	0.0000	0.5712
Total	**4.3000e-004**	**1.8100e-003**	**6.1300e-003**	**1.0000e-005**	**6.6000e-004**	**3.0000e-005**	**6.9000e-004**	**1.8000e-004**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**0.8667**	**0.8667**	**3.0000e-005**	**0.0000**	**0.8674**

3.3 Building Demo Debris Haul - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0404	0.0000	0.0404	6.1100e-003	0.0000	6.1100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0404**	**0.0000**	**0.0404**	**6.1100e-003**	**0.0000**	**6.1100e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0200e-003	0.0820	0.0811	2.0000e-004	4.6600e-003	1.0300e-003	5.6900e-003	1.2800e-003	9.5000e-004	2.2300e-003	0.0000	18.3989	18.3989	1.3000e-004	0.0000	18.4016
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.0200e-003**	**0.0820**	**0.0811**	**2.0000e-004**	**4.6600e-003**	**1.0300e-003**	**5.6900e-003**	**1.2800e-003**	**9.5000e-004**	**2.2300e-003**	**0.0000**	**18.3989**	**18.3989**	**1.3000e-004**	**0.0000**	**18.4016**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0173	0.0000	0.0173	2.6100e-003	0.0000	2.6100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0173**	**0.0000**	**0.0173**	**2.6100e-003**	**0.0000**	**2.6100e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0200e-003	0.0820	0.0811	2.0000e-004	4.3500e-003	1.0300e-003	5.3700e-003	1.2000e-003	9.5000e-004	2.1500e-003	0.0000	18.3989	18.3989	1.3000e-004	0.0000	18.4016
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.0200e-003**	**0.0820**	**0.0811**	**2.0000e-004**	**4.3500e-003**	**1.0300e-003**	**5.3700e-003**	**1.2000e-003**	**9.5000e-004**	**2.1500e-003**	**0.0000**	**18.3989**	**18.3989**	**1.3000e-004**	**0.0000**	**18.4016**

3.4 Asphalt Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4300e-003	0.0685	0.0526	6.0000e-005		3.4400e-003	3.4400e-003		3.2000e-003	3.2000e-003	0.0000	5.5646	5.5646	1.5100e-003	0.0000	5.5964
Total	**6.4300e-003**	**0.0685**	**0.0526**	**6.0000e-005**		**3.4400e-003**	**3.4400e-003**		**3.2000e-003**	**3.2000e-003**	**0.0000**	**5.5646**	**5.5646**	**1.5100e-003**	**0.0000**	**5.5964**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	6.1000e-004	1.0400e-003	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1269	0.1269	0.0000	0.0000	0.1270
Worker	1.1000e-004	1.7000e-004	1.5900e-003	0.0000	2.7000e-004	0.0000	2.7000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2445	0.2445	1.0000e-005	0.0000	0.2448
Total	**1.9000e-004**	**7.8000e-004**	**2.6300e-003**	**0.0000**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.3715**	**0.3715**	**1.0000e-005**	**0.0000**	**0.3718**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4300e-003	0.0685	0.0526	6.0000e-005		3.4400e-003	3.4400e-003		3.2000e-003	3.2000e-003	0.0000	5.5646	5.5646	1.5100e-003	0.0000	5.5964
Total	**6.4300e-003**	**0.0685**	**0.0526**	**6.0000e-005**		**3.4400e-003**	**3.4400e-003**		**3.2000e-003**	**3.2000e-003**	**0.0000**	**5.5646**	**5.5646**	**1.5100e-003**	**0.0000**	**5.5964**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.0000e-005	6.1000e-004	1.0400e-003	0.0000	4.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1269	0.1269	0.0000	0.0000	0.1270
Worker	1.1000e-004	1.7000e-004	1.5900e-003	0.0000	2.5000e-004	0.0000	2.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2445	0.2445	1.0000e-005	0.0000	0.2448
Total	**1.9000e-004**	**7.8000e-004**	**2.6300e-003**	**0.0000**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**8.0000e-005**	**1.0000e-005**	**9.0000e-005**	**0.0000**	**0.3715**	**0.3715**	**1.0000e-005**	**0.0000**	**0.3718**

3.5 Asphalt Demo Debris Haul - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0626	0.0000	0.0626	9.4800e-003	0.0000	9.4800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0626**	**0.0000**	**0.0626**	**9.4800e-003**	**0.0000**	**9.4800e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

CarMax Project

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.4400e-003	0.1286	0.1272	3.2000e-004	7.3100e-003	1.6100e-003	8.9300e-003	2.0100e-003	1.4800e-003	3.4900e-003	0.0000	28.8561	28.8561	2.1000e-004	0.0000	28.8605
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.4400e-003**	**0.1286**	**0.1272**	**3.2000e-004**	**7.3100e-003**	**1.6100e-003**	**8.9300e-003**	**2.0100e-003**	**1.4800e-003**	**3.4900e-003**	**0.0000**	**28.8561**	**28.8561**	**2.1000e-004**	**0.0000**	**28.8605**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0268	0.0000	0.0268	4.0500e-003	0.0000	4.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0268**	**0.0000**	**0.0268**	**4.0500e-003**	**0.0000**	**4.0500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.4400e-003	0.1286	0.1272	3.2000e-004	6.8200e-003	1.6100e-003	8.4300e-003	1.8900e-003	1.4800e-003	3.3700e-003	0.0000	28.8561	28.8561	2.1000e-004	0.0000	28.8605
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.4400e-003**	**0.1286**	**0.1272**	**3.2000e-004**	**6.8200e-003**	**1.6100e-003**	**8.4300e-003**	**1.8900e-003**	**1.4800e-003**	**3.3700e-003**	**0.0000**	**28.8561**	**28.8561**	**2.1000e-004**	**0.0000**	**28.8605**

3.6 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1093	0.0822	8.0000e-005		5.8800e-003	5.8800e-003		5.4100e-003	5.4100e-003	0.0000	7.3754	7.3754	2.2200e-003	0.0000	7.4221
Total	**0.0102**	**0.1093**	**0.0822**	**8.0000e-005**	**0.0632**	**5.8800e-003**	**0.0691**	**0.0348**	**5.4100e-003**	**0.0402**	**0.0000**	**7.3754**	**7.3754**	**2.2200e-003**	**0.0000**	**7.4221**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	8.1000e-004	1.3900e-003	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	1.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1692	0.1692	0.0000	0.0000	0.1693
Worker	1.6000e-004	2.6000e-004	2.4300e-003	0.0000	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3749	0.3749	2.0000e-005	0.0000	0.3754
Total	**2.6000e-004**	**1.0700e-003**	**3.8200e-003**	**0.0000**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**1.2000e-004**	**1.0000e-005**	**1.4000e-004**	**0.0000**	**0.5442**	**0.5442**	**2.0000e-005**	**0.0000**	**0.5446**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0270	0.0000	0.0270	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0102	0.1093	0.0822	8.0000e-005		5.8800e-003	5.8800e-003		5.4100e-003	5.4100e-003	0.0000	7.3754	7.3754	2.2200e-003	0.0000	7.4221
Total	**0.0102**	**0.1093**	**0.0822**	**8.0000e-005**	**0.0270**	**5.8800e-003**	**0.0329**	**0.0149**	**5.4100e-003**	**0.0203**	**0.0000**	**7.3754**	**7.3754**	**2.2200e-003**	**0.0000**	**7.4221**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	8.1000e-004	1.3900e-003	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1692	0.1692	0.0000	0.0000	0.1693
Worker	1.6000e-004	2.6000e-004	2.4300e-003	0.0000	3.8000e-004	0.0000	3.9000e-004	1.0000e-004	0.0000	1.1000e-004	0.0000	0.3749	0.3749	2.0000e-005	0.0000	0.3754
Total	**2.6000e-004**	**1.0700e-003**	**3.8200e-003**	**0.0000**	**4.3000e-004**	**1.0000e-005**	**4.5000e-004**	**1.1000e-004**	**1.0000e-005**	**1.3000e-004**	**0.0000**	**0.5442**	**0.5442**	**2.0000e-005**	**0.0000**	**0.5446**

3.6 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2600e-003	0.0776	0.0591	6.0000e-005		4.1300e-003	4.1300e-003		3.8000e-003	3.8000e-003	0.0000	5.4473	5.4473	1.6700e-003	0.0000	5.4824
Total	**7.2600e-003**	**0.0776**	**0.0591**	**6.0000e-005**	**0.0632**	**4.1300e-003**	**0.0674**	**0.0348**	**3.8000e-003**	**0.0386**	**0.0000**	**5.4473**	**5.4473**	**1.6700e-003**	**0.0000**	**5.4824**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	5.5000e-004	9.9000e-004	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1250	0.1250	0.0000	0.0000	0.1250
Worker	1.1000e-004	1.7000e-004	1.6300e-003	0.0000	3.1000e-004	0.0000	3.1000e-004	8.0000e-005	0.0000	9.0000e-005	0.0000	0.2708	0.2708	1.0000e-005	0.0000	0.2711
Total	**1.8000e-004**	**7.2000e-004**	**2.6200e-003**	**0.0000**	**3.5000e-004**	**1.0000e-005**	**3.6000e-004**	**9.0000e-005**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**0.3958**	**0.3958**	**1.0000e-005**	**0.0000**	**0.3961**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0270	0.0000	0.0270	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2600e-003	0.0776	0.0591	6.0000e-005		4.1300e-003	4.1300e-003		3.8000e-003	3.8000e-003	0.0000	5.4473	5.4473	1.6700e-003	0.0000	5.4824
Total	**7.2600e-003**	**0.0776**	**0.0591**	**6.0000e-005**	**0.0270**	**4.1300e-003**	**0.0312**	**0.0149**	**3.8000e-003**	**0.0187**	**0.0000**	**5.4473**	**5.4473**	**1.6700e-003**	**0.0000**	**5.4824**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	5.5000e-004	9.9000e-004	0.0000	4.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1250	0.1250	0.0000	0.0000	0.1250
Worker	1.1000e-004	1.7000e-004	1.6300e-003	0.0000	2.9000e-004	0.0000	2.9000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2708	0.2708	1.0000e-005	0.0000	0.2711
Total	**1.8000e-004**	**7.2000e-004**	**2.6200e-003**	**0.0000**	**3.3000e-004**	**1.0000e-005**	**3.3000e-004**	**9.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.3958**	**0.3958**	**1.0000e-005**	**0.0000**	**0.3961**

3.7 Rough Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0229	0.0000	0.0229	0.0118	0.0000	0.0118	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.1259	0.0888	1.0000e-004		7.1400e-003	7.1400e-003		6.5600e-003	6.5600e-003	0.0000	9.6641	9.6641	2.9600e-003	0.0000	9.7263
Total	**0.0121**	**0.1259**	**0.0888**	**1.0000e-004**	**0.0229**	**7.1400e-003**	**0.0301**	**0.0118**	**6.5600e-003**	**0.0184**	**0.0000**	**9.6641**	**9.6641**	**2.9600e-003**	**0.0000**	**9.7263**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.2800e-003	2.3200e-003	0.0000	9.0000e-005	2.0000e-005	1.1000e-004	3.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2916	0.2916	0.0000	0.0000	0.2917
Worker	2.1000e-004	3.3000e-004	3.1400e-003	1.0000e-005	6.0000e-004	0.0000	6.1000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5220	0.5220	3.0000e-005	0.0000	0.5225
Total	**3.8000e-004**	**1.6100e-003**	**5.4600e-003**	**1.0000e-005**	**6.9000e-004**	**2.0000e-005**	**7.2000e-004**	**1.9000e-004**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**0.8136**	**0.8136**	**3.0000e-005**	**0.0000**	**0.8142**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8000e-003	0.0000	9.8000e-003	5.0400e-003	0.0000	5.0400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.1259	0.0888	1.0000e-004		7.1400e-003	7.1400e-003		6.5600e-003	6.5600e-003	0.0000	9.6641	9.6641	2.9600e-003	0.0000	9.7263
Total	**0.0121**	**0.1259**	**0.0888**	**1.0000e-004**	**9.8000e-003**	**7.1400e-003**	**0.0169**	**5.0400e-003**	**6.5600e-003**	**0.0116**	**0.0000**	**9.6641**	**9.6641**	**2.9600e-003**	**0.0000**	**9.7263**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	1.2800e-003	2.3200e-003	0.0000	8.0000e-005	2.0000e-005	1.0000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.2916	0.2916	0.0000	0.0000	0.2917
Worker	2.1000e-004	3.3000e-004	3.1400e-003	1.0000e-005	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5220	0.5220	3.0000e-005	0.0000	0.5225
Total	**3.8000e-004**	**1.6100e-003**	**5.4600e-003**	**1.0000e-005**	**6.3000e-004**	**2.0000e-005**	**6.6000e-004**	**1.7000e-004**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**0.8136**	**0.8136**	**3.0000e-005**	**0.0000**	**0.8142**

3.8 Utility Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4600e-003	0.0384	0.0327	5.0000e-005		1.8900e-003	1.8900e-003		1.7400e-003	1.7400e-003	0.0000	4.6881	4.6881	1.4400e-003	0.0000	4.7182
Total	**3.4600e-003**	**0.0384**	**0.0327**	**5.0000e-005**		**1.8900e-003**	**1.8900e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**4.6881**	**4.6881**	**1.4400e-003**	**0.0000**	**4.7182**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	3.4600e-003	6.2900e-003	1.0000e-005	2.4000e-004	5.0000e-005	2.9000e-004	7.0000e-005	4.0000e-005	1.1000e-004	0.0000	0.7916	0.7916	1.0000e-005	0.0000	0.7917
Worker	3.9000e-004	6.2000e-004	5.8300e-003	1.0000e-005	1.1200e-003	1.0000e-005	1.1200e-003	3.0000e-004	1.0000e-005	3.0000e-004	0.0000	0.9693	0.9693	5.0000e-005	0.0000	0.9704
Total	**8.6000e-004**	**4.0800e-003**	**0.0121**	**2.0000e-005**	**1.3600e-003**	**6.0000e-005**	**1.4100e-003**	**3.7000e-004**	**5.0000e-005**	**4.1000e-004**	**0.0000**	**1.7609**	**1.7609**	**6.0000e-005**	**0.0000**	**1.7621**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4600e-003	0.0384	0.0327	5.0000e-005		1.8900e-003	1.8900e-003		1.7400e-003	1.7400e-003	0.0000	4.6881	4.6881	1.4400e-003	0.0000	4.7182
Total	**3.4600e-003**	**0.0384**	**0.0327**	**5.0000e-005**		**1.8900e-003**	**1.8900e-003**		**1.7400e-003**	**1.7400e-003**	**0.0000**	**4.6881**	**4.6881**	**1.4400e-003**	**0.0000**	**4.7182**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.7000e-004	3.4600e-003	6.2900e-003	1.0000e-005	2.3000e-004	5.0000e-005	2.7000e-004	7.0000e-005	4.0000e-005	1.1000e-004	0.0000	0.7916	0.7916	1.0000e-005	0.0000	0.7917
Worker	3.9000e-004	6.2000e-004	5.8300e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0400e-003	2.8000e-004	1.0000e-005	2.8000e-004	0.0000	0.9693	0.9693	5.0000e-005	0.0000	0.9704
Total	**8.6000e-004**	**4.0800e-003**	**0.0121**	**2.0000e-005**	**1.2600e-003**	**6.0000e-005**	**1.3100e-003**	**3.5000e-004**	**5.0000e-005**	**3.9000e-004**	**0.0000**	**1.7609**	**1.7609**	**6.0000e-005**	**0.0000**	**1.7621**

3.9 Fine Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0131	0.0000	0.0131	6.7300e-003	0.0000	6.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9100e-003	0.0720	0.0508	6.0000e-005		4.0800e-003	4.0800e-003		3.7500e-003	3.7500e-003	0.0000	5.5223	5.5223	1.6900e-003	0.0000	5.5579
Total	**6.9100e-003**	**0.0720**	**0.0508**	**6.0000e-005**	**0.0131**	**4.0800e-003**	**0.0172**	**6.7300e-003**	**3.7500e-003**	**0.0105**	**0.0000**	**5.5223**	**5.5223**	**1.6900e-003**	**0.0000**	**5.5579**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	7.3000e-004	1.3200e-003	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1667	0.1667	0.0000	0.0000	0.1667
Worker	1.3000e-004	2.0000e-004	1.8900e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3140	0.3140	2.0000e-005	0.0000	0.3143
Total	**2.3000e-004**	**9.3000e-004**	**3.2100e-003**	**0.0000**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**1.1000e-004**	**1.0000e-005**	**1.2000e-004**	**0.0000**	**0.4806**	**0.4806**	**2.0000e-005**	**0.0000**	**0.4810**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.6000e-003	0.0000	5.6000e-003	2.8800e-003	0.0000	2.8800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9100e-003	0.0720	0.0508	6.0000e-005		4.0800e-003	4.0800e-003		3.7500e-003	3.7500e-003	0.0000	5.5223	5.5223	1.6900e-003	0.0000	5.5579
Total	**6.9100e-003**	**0.0720**	**0.0508**	**6.0000e-005**	**5.6000e-003**	**4.0800e-003**	**9.6800e-003**	**2.8800e-003**	**3.7500e-003**	**6.6300e-003**	**0.0000**	**5.5223**	**5.5223**	**1.6900e-003**	**0.0000**	**5.5579**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-004	7.3000e-004	1.3200e-003	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1667	0.1667	0.0000	0.0000	0.1667
Worker	1.3000e-004	2.0000e-004	1.8900e-003	0.0000	3.3000e-004	0.0000	3.4000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3140	0.3140	2.0000e-005	0.0000	0.3143
Total	**2.3000e-004**	**9.3000e-004**	**3.2100e-003**	**0.0000**	**3.8000e-004**	**1.0000e-005**	**4.0000e-004**	**1.0000e-004**	**1.0000e-005**	**1.1000e-004**	**0.0000**	**0.4806**	**0.4806**	**2.0000e-005**	**0.0000**	**0.4810**

3.10 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2389	2.0332	1.3959	2.0600e-003		0.1372	0.1372		0.1288	0.1288	0.0000	184.3989	184.3989	0.0454	0.0000	185.3520
Total	**0.2389**	**2.0332**	**1.3959**	**2.0600e-003**		**0.1372**	**0.1372**		**0.1288**	**0.1288**	**0.0000**	**184.3989**	**184.3989**	**0.0454**	**0.0000**	**185.3520**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0302	0.2245	0.4081	5.8000e-004	0.0157	3.0900e-003	0.0188	4.5100e-003	2.8400e-003	7.3500e-003	0.0000	51.3278	51.3278	3.9000e-004	0.0000	51.3361
Worker	0.0269	0.0424	0.3999	9.0000e-004	0.0766	5.9000e-004	0.0771	0.0204	5.4000e-004	0.0209	0.0000	66.4799	66.4799	3.4600e-003	0.0000	66.5526
Total	**0.0571**	**0.2668**	**0.8080**	**1.4800e-003**	**0.0923**	**3.6800e-003**	**0.0960**	**0.0249**	**3.3800e-003**	**0.0283**	**0.0000**	**117.8077**	**117.8077**	**3.8500e-003**	**0.0000**	**117.8886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2389	2.0332	1.3959	2.0600e-003		0.1372	0.1372		0.1288	0.1288	0.0000	184.3987	184.3987	0.0454	0.0000	185.3518
Total	**0.2389**	**2.0332**	**1.3959**	**2.0600e-003**		**0.1372**	**0.1372**		**0.1288**	**0.1288**	**0.0000**	**184.3987**	**184.3987**	**0.0454**	**0.0000**	**185.3518**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0302	0.2245	0.4081	5.8000e-004	0.0147	3.0900e-003	0.0178	4.2600e-003	2.8400e-003	7.1000e-003	0.0000	51.3278	51.3278	3.9000e-004	0.0000	51.3361
Worker	0.0269	0.0424	0.3999	9.0000e-004	0.0706	5.9000e-004	0.0712	0.0189	5.4000e-004	0.0195	0.0000	66.4799	66.4799	3.4600e-003	0.0000	66.5526
Total	**0.0571**	**0.2668**	**0.8080**	**1.4800e-003**	**0.0853**	**3.6800e-003**	**0.0890**	**0.0232**	**3.3800e-003**	**0.0266**	**0.0000**	**117.8077**	**117.8077**	**3.8500e-003**	**0.0000**	**117.8886**

3.11 Asphalt Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0143	0.1522	0.1105	1.7000e-004		8.5400e-003	8.5400e-003		7.8500e-003	7.8500e-003	0.0000	15.5201	15.5201	4.7600e-003	0.0000	15.6199
Paving	7.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0214**	**0.1522**	**0.1105**	**1.7000e-004**		**8.5400e-003**	**8.5400e-003**		**7.8500e-003**	**7.8500e-003**	**0.0000**	**15.5201**	**15.5201**	**4.7600e-003**	**0.0000**	**15.6199**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	9.4000e-004	8.8500e-003	2.0000e-005	1.6900e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4717	1.4717	8.0000e-005	0.0000	1.4733
Total	**6.0000e-004**	**9.4000e-004**	**8.8500e-003**	**2.0000e-005**	**1.6900e-003**	**1.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.4717**	**1.4717**	**8.0000e-005**	**0.0000**	**1.4733**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0143	0.1522	0.1105	1.7000e-004		8.5400e-003	8.5400e-003		7.8500e-003	7.8500e-003	0.0000	15.5200	15.5200	4.7600e-003	0.0000	15.6199
Paving	7.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0214**	**0.1522**	**0.1105**	**1.7000e-004**		**8.5400e-003**	**8.5400e-003**		**7.8500e-003**	**7.8500e-003**	**0.0000**	**15.5200**	**15.5200**	**4.7600e-003**	**0.0000**	**15.6199**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-004	9.4000e-004	8.8500e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5800e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4717	1.4717	8.0000e-005	0.0000	1.4733
Total	**6.0000e-004**	**9.4000e-004**	**8.8500e-003**	**2.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5800e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.4717**	**1.4717**	**8.0000e-005**	**0.0000**	**1.4733**

3.12 Finishing/Landscaping - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.0000e-004	0.0103	0.0104	2.0000e-005		5.5000e-004	5.5000e-004		5.1000e-004	5.1000e-004	0.0000	1.4103	1.4103	4.3000e-004	0.0000	1.4194
Paving	7.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.8700e-003**	**0.0103**	**0.0104**	**2.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.1000e-004**	**5.1000e-004**	**0.0000**	**1.4103**	**1.4103**	**4.3000e-004**	**0.0000**	**1.4194**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	4.1000e-004	3.9000e-003	1.0000e-005	7.5000e-004	1.0000e-005	7.5000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6475	0.6475	3.0000e-005	0.0000	0.6482
Total	**2.6000e-004**	**4.1000e-004**	**3.9000e-003**	**1.0000e-005**	**7.5000e-004**	**1.0000e-005**	**7.5000e-004**	**2.0000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6475**	**0.6475**	**3.0000e-005**	**0.0000**	**0.6482**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.0000e-004	0.0103	0.0104	2.0000e-005		5.5000e-004	5.5000e-004		5.1000e-004	5.1000e-004	0.0000	1.4103	1.4103	4.3000e-004	0.0000	1.4194
Paving	7.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.8700e-003**	**0.0103**	**0.0104**	**2.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.1000e-004**	**5.1000e-004**	**0.0000**	**1.4103**	**1.4103**	**4.3000e-004**	**0.0000**	**1.4194**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	4.1000e-004	3.9000e-003	1.0000e-005	6.9000e-004	1.0000e-005	6.9000e-004	1.8000e-004	1.0000e-005	1.9000e-004	0.0000	0.6475	0.6475	3.0000e-005	0.0000	0.6482
Total	**2.6000e-004**	**4.1000e-004**	**3.9000e-003**	**1.0000e-005**	**6.9000e-004**	**1.0000e-005**	**6.9000e-004**	**1.8000e-004**	**1.0000e-005**	**1.9000e-004**	**0.0000**	**0.6475**	**0.6475**	**3.0000e-005**	**0.0000**	**0.6482**

3.13 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	**0.0828**	**0.0109**	**9.3400e-003**	**1.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.3000e-004**	**0.0000**	**1.2795**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	6.0000e-004	5.6700e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9419	0.9419	5.0000e-005	0.0000	0.9429
Total	**3.8000e-004**	**6.0000e-004**	**5.6700e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9419**	**0.9419**	**5.0000e-005**	**0.0000**	**0.9429**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6600e-003	0.0109	9.3400e-003	1.0000e-005		8.7000e-004	8.7000e-004		8.7000e-004	8.7000e-004	0.0000	1.2766	1.2766	1.3000e-004	0.0000	1.2795
Total	**0.0828**	**0.0109**	**9.3400e-003**	**1.0000e-005**		**8.7000e-004**	**8.7000e-004**		**8.7000e-004**	**8.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**1.3000e-004**	**0.0000**	**1.2795**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	6.0000e-004	5.6700e-003	1.0000e-005	1.0000e-003	1.0000e-005	1.0100e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9419	0.9419	5.0000e-005	0.0000	0.9429
Total	**3.8000e-004**	**6.0000e-004**	**5.6700e-003**	**1.0000e-005**	**1.0000e-003**	**1.0000e-005**	**1.0100e-003**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.9419**	**0.9419**	**5.0000e-005**	**0.0000**	**0.9429**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1327	0.1627	0.9681	1.5300e-003	0.1100	2.0100e-003	0.1120	0.0295	1.8500e-003	0.0314	0.0000	116.6613	116.6613	5.7100e-003	0.0000	116.7812
Unmitigated	0.1327	0.1627	0.9681	1.5300e-003	0.1100	2.0100e-003	0.1120	0.0295	1.8500e-003	0.0314	0.0000	116.6613	116.6613	5.7100e-003	0.0000	116.7812

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4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	293.05	351.05	275.66	297,708	297,708
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	293.05	351.05	275.66	297,708	297,708

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.579131	0.062714	0.176356	0.114004	0.029626	0.004163	0.015785	0.004086	0.002626	0.003692	0.006605	0.000229	0.000983

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5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	90.7657	90.7657	4.1000e-003	8.5000e-004	91.1151
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	93.6811	93.6811	4.2400e-003	8.8000e-004	94.0417
NaturalGas Mitigated	2.1100e-003	0.0192	0.0161	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003	0.0000	20.9135	20.9135	4.0000e-004	3.8000e-004	21.0408
NaturalGas Unmitigated	2.8000e-003	0.0254	0.0214	1.5000e-004		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	27.6995	27.6995	5.3000e-004	5.1000e-004	27.8681

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	519070	2.8000e-003	0.0254	0.0214	1.5000e-004		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	27.6995	27.6995	5.3000e-004	5.1000e-004	27.8681
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8000e-003**	**0.0254**	**0.0214**	**1.5000e-004**		**1.9300e-003**	**1.9300e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**27.6995**	**27.6995**	**5.3000e-004**	**5.1000e-004**	**27.8681**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Automobile Care Center	391904	2.1100e-003	0.0192	0.0161	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003	0.0000	20.9135	20.9135	4.0000e-004	3.8000e-004	21.0408
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.1100e-003**	**0.0192**	**0.0161**	**1.2000e-004**		**1.4600e-003**	**1.4600e-003**		**1.4600e-003**	**1.4600e-003**	**0.0000**	**20.9135**	**20.9135**	**4.0000e-004**	**3.8000e-004**	**21.0408**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	167162	48.6292	2.2000e-003	4.5000e-004	48.8164
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	154865	45.0519	2.0400e-003	4.2000e-004	45.2253
Total		**93.6811**	**4.2400e-003**	**8.7000e-004**	**94.0417**

CarMax Project

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Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	157140	45.7138	2.0700e-003	4.3000e-004	45.8898
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	154865	45.0519	2.0400e-003	4.2000e-004	45.2253
Total		**90.7657**	**4.1100e-003**	**8.5000e-004**	**91.1151**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7796	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.3000e-004
Unmitigated	0.7796	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.3000e-004

CarMax Project

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0133					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7662					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.3000e-004
Total	**0.7796**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-004**	**5.0000e-004**	**0.0000**	**0.0000**	**5.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0133					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7662					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-004	5.0000e-004	0.0000	0.0000	5.3000e-004
Total	**0.7796**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-004**	**5.0000e-004**	**0.0000**	**0.0000**	**5.3000e-004**

CarMax Project

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7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.0468	2.0000e-003	1.2000e-003	4.4611
Unmitigated	4.8523	2.5000e-003	1.5000e-003	5.3705

CarMax Project

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	1.90138 / 1.16536	4.8523	2.5000e-003	1.5000e-003	5.3705
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.8523**	**2.5000e-003**	**1.5000e-003**	**5.3705**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	1.5211 / 1.09427	4.0468	2.0000e-003	1.2000e-003	4.4611
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.0468**	**2.0000e-003**	**1.2000e-003**	**4.4611**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.6987	0.3959	0.0000	15.0122
Unmitigated	6.6987	0.3959	0.0000	15.0122

CarMax Project

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	33	6.6987	0.3959	0.0000	15.0122
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**6.6987**	**0.3959**	**0.0000**	**15.0122**

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Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	33	6.6987	0.3959	0.0000	15.0122
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**6.6987**	**0.3959**	**0.0000**	**15.0122**

9.0 Operational Offroad

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

10.0 Vegetation

CalEEMod Version: CalEEMod.2013.2.2

Date: 12/10/2015 2:42 PM

CarMax Project

San Mateo County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Demo Debris Haul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Demo Debris Haul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Finishing/Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rough Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utility Trenching	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CarMax Project

San Mateo County, Mitigation Report

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	2	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	9	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Graders	Diesel	No Change	0	2	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	9	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	13	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00
Skid Steer Loaders	Diesel	No Change	0	1	No Change	0.00

CarMax Project

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Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	1.66000E-003	1.09300E-002	9.34000E-003	1.00000E-005	8.70000E-004	8.70000E-004	0.00000E+000	1.27663E+000	1.27663E+000	1.30000E-004	0.00000E+000	1.27946E+000
Concrete/Industrial Saws	3.23000E-003	2.31100E-002	1.88800E-002	3.00000E-005	1.74000E-003	1.74000E-003	0.00000E+000	2.68829E+000	2.68829E+000	2.60000E-004	0.00000E+000	2.69375E+000
Cranes	4.36600E-002	5.18320E-001	1.85710E-001	3.80000E-004	2.31100E-002	2.12600E-002	0.00000E+000	3.52817E+001	3.52817E+001	1.08100E-002	0.00000E+000	3.55087E+001
Excavators	1.12700E-002	1.26910E-001	1.02900E-001	1.60000E-004	6.24000E-003	5.74000E-003	0.00000E+000	1.48719E+001	1.48719E+001	4.52000E-003	0.00000E+000	1.49668E+001
Forklifts	4.87300E-002	4.21900E-001	2.88540E-001	3.50000E-004	3.48100E-002	3.20200E-002	0.00000E+000	3.27447E+001	3.27447E+001	1.00300E-002	0.00000E+000	3.29554E+001
Generator Sets	4.39000E-002	3.43740E-001	2.90560E-001	5.10000E-004	2.31300E-002	2.31300E-002	0.00000E+000	4.35210E+001	4.35210E+001	3.52000E-003	0.00000E+000	4.35950E+001
Graders	5.24000E-003	5.30300E-002	2.66100E-002	3.00000E-005	2.98000E-003	2.74000E-003	0.00000E+000	3.18132E+000	3.18132E+000	9.70000E-004	0.00000E+000	3.20179E+000
Pavers	5.40000E-003	6.04600E-002	4.25400E-002	7.00000E-005	2.98000E-003	2.74000E-003	0.00000E+000	6.28698E+000	6.28698E+000	1.93000E-003	0.00000E+000	6.32744E+000
Paving Equipment	4.24000E-003	4.82400E-002	3.80500E-002	6.00000E-005	2.41000E-003	2.22000E-003	0.00000E+000	5.58397E+000	5.58397E+000	1.71000E-003	0.00000E+000	5.61990E+000
Rollers	4.66000E-003	4.35200E-002	2.98600E-002	4.00000E-005	3.15000E-003	2.90000E-003	0.00000E+000	3.64911E+000	3.64911E+000	1.12000E-003	0.00000E+000	3.67259E+000
Rubber Tired Dozers	3.17200E-002	3.53860E-001	2.67160E-001	2.30000E-004	1.64500E-002	1.51400E-002	0.00000E+000	2.16590E+001	2.16590E+001	6.57000E-003	0.00000E+000	2.17971E+001
Skid Steer Loaders	8.00000E-004	1.02500E-002	1.03500E-002	2.00000E-005	5.50000E-004	5.10000E-004	0.00000E+000	1.41030E+000	1.41030E+000	4.30000E-004	0.00000E+000	1.41938E+000
Tractors/Loaders/Backhoes	7.38800E-002	7.09770E-001	5.57020E-001	7.20000E-004	5.34300E-002	4.91500E-002	0.00000E+000	6.72040E+001	6.72040E+001	2.05800E-002	0.00000E+000	6.76361E+001
Welders	3.85700E-002	1.34040E-001	1.47280E-001	2.00000E-004	9.84000E-003	9.84000E-003	0.00000E+000	1.44930E+001	1.44930E+001	3.14000E-003	0.00000E+000	1.45589E+001

CarMax Project

San Mateo County, Mitigation Report

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	1.66000E-003	1.09300E-002	9.34000E-003	1.00000E-005	8.70000E-004	8.70000E-004	0.00000E+000	1.27663E+000	1.27663E+000	1.30000E-004	0.00000E+000	1.27946E+000
Concrete/Industrial Saws	3.23000E-003	2.31100E-002	1.88800E-002	3.00000E-005	1.74000E-003	1.74000E-003	0.00000E+000	2.68828E+000	2.68828E+000	2.60000E-004	0.00000E+000	2.69375E+000
Cranes	4.36600E-002	5.18310E-001	1.85710E-001	3.80000E-004	2.31100E-002	2.12600E-002	0.00000E+000	3.52817E+001	3.52817E+001	1.08100E-002	0.00000E+000	3.55087E+001
Excavators	1.12700E-002	1.26910E-001	1.02900E-001	1.60000E-004	6.24000E-003	5.74000E-003	0.00000E+000	1.48718E+001	1.48718E+001	4.52000E-003	0.00000E+000	1.49668E+001
Forklifts	4.87300E-002	4.21900E-001	2.88540E-001	3.50000E-004	3.48100E-002	3.20200E-002	0.00000E+000	3.27447E+001	3.27447E+001	1.00300E-002	0.00000E+000	3.29554E+001
Generator Sets	4.39000E-002	3.43740E-001	2.90560E-001	5.10000E-004	2.31300E-002	2.31300E-002	0.00000E+000	4.35209E+001	4.35209E+001	3.52000E-003	0.00000E+000	4.35949E+001
Graders	5.24000E-003	5.30300E-002	2.66100E-002	3.00000E-005	2.98000E-003	2.74000E-003	0.00000E+000	3.18132E+000	3.18132E+000	9.70000E-004	0.00000E+000	3.20179E+000
Pavers	5.40000E-003	6.04600E-002	4.25400E-002	7.00000E-005	2.98000E-003	2.74000E-003	0.00000E+000	6.28698E+000	6.28698E+000	1.93000E-003	0.00000E+000	6.32743E+000
Paving Equipment	4.24000E-003	4.82400E-002	3.80500E-002	6.00000E-005	2.41000E-003	2.22000E-003	0.00000E+000	5.58396E+000	5.58396E+000	1.71000E-003	0.00000E+000	5.61989E+000
Rollers	4.66000E-003	4.35200E-002	2.98600E-002	4.00000E-005	3.15000E-003	2.90000E-003	0.00000E+000	3.64911E+000	3.64911E+000	1.12000E-003	0.00000E+000	3.67259E+000
Rubber Tired Dozers	3.17200E-002	3.53860E-001	2.67160E-001	2.30000E-004	1.64500E-002	1.51400E-002	0.00000E+000	2.16590E+001	2.16590E+001	6.57000E-003	0.00000E+000	2.17970E+001
Skid Steer Loaders	8.00000E-004	1.02500E-002	1.03500E-002	2.00000E-005	5.50000E-004	5.10000E-004	0.00000E+000	1.41030E+000	1.41030E+000	4.30000E-004	0.00000E+000	1.41937E+000
Tractors/Loaders/Backhoes	7.38800E-002	7.09770E-001	5.57020E-001	7.20000E-004	5.34300E-002	4.91500E-002	0.00000E+000	6.72039E+001	6.72039E+001	2.05800E-002	0.00000E+000	6.76361E+001
Welders	3.85700E-002	1.34040E-001	1.47280E-001	2.00000E-004	9.84000E-003	9.84000E-003	0.00000E+000	1.44930E+001	1.44930E+001	3.14000E-003	0.00000E+000	1.45588E+001

CarMax Project

San Mateo County, Mitigation Report

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.71984E-006	3.71984E-006	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	0.00000E+000	1.92931E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.13373E-006	1.13373E-006	0.00000E+000	0.00000E+000	1.12648E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.34482E-006	1.34482E-006	0.00000E+000	0.00000E+000	1.33629E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.22157E-006	1.22157E-006	0.00000E+000	0.00000E+000	1.21376E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.14887E-006	1.14887E-006	0.00000E+000	0.00000E+000	1.14692E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.58042E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.79084E-006	1.79084E-006	0.00000E+000	0.00000E+000	1.77939E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.38510E-006	1.38510E-006	0.00000E+000	0.00000E+000	1.37633E-006
Skid Steer Loaders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	7.04533E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19041E-006	1.19041E-006	0.00000E+000	0.00000E+000	1.18280E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.37998E-006	1.37998E-006	0.00000E+000	0.00000E+000	1.37373E-006

CarMax Project

San Mateo County, Mitigation Report

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
Yes	Replace Ground Cover of Area Disturbed	PM10 Reduction	5.00	PM2.5 Reduction	5.00		
Yes	Water Exposed Area	PM10 Reduction	55.00	PM2.5 Reduction	55.00	Frequency (per day)	2.00
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	15.00		
Yes	Clean Paved Road	% PM Reduction	9.00				

CarMax Project

San Mateo County, Mitigation Report

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.07	0.07
Asphalt Demo Debris Haul	Fugitive Dust	0.06	0.01	0.03	0.00	0.57	0.57
Asphalt Demo Debris Haul	Roads	0.01	0.00	0.01	0.00	0.07	0.06
Asphalt Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Demolition	Roads	0.00	0.00	0.00	0.00	0.06	0.00
Asphalt Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Paving	Roads	0.00	0.00	0.00	0.00	0.08	0.07
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.09	0.02	0.09	0.02	0.08	0.07
Building Demo Debris Haul	Fugitive Dust	0.04	0.01	0.02	0.00	0.57	0.57
Building Demo Debris Haul	Roads	0.00	0.00	0.00	0.00	0.07	0.06
Building Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Demolition	Roads	0.00	0.00	0.00	0.00	0.08	0.10
Fine Grading	Fugitive Dust	0.01	0.01	0.01	0.00	0.57	0.57
Fine Grading	Roads	0.00	0.00	0.00	0.00	0.07	0.09
Finishing/Landscaping	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Finishing/Landscaping	Roads	0.00	0.00	0.00	0.00	0.08	0.10
Rough Grading	Fugitive Dust	0.02	0.01	0.01	0.01	0.57	0.57
Rough Grading	Roads	0.00	0.00	0.00	0.00	0.09	0.11
Site Preparation	Fugitive Dust	0.13	0.07	0.05	0.03	0.57	0.57

CarMax Project

San Mateo County, Mitigation Report

Site Preparation	Roads	0.00	0.00	0.00	0.00	0.09	0.09
Utility Trenching	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Utility Trenching	Roads	0.00	0.00	0.00	0.00	0.07	0.05

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11	3.11	3.07	2.30	3.11
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	24.64	24.49	24.47	20.00	24.35	24.35	0.00	24.50	24.50	24.53	25.49	24.50
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	20.00	16.05	16.60	20.00	20.00	16.93
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CarMax Project

San Mateo County, Mitigation Report

Operational Mobile Mitigation

Project Setting:

Mitigation Selected	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.07	0.26		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			
No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			

CarMax Project

San Mateo County, Mitigation Report

	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

CarMax Project

San Mateo County, Mitigation Report

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

CarMax Project

San Mateo County, Mitigation Report

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	33.50	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

CarMax Project

San Mateo County, Mitigation Report

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
Yes	Install low-flow bathroom faucet	32.00	
Yes	Install low-flow Kitchen faucet	18.00	
Yes	Install low-flow Toilet	20.00	
Yes	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
Yes	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services	
Percent Reduction in Waste Disposed	

APPENDIX B:
BIOLOGICAL RECONNAISSANCE DATABASE REVIEW LETTER – JUNE 22, 2015

June 22, 2015

Ms. Annamarie Usher
Senior Engineer
ENGEO Incorporated
2010 Crow Canyon Pl, Suite 250
San Ramon, California 94583

Dear Ms. Usher,

The purpose of this letter is to inform you of the results of the biological reconnaissance database review for the approximately 10-acre Carmax property at 435, 445, and 455 Serramonte Boulevard in Colma, California. The area assessed encompasses three developed lots ("Study Area"), which are located northeast of CA-82 and southwest of Hillside Boulevard. The proposed project ("Project") entails redevelopment of the site for commercial purposes.

The Study Area was evaluated for the presence or absence of aquatic features and special-status plants and/or wildlife potentially present in the Study Area. The assessment was conducted using aerial photographs, literature, and databases to determine the potential to support the communities listed above. The presence of aquatic features would indicate the presence of potentially jurisdictional features under Section 404 of the Clean Water Act. Based on a review of background literature, databases, and aerial photographs, the Study Area is unlikely to support a majority of special-status plant and wildlife species that occur in the vicinity. The Study Area is developed with impervious surfaces and no aquatic features.

The following sections describe the methods and results of the assessment in more detail.

Methods

Background literature was reviewed to determine potential presence of sensitive vegetation types, aquatic communities, and special-status plant and wildlife species. Resources reviewed include aerial photography, mapped soil types, the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB 2015), the San Francisco South USGS 7.5' quadrangle map (1980), the National Wetland Inventory (NWI; USFWS 2013), the California Native Plant Society (CNPS) Online Database (2015), and species habitat requirements as noted in available literature. A site visit was not conducted as part of this assessment.

Results

<u>Vegetation and Aquatic Communities</u>

The majority of the site is developed and covered by impervious surfaces. The perimeter of the Study Area appears to be landscaped with ornamental shrubs and trees including Monterey cypress (*Hesperocyparis macrocarpa*) and eucalyptus (*Eucalyptus* sp.). Minimal, if any, vegetation is present within the interior of the Study Area. Vegetation that is present is part of a landscape design.

Aerial photograph of the Subject Property showing 3 parcels.	View of the Subject Property and landscaping, facing east.

Special Status Plant Species

Three special-status plant species, robust spineflower (*Chorizanthe robusta* var. *robusta*, 1B), Kellogg's horkelia (*Horkelia cuneata var. sericea*, 1B), and showy rancheria clover (*Trifolium amoenum*, 1B) are documented in the immediate vicinity (approximately 1.5 miles) of the Study Area (CDFW 2015). A review of occurrence records indicated that no special-status plant species occur in the Study Area. The Study Area is developed with impermeable surfaces and perimeter landscaping.

Special Status Wildlife Species

Two special-status wildlife species, callippe silverspot butterfly (*Speyeria callippe ssp. Callippe*, FE) and Mission blue butterfly (*Plebejus icarioides ssp. missionensis*, FE) are reported in the vicinity of the Study Area (CDFW 2015), approximately 0.5 mile east. However, occurrences of these species are located in the San Bruno Mountains, a natural resource area located to the east of the Subject Property. The Study Area does not provide suitable habitat for these species and special-status wildlife species are unlikely to occur there. The Study Area is located within an urban area, has a high level of human activity, and is mostly covered in impervious surfaces. Thus, it is unlikely for most wildlife to access the site, nor is the site a suitable movement corridor due to surrounding land use. Special-status wildlife species documented in the vicinity are unlikely to occur within the Study Area due to lack of suitable habitat.

Tree Removal

Any tree that has a diameter of 12 inches or more measured at 48 inches above natural grade will require a permit to remove or alter per Section 5.06 of the City of Colma municipal code. Based on a review of aerial photos and online databases for the Study Area, it appears to be

landscaped with Monterey Cyprus and eucalyptus trees which may be protected, especially if they were planted by the city. Further identification of all the trees in the Study Area would require a tree survey to determine species and size of each tree. The City of Colma should be consulted to determine appropriate tree removal permits that may be required.

In addition to preservation, trees or vegetation taller than 4 feet may contain the nests of birds protected by the Federal Migratory Bird Treaty Act (MBTA). The MBTA protects the nest, eggs, and young of most bird species, whether special-status or not. While special-status bird species are not likely to be present within the Study Area, it is possible that common species protected by the MBTA may nest during the general bird nesting period from February 1 to August 31 of any given year. For this reason, it is recommended that tree removal be planned for the non-breeding season, between September 1 and January 31. If tree removal cannot be done in the non-breeding season, a qualified biologist should perform pre-construction bird surveys within 14 days prior to tree removal. If nesting birds are discovered in the tree, it will likely be necessary to postpone tree removal until the nest is vacated.

Summary and Recommendations

Based on the results of the background literature, database review, and aerial photograph review, the Study Area does not contain any endangered species, sensitive habitats, or areas of potential jurisdictional wetlands. In addition, the Study Area is unlikely to support special-status plant and wildlife species.

If trees are to be removed as part of project activities, a City of Colma tree removal permit may be required and a breeding bird survey is recommended if tree removal is to occur between February 1 and August 31.

Please feel free to contact me with any questions or comments.

Sincerely,

Leslie Lazarotti
Senior Associate Biologist
WRA, Inc.

References

California Department of Fish and Wildlife (CDFW). 2015. California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch, Sacramento, CA.

California Native Plant Society (CNPS). 2015. Inventory of Rare and Endangered Plants of California. California Native Plant Society, Sacramento, California. Online at: http://www.rareplants.cnps.org; most recently accessed: May 12, 2015.

City of Colma. City of Colma Municipal Code. Online at: http://www.colma.ca.gov/index.php/codes/municipal-code/5-planning-zoning-use-development-of-land-1/90-g-chapter-5-subchapter-06-tree-cutting-and-removal-1/file;

most recently accessed: May 14, 2015.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September.

United States Fish and Wildlife Service (USFWS). 2015. San Francisco South Quadrangle Species Lists, Sacramento Fish and Wildlife Service.

APPENDIX C:
JURISDICTIONAL STATUS ASSESSMENT LETTER – JUNE 22, 2015

June 22, 2015

Ms. Annamarie Usher
Senior Engineer
ENGEO Incorporated
2010 Crow Canyon Pl, Suite 250
San Ramon, California 94583

Dear Ms. Usher,

The purpose of this letter is to inform you of the results of our jurisdictional status assessment for the 10-acre Carmax property at 435, 445, and 455 Serramonte Boulevard in Colma, California. The area assessed encompasses three developed lots ("Study Area"), which are located northeast of CA-82 and southwest of Hillside Boulevard. The proposed project ("Project") entails redevelopment of the site for commercial purposes.

The purpose of this letter is to present the results of the Section 404 (Clean Water Act) jurisdictional assessment. The Study Area was evaluated for the presence or absence of aquatic features and therefore indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and the Arid West Supplement (Corps 2008) under Section 328.3 of the Federal Code of Regulations.

Property Description

The Study Area is entirely developed with impervious surfaces. No aquatic features were observed within the Study Area. Study Area vegetation was limited to a narrow band along the perimeter of the three parcels. This vegetation consists of primarily of scattered landscaped trees including eucalyptus *(Eucalyptus* sp.) and Monterey pine (*Pinus radiata*).

Aerial photograph of the Subject Property showing 3 parcels.	View of the Subject Property and landscaping, facing east. The Subject Property currently functions as a series of car dealerships.

Methods

Background literature, aerial photographs, and online databases were reviewed to determine potential presence of aquatic communities and potential jurisdictional features in the Study Area. Resources reviewed include aerial photography, mapped soil types, and the National Wetland Inventory (NWI; USFWS 2013).

Conclusions

No aquatic features were observed within the Study Area. Therefore, no areas of the Study Area meet the jurisdictional requirements under Section 404 or Section 401 of the Clean Water Act.

Please feel free to contact me with any questions.

Sincerely,

Leslie Lazarotti
Senior Associate Biologist

WRA, Inc.

References

Google, Inc. Google Earth Images; 2015. Accessed May 14, 2015.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Department of the Army, Waterways Experiment Station, Vicksburg, Mississippi 39180-0631.

U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). September.

US Fish and Wildlife Service (USFWS). 2014. National Wetlands Inventory, Wetlands Mapper. http://www.fws.gov/wetlands/data/mapper.HTML. Accessed May 14, 2015.

APPENDIX D:
CULTURAL RESROUCES DUE DILIGENCE REVIEW – MAY 20, 2015

May 20, 2015

BASIN
RESEARCH
ASSOCIATES

1933 DAVIS STREET
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SAN LEANDRO, CA 94577
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Ms. Annamarie Usher, PE
Staff Engineer
ENGEO Incorporated
2010 Crow Canyon Place, Suite 250
San Ramon, CA 94583

RE: Cultural Resources Due Diligence Review
435, 445, and 455 Serramonte Boulevard, Town of Colma, San Mateo County

Dear Ms. Usher,

This letter report provides the results of a records search conducted by the California Historical Resources Information System, Northwest Information Center (CHRIS/NWIC), Sonoma State University; a limited literature review of materials on file with Basin Research Associates (BASIN); and, a request for a review of the Sacred Lands Inventory by the Native American Heritage Commission for the above project.

The research was undertaken to determine if significant cultural resources are recorded or could be present within or adjacent to the proposed project site located in the Town of Colma, San Mateo County. The information obtained on the location, type and distribution of any cultural resources may be used in determining any future actions in accordance with the California Environmental Quality Act (CEQA) and local conditions by the Town of Colma.

PROJECT LOCATION AND DESCRIPTION

The approximately 8.8 acre project site is located at 435, 445, and 455 Serramonte Boulevard (APN 011341340 and APN 011341350) on the south side of Serramonte Boulevard between El Camino Real and Hillside Boulevard, Town of Colma. A portion of the southern part of project site is adjacent to the Home of Peace Cemetery/Hills of Eternity Memorial Park (1299 El Camino Real) (ENGEO 2015; United States Geological Survey (hereafter USGS) San Francisco South, CA 1995, T 3South R 5West, Unsectioned) [Figs. 1-3].

The rectangular project site is occupied by three buildings: AW Collision, an existing auto repair shop at 435 Serramonte Boulevard; a vacant Hyundai service center building at 445 Serramonte Boulevard; and, a vacant Jeep, Chrysler, and Plymouth service center at 455 Serramonte Boulevard. The proposed project would build a 20,221 square foot building with no additional space for expansion.

RESEARCH SOURCES CONSULTED

A prehistoric and historic site record and literature search of the project site and adjacent area was conducted by the CHRIS/NWIC (File No. 14-0813 by Hagel dated 1/26/2015).

The BASIN literature review included a review of lists of various state and/or federal historically or architecturally significant structures, landmarks, or points of interest in/adjacent included the *Historic Properties Directory* for San Mateo County (CAL/OHP 2012a) and the list of *California Historical Resources* (CAL/OHP 2015). Other sources included: *California History Plan* (CAL/OHP 1973); *California Inventory of Historic Resources* (CAL/OHP 1976); *Five Views: An Ethnic Sites Survey for California* (CAL/OHP 1988); the *Archaeological Determinations of Eligibility for San Mateo County* [ADOE] (CAL/OHP 2012b); and, other lists and maps (see References Cited and Consulted).

The *Certified Sanborn Map Report*, the *EDR Historical Topographic Map Report*, and *The EDR Aerial Photo Decade Package* (Environmental Data Resources [EDR] 2015a-c) provided by ENGEO were also reviewed.

The Native American Heritage Commission (NAHC) was contacted for a review of the Sacred Lands Files (Busby 2015). No response was received.

No other agencies, departments or local historical societies were contacted regarding landmarks, potential historic sites or structures.

SUMMARY CONTEXT

NATIVE AMERICAN - Prehistoric

Native American occupation and use of the general area appears to extend over 5000-7000 years and may be longer. Archaeological information suggests an increase in the prehistoric population over time with an increasing focus on permanent settlements with large populations in later periods. This change from hunter-collectors to an increased sedentary lifestyle is due to more efficient resource procurement but with a focus on staple food exploitation, the increased ability to store food at village locations, and the development of increasing complex social and political systems including long-distance trade networks.

The general project area was within an environmentally advantageous area for Native Americans located between the resources of the San Francisco bayshore and the foothills. North-south travel would have been relatively easy east of the project between the marshy bayshore and rugged hills along the approximate route of Junipero Serra Boulevard and SR-82/*El Camino Real*/Mission Road. Springs and water courses were often a foci of prehistoric occupation in central California with Native American groups exploiting a variety of ecological niches on the alluvial plain, the foothills and bay margins. Colma Creek[1] is located approximately 1000 feet

1. Also known as *Arroyo de San Bruno* from 1774/1775 through the 1850s when San Bruno Creek was used by the Americans. Also called Twelve Mile Creek (Brown 1975:21-22, 80).

west of project and former San Bruno Lake, drained in the 1870s, was nearby[2] (Brown 1975:80; Givler 2007).

Prehistoric site types recorded in the region consist of lithic scatters, quarries, habitation sites (including burials), bedrock mortars or other milling feature sites, petroglyph sites, and isolated burial sites. None of the aboriginal habitation mounds recorded by Nels C. Nelson (1909, ca. 1912) during his survey of the periphery of the entire San Francisco Bay region are located near the project.

For general reviews of San Mateo County and Bay Area regional prehistory see Elsasser (1978, 1986), Moratto and Singh (1971), Moratto (1984), Hylkema (2002), and Jones and Klar (2007).

NATIVE AMERICAN - Ethnographic

The project is within the *Ramaytush* subdivision of the *Costanoan* (or Ohlone) which included much of present day San Mateo and San Francisco counties (Levy 1978:485). Recent research by Milliken (2006:27, Fig. 5) places the study area within San Bruno/*Urebure* territory.

Researchers are in relative agreement that the ethnic group/tribelet known as the *Urebure* or *sipliskin* (San Bruno); alternatively *Siplichouin*, *Shiplishkin*, *sipliskin*, etc.) were present in the vicinity of the project. Kroeber (1925:465, Fig. 42) maps the settlement of *Urebure*; Brown (1975:79) places the *Shiplishkin* at San Bruno Lake and El Camino in Colma (ca. 0.25 mile northeast of the project near present-day Villa Avenue); Milliken (1983:137, 139, Maps 2, 4) maps two villages, *Sipchiquin* (San Bruno) on the north side of Colma Creek and the *Urebure* further south on the south side of San Bruno Creek; Milliken (1995:258-259) as the *Urebure*, people of San Bruno Creek – "San Bruno, the place called by the natives *Siplichiquin*" from present-day Millbrae north to South San Francisco; and, Levy (1978:485, Fig. 1, #15) maps only the *sipliskin* (San Bruno)[3] (Brown 1973-1974:n.p.; Milliken 1983:80-81; Milliken 1995:229, Map 5; 258-259; Milliken 2006:27, Fig. 5). Note *Wuriwuri*,[4] was an Indian place name for "something in the vicinity of the present town of San Bruno (approximately 3.5 miles southeast of the project) (Brown 1975:12).

The aboriginal lifeway apparently disappeared by 1810 due to its disruption by EuroAmerican diseases, a declining birth rate, and the impact of the mission system (see Hispanic Period below). For the most part, the former hunters and gatherers were transformed into agricultural laborers and worked with former neighboring groups such as the Esselen, Yokuts, and Miwok. After secularization of the missions between 1834 and 1836, some Native Americans returned to traditional religious and subsistence practices while others labored on Mexican ranchos. Thus, multi-ethnic Indian communities grew up in and around Ohlone territory and provided informant

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2. On the northern boundary of *Rancho Buriburi* in northeast corner of Section 13 of T 3S R 6W, on the east side of the San Jose Stage Road (west of the *El Camino Real*/Old Road to San Jose). Brown (1975:80) places the lake on the northwest corner of the El Camino-Villa Avenue intersection in Colma.

3. The most northerly village mapped by Levy (1978).

4. Namesake of *Rancho Buriburi*.

testimony to ethnologists from 1878 to 1933. Former mission neophytes formed multi-tribal Indian communities in various locales (e.g., Levy 1978:486-487).

For a more extensive review of local Native Americans see Kroeber (1925), Harrington (1942), King (1978), Levy (1978), Bean (1994), Brown (1973-1974, 1975) and Milliken (1983, 1995, 1996, 2006).

HISTORIC ERA RESOURCES - Hispanic Period

Spanish government policy in northwestern New Spain was directed at the founding of presidios, missions, and secular towns, with the land held by the Crown (1769-1821), while the later Mexican policy stressed the individual ownership of land (1822-1848) (Hart 1987:201, 314-315).

Spanish explorers in the late 1760s and 1770s were the first Europeans to traverse the San Francisco Peninsula. The first party, that of Gaspar de Portola and Father Juan Crespi, traveled up the coast in search of Monterey Bay but failed to recognize it based on previous descriptions. In the fall of 1769, they first sighted San Francisco Bay from Sweeney Ridge on the Peninsula. Sergeant Jose Francisco Ortega scouted the area although his exact route remains uncertain. The second Hispanic exploration party, that of Fernando Javier Rivera and Father Francisco Palou, reached the San Francisco Peninsula in late 1774. The same route was followed by Heceta in 1775. In 1776, Colonel Juan Bautista de Anza and Father Pedro Font traveled from Monterey to San Francisco. The Juan Bautista de Anza National Historic Trail [1776][5] places their northward route along present-day El Camino Real/Route 82 within the vicinity of the project and their return along Skyline Boulevard west of the project. As mapped by the USNPS, the 445 Serramonte Boulevard project appears to be located east of the “Historic Trail Corridor” (Hoover et al. 1966:388-392; Beck and Haase 1974:#17; Hynding 1982:17-19; SMa/DEM 1986:#44; USNPS 1995:Sheet 41; USNPS 1996:btwn 20-21, C-44; Gudde 1998:331).

Mission San Francisco de Asis (also known as *Mission San Francisco Dolores* or *Mission Dolores* for its location on Arroyo de los Dolores) was formally established on October 9, 1776, the 6th of the 21 missions founded in California. This mission was one of seven missions located within Ohlone territory and provided for all the religious needs of the Peninsula until the American Period (Beck and Haase 1974:#19; Hart 1987:324). In the early 1780s, the Mission San Francisco outstation of *San Pedro y San Pablo (*known by late 1786 as *San Pedro*), was established on the coastside in San Pedro Valley at the Native American village of *Pruristac* (ca. 6.5 miles southwest of the project). In the late 1790s soldiers of the San Francisco *Presidio* established a cattle ranch at "*Buriburi*, between San Bruno and San Mateo" in present-day San Bruno. Mission Dolores atrophied during the 1820s and in 1823 and most of its Neophytes were removed from the San Francisco Peninsula (Hoover 1966:393; Brown 1973-1974:n.p.; Brown 1975:64; Hynding 1982:20, 22; Milliken 1996:25).

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5. The National Trails System Act (P.L. 90-543 (16 U.S.C. 1241 et. seq) as amended through P.L. 102-461, October 23, 1992 defines three types of national trails: National scenic trails, National recreation trails, and National historic trails. National historic trails are *extended trails which follow as closely as possible and practicable the original trails or routes of travel of national historical significance*. They are established to identify and protect a historic route, plus its historic remnants and artifacts, for public use and enjoyment (USNPS 1996:Appendix A).

The project is within the far northern part of the *Rancho Buriburi* [Buri Buri] just west of the western boundary of *Rancho Canada de Guadalupe la Visitacion y Rodeo Viejo.* The closest Hispanic Era dwellings associated with the *Rancho Laguna de la Merced* were to the north of the project. These dwellings were located just north of *Rancho Buriburi* west of El Camino Real within present-day Green Lawn Memorial Park north of Villa Avenue 0.3 miles north/northwest of the project (Matthewson 1858; United States Surveyor General 1864; Hendry and Bowman 1940:994-995, H&B #1-2; Hoover et al. 1966:402-403).

HISTORIC ERA RESOURCES - American Period

The initial population explosion in the region was associated with the Gold Rush (1848), followed later by the construction of the transcontinental railroad (1869). Still later, European immigration and the development of a prosperous dairy industry had an impact on population growth in the area. Until about World War II, San Mateo County was dominated by an predominantly agricultural or rural land-use pattern. San Mateo County was created in 1856 from the southern part of San Francisco County and enlarged by annexing part of Santa Cruz County in 1868. Major transportation routes and systems in the study area include *El Camino Real*, former toll roads, the San Jose and San Francisco Railroad in 1863 (later Southern Pacific Railroad 1906-1907), the electric service in 1903 and the Bayshore Highway. The San Francisco earthquake and fire of 1906 and post-World War II settlement were responsible for notable growth spurts in the communities on the Peninsula (Hoover 1966:389; Fickewirth 1992:129; Hart 1987).

Study Area

In 1856, a school house for the area north of Belmont was built in what was to become Colma, at a small crossroads settlement and railroad stop. The future Town of Colma consisted of a small collection of homes and businesses. In 1863, the San Francisco and San Jose Railroad ran east of Bernal Heights (in the City and County of San Francisco) south and eastward past Oceanview along the east side of Junipero Serra Boulevard from about San Pedro Road crossing to the east side of SR-82/El Camino Real at F Street (the northern boundary of the Italian Cemetery). The nearest railroad stop in the study area, Colma Station, initially known as School House Station, was located at El Camino Real and San Pedro Avenue (ca. 0.9/1.0 miles north/northwest of the project). The School House Station post office was established in February 1869; its name was changed to Colma Station in July 1888. "Station" was dropped in November 1895. In the 1890s, the northernmost of the “Cemeteries” (including the project) were approximately 1.25 miles south of Colma (USGS 1896; Brown 1975:21; Patera 1991:45, 193; Gudde 1998:86; Colma 1999:5.08.35).

Today, Colma is notable for its cemeteries - as of the year 2000 cemeteries occupied nearly three-quarters of the land within the Town limits.[6] The first interment in the Colma area was at Holy Cross Cemetery in 1887. By the early 1890s, cemeteries in the study area began south of the Italian Cemetery (1899), bounded by El Camino Real and the future Hillside Boulevard.

6. Shoup and Brack (1994/S-17191) provide an extensive historical context and description of seven of the many cemeteries located in Colma.

Access to Colma and its cemeteries was facilitated by the San Francisco & San Mateo Railway Company, an electric trolley line incorporated in 1891.[7] A City and County of San Francisco ordinance prohibiting cemeteries within City boundaries after August 1, 1901 required the exhumation of the existing city burial grounds and was responsible for the relocation of the cemeteries from San Francisco to Colma. By 1904, ten cemeteries had been established in the immediate study area. The incorporation of the 2.2 mile square City of Lawndale occurred in 1924, primarily at the behest of the cemetery owners with the cooperation of the handful of nearby cemetery residents. Originally, the residents of the town were primarily employed in occupations related to the various cemeteries in the town. Since the 1980s, Colma has become more diversified, with a variety of retail businesses, shopping centers, automobile dealerships and a game room, which have brought more sales tax revenue to the town government (Stanger 1963:158; Brown 1975:21; Hynding 1982:95-102; Fickewirth 1992:129; Colma 1999; USGS 1896, 1915).

Project Area Specific

The 1858 Matthewson Plat of the *Rancho Buri Buri* finally confirmed to Jose de la Cruz Sanchez et al. maps the site of the *Corral de Madera* [corral, yard of the woods] in the far northeast part of *Rancho Buriburi* in the vicinity of the project, but definitely to the west of the project area on the west side of the "San Jose Stage Road" (e.g., SR-82/*El Camino Real*). The "Old Road to San Jose" is shown on the same plat east of the "San Jose Stage Road" and may have passed through or near the 445 Serramonte Boulevard project site (e.g., Matthewson 1858).

The USGS San Mateo topographic quadrangle maps of 1895 and 1915, as well as the 1943 United States War Department (based on 1939 photography) show no features within the project site. The 1980 and 1995 topographic maps show the project site and near vicinity within/between cemeteries – the Salem Cemetery on the north and the Home of Peace Cemetery on the south. Serramonte Boulevard was constructed between 1980 and 1993. The review of the USGS topographic quadrangles and aerial photographs indicate that the three buildings now occupying the project site at 435, 445, and 455 Serramonte Boulevard were constructed after 1982 and prior to 1987 (USGS 1895 [surveyed 1892], 1915 [surveyed 1892, part culture revised 1914), 1980, 1995; US War Dept 1943 [photography 1939] with EDR 2015b [USGS series] EDR 2015c [Aerials]).

RESEARCH FINDINGS

The intent of the research was to identify historic properties (prehistoric and historic resources) within the project site which may be listed, determined or potentially eligible for inclusion on the California Register of Historical Resources (CRHR) and which could be affected by the proposed project. The records search, literature review and field inventory of the project site determined:

- No prehistoric or combined prehistoric/historic sites have been recorded or reported in or adjacent to the project site.

7. This line eventually ran south to Baden Station and onto the City of San Mateo, about 3.0 miles south of Colma.

- Two cultural compliance reports on file at the CHRIS/NWIC include all or part of the project site.
    - *BART-San Francisco Airport Extension Project Draft Environmental Impact Report / Supplemental Environmental Impact Statement. A Historic Resources Evaluation Report of Seven Colma Cemeteries, Colma, California* (Shoup and Brack 1994/S-17191).
    - *Cultural Resource Assessment of Alternative Routes for PG&E's Jefferson-Martin Transmission Line, San Mateo County, California* (Brown et al. 2003/S-27930).
- A portion of one historic period resource, the Home of Peace Cemetery/Hills of Eternity Memorial Park (P-41-000403) located at 1299 El Camino Real, is present adjacent to part of the southern boundary of the 445 Serramonte Boulevard project site. The Hills of Eternity Memorial Park abuts the Home of Peace Cemetery but the latter is not located adjacent to the project site.

  The Home of Peace Cemetery is the largest, oldest and richest cemetery in Colma and is also the oldest Jewish cemetery in the west. The cemetery has been determined eligible for the National Register of Historic Places under criteria B and C and the California Register of Historical Resources under criteria 2 and 3.[8]

  The Home of Peace Historic District is also listed as a Town of Colma Historical Resource (#15) in the General Plan with a date of 1889 (Colma 1999:5.08.7, Fig. HR-1; 5.08.9, Table HR-1; 5.08.46; 5.08.48, Fig. HR-7, 5.08.49).
- No known ethnographic or contemporary Native American resources, including villages, sacred places, traditional or contemporary use areas, have been identified in or adjacent to the project site.
- No known or potential Hispanic era archaeological resources have been recorded or reported in or adjacent to the project site.
- No significant American Period resources other than the two cemeteries have been recorded or reported in or adjacent to the project site.
- No listed, determined or pending archaeological sites, significant local, state or federal historic properties, landmarks, etc. have been identified within the project site.
- The general project area appears to have a low sensitivity for prehistoric archaeological resources and archival research indicates no potential or minimal potential for subsurface American Period archaeological resources within the project site.

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8. *They* [the two cemeteries] *appear to qualify for the National Register as a state-level district whose period of significance is the late 19th and early 20th centuries. These two cemeteries make up a district due to their historic and visual unity. This district appears to qualify under criteria B and C of the National Register significance criteria."* This district [*sic*] is notable for *"graves of persons of exceptionally significant in California's economic history"* and as "*an excellent example of cemetery design during the period 1889-1945*" (see Shoup et al. 1993). For the California Register, they qualify under criteria 2 and 3 -*"(2) is associated with the lives of persons important in our past"* and NR "C" criterion equivalent to *"(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values*" (CAL/OHP 2012a).

ANALYSIS

The proposed project will have no effect on the values for which the Home of Peace Cemetery/Hills of Eternity Memorial Park has been determined eligible for inclusion on the National Register of Historic Places and the California Register of Historical Resources. It is the considered opinion of BASIN that the proposed project will not affect the setting or cultural landscape of the adjacent and nearby cemeteries as it is located within a current commercial setting and the new project will not change the existing setting.

RECOMMENDATIONS

It is recommended, based on the review of pertinent records, maps and other documents, that the proposed project can proceed as planned in regard to known or potential prehistoric and historic archaeological resources. No subsurface testing for buried archaeological resources appears warranted within the project site.

If any potentially significant cultural materials[9] are exposed or discovered during either site preparation or subsurface construction activities within the project site, operations should stop within 25 feet of the find and a qualified professional archaeologist contacted for further review, evaluation and recommendations consistent with the California Environmental Quality Act and any requirements of the Town of Colma. State law shall be followed in the event of the exposure of Native American skeletal remains.

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9. Significant prehistoric cultural resources may include:

   a. Human bone - either isolated or intact burials.
   b. Habitation (occupation or ceremonial structures as interpreted from rock rings/features, distinct ground depressions, differences in compaction (e.g., house floors).
   c. Artifacts including chipped stone objects such as projectile points and bifaces; groundstone artifacts such as manos, metates, mortars, pestles, grinding stones, pitted hammerstones; and, shell and bone artifacts including ornaments and beads.
   d. Various features and samples including hearths (fire-cracked rock; baked and vitrified clay), artifact caches, faunal and shellfish remains (which permit dietary reconstruction), distinctive changes in soil stratigraphy indicative of prehistoric activities.
   e. Isolated artifacts

   Historic cultural materials may include finds from the late 19th through early 20th centuries. Objects and features associated with the Historic Period can include.

   a. Structural remains or portions of foundations (bricks, cobbles/boulders, stacked field stone, postholes, etc.).
   b. Trash pits, privies, wells and associated artifacts.
   c. Isolated artifacts or isolated clusters of manufactured artifacts (e.g., glass bottles, metal cans, manufactured wood items, etc.).
   d. Human remains.

   In addition, cultural materials including both artifacts and structures that can be attributed to Hispanic, Asian and other ethnic or racial groups are potentially significant. Such features or clusters of artifacts and samples include remains of structures, trash pits, and privies.

CLOSING REMARKS

If I can provide any additional information or be of further service please don't hesitate to contact me.

BASIN RESEARCH ASSOCIATES, INC.

Colin I. Busby, Ph.D., RPA
Principal

CIB/dmg

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P-41-000402, Salem Memorial Park, 1171 El Camino Real, Colma.
P-41-000403, Home of Peace Cemetery/Hills of Eternity Memorial Park, 1299 El Camino Real, Colma.
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Abbreviations

n.d. no date v.d. various dates N.P. no publisher noted
n.p. no place of publisher noted

ATTACHMENTS

FIGURES

Figure 1	General Project Location
Figure 2	Project Location (USGS San Francisco South, CA 1995)
Figure 3	Aerial View of Project Area (Google Earth 2015)

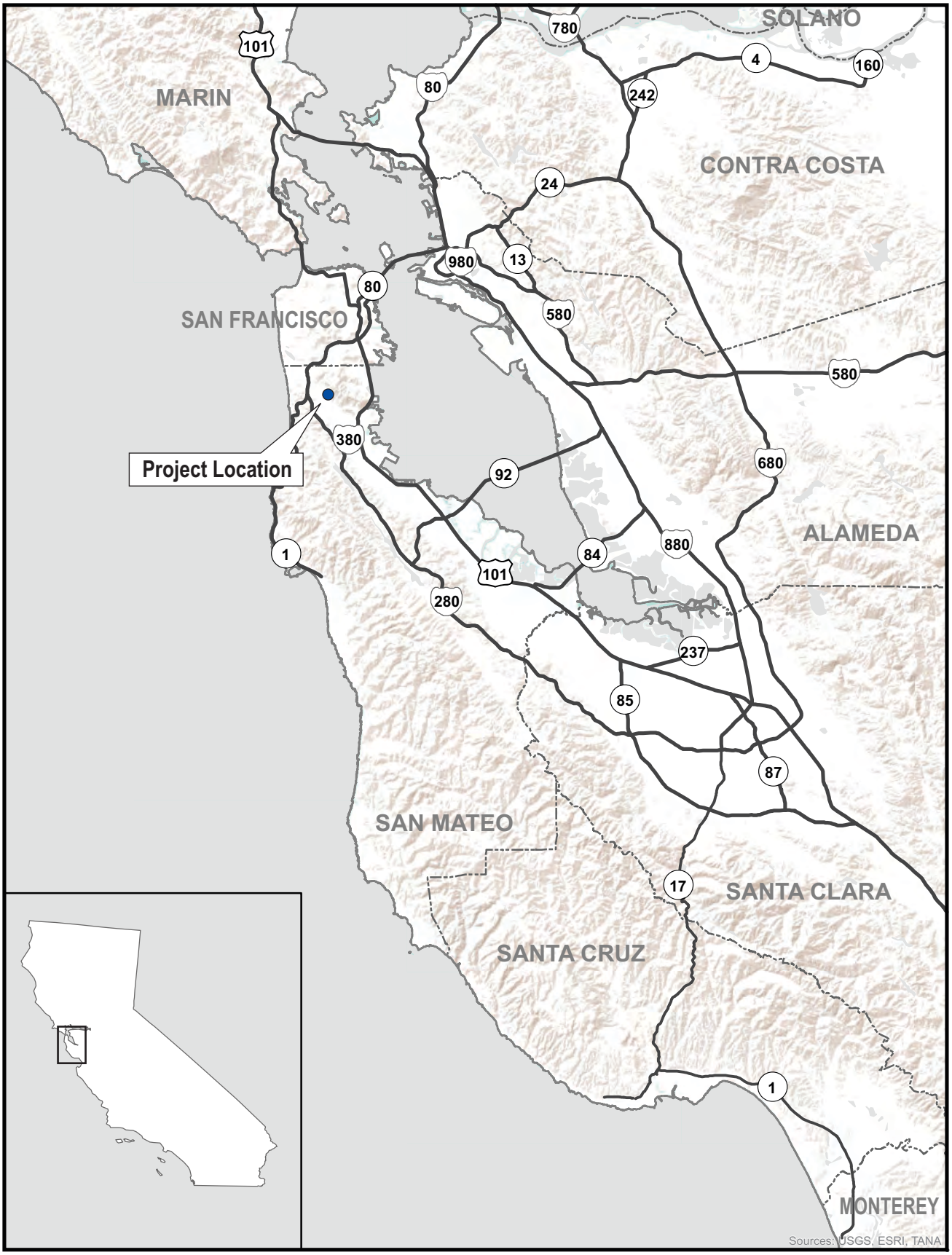

Figure 1: General Project Location

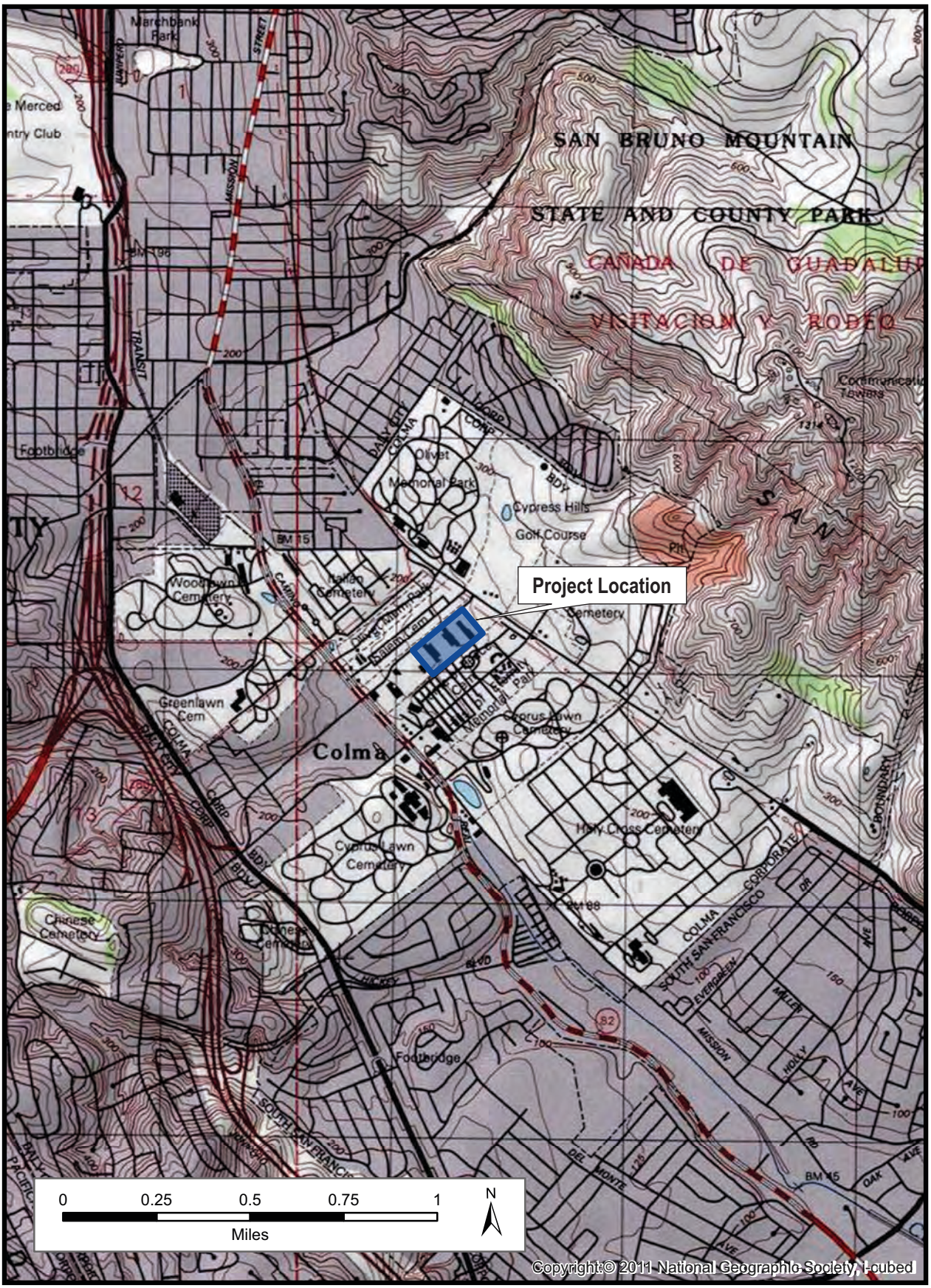

Figure 2: Project Location (USGS San Francisco South, CA 1995)

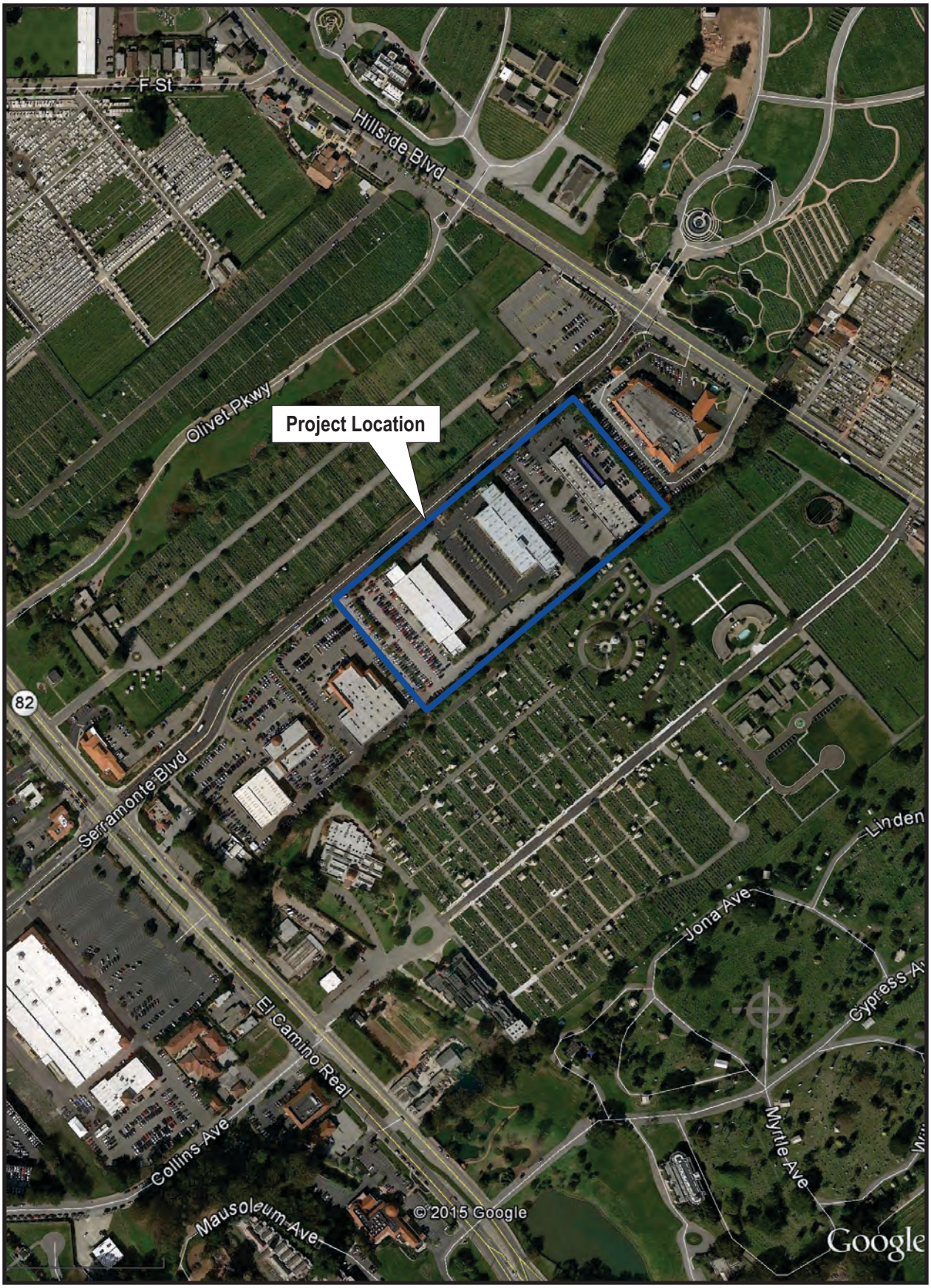

Figure 3: Aerial View of Project Area

APPENDIX E:
GEOTECHNICAL EXPLORATION – JULY 17, 2015

GEOTECHNICAL EXPLORATION

CARMAX AUTOMOTIVE DEALERSHIP

COLMA, CALIFORNIA

Submitted to:
Ms. Amanda Steinle
CenterPoint Integrated Solutions, LLC
1240 Bergen Parkway, Suite A-250
Evergreen, Colorado

Prepared by:
ENGEO Incorporated

July 17, 2015

Project No:
12054.000.000

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Project No.
12054.000.000

July 17, 2015

Ms. Amanda Steinle
CenterPoint Integrated Solutions, LLC
1240 Bergen Parkway, Suite A-250
Evergreen, CO 80439

Subject: CarMax Automotive Dealership
Capitol Expressway Auto Mall
San Jose, California

GEOTECHNICAL EXPLORATION

Dear Ms. Steinle:

We are pleased to present this geotechnical exploration report for the CarMax Automotive Dealership in Colma, California, as outlined in our agreement executed on April 20, 2015. We characterized the subsurface conditions at the site to provide the enclosed geotechnical recommendations for design.

Based on the exploration data and laboratory test results, it is our opinion that from a geotechnical standpoint, the proposed development is feasible, provided the recommendations included in this report are incorporated into design and implemented during construction. The main geotechnical concerns regarding the proposed development are the (1) presence of undocumented fill and (2) potential shallow groundwater.

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to review the project plans and specifications and provide geotechnical observation and testing services during construction. Please let us know when working drawings are nearing completion, and we will be glad to discuss these additional services with you.

If you have any questions or comments regarding this report, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

We prepared this geotechnical report for design of the CarMax Automotive Dealership in Colma, California as outlined in our agreement dated April 20, 2015. CenterPoint Integrated Solutions, LLC authorized us to conduct the proposed scope of services, which included the following:

- Subsurface field exploration
- Soil laboratory testing
- Data analysis and conclusion development
- Report preparation

For our use, we received the following:

1. Request for Proposal for Geotechnical and Environmental Services for Automotive Dealership in Colma, California, dated January 22, 2015.

2. Preliminary Site Plan, Charles J. O'Brien, Architect, provided by CenterPoint Integrated Solutions, dated April 2, 2015 (1 Sheet).

3. Preliminary Site Plan, CenterPoint Integrated Solutions, dated June 12, 2015 (4 Sheets).

This report was prepared for the exclusive use of CenterPoint Integrated Solutions, CarMax Auto Superstores California, LLC and their consultants for design of this project. In the event that any changes are made in the character, design or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to determine whether modifications are necessary.

1.2 PROJECT LOCATION

The project site comprises two developed parcels currently used for commercial purposes. The site is located on the southeast side of Serramonte Boulevard, between El Camino Real and Hillside Boulevard in Colma, California (Figure 1). The approximately 8.8-acre site is identified as Assessor's Parcel Numbers (APN) 011-341-340 and 011-341-350 on the San Mateo County Assessor's Parcel Map. The addresses associated with the project site are 435, 445, and 455 Serramonte Boulevard. Based on historical topographic maps, the site slopes in elevation from southwest to northeast across the site. The elevation ranges from approximately 175 feet at the southwest area of the site to approximately 215 feet at the northeast area of the site based on regional topography (datum: NAVD88). The site is terraced between the three existing structures. The buildings have the following current or past uses:

- 455 Serramonte Boulevard: vacant former Jeep, Chrysler, and Plymouth service center building.

- 445 Serramonte Boulevard: vacant former Hyundai service center building.
- 435 Serramonte Boulevard: existing automotive repair shop (AW Collision).

The site is bounded by Serramonte Boulevard to the north, a casino to the east, the Home of Peace Cemetery to the south and an Acura dealership and service center to the west.

1.3 PROJECT DESCRIPTION

Based on the June 12, 2015 site plan by CenterPoint Integrated Solutions, we understand the proposed development for the site is an automotive dealership consisting of the following:

- A sales office with an approximate area of 11,171 square feet.
- A service center with an approximate area of 6,141 square feet.
- A car wash with an approximate area of 939 square feet.
- A presentation room building with an approximate area of 1,965 square feet.
- Car lifts with a capacity of 10,000 pounds and an assumed weight of 2,000 pounds.
- Asphalt and Portland Cement Concrete paved parking and drives.
- Site masonry walls.
- Underground utilities.

According to the previously referenced Request for Proposal, maximum building column loads of 120 kilo-pounds (kips) and maximum wall loads of 4 kips per lineal foot are expected. We understand settlements of 1-inch total and ½-inch differential over 40 feet are tolerable.

1.4 REVIEW OF HISTORIC MAPS AND AERIAL PHOTOGRAPHS

As a part of our current study, we reviewed historical aerial imagery and topographic maps. The Environmental Data Resources (EDR) topographic maps show that the site slopes up to the east. Based on our review of the aerial photographs provided by EDR, between 1943 and 1956, the site shows primary use as agricultural land and several small structures. Based on the 1968 photograph, the small structures are no longer present and in the 1982 photograph, several large-footprint structures are visible. Historic aerial photography in this area indicates an old stream along the southeastern boundary of the site. The stream appears to be infilled in the 1993 photograph. The existing site buildings and associated paved parking lots are visible in the 1993 photograph.

2.0 FINDINGS

2.1 FIELD EXPLORATION

Our field exploration included drilling 30 exploratory borings, and advancing five Cone Penetration Tests (CPTs) at various locations on the site. We performed our field exploration between April 23, 2015, and April 30, 2015. After reviewing the subsurface data, we recommended that four additional test pits be excavated with the aim of confirming the

groundwater profile beneath the site. The test pits were completed on June 29, 2015. The locations of our explorations shown on Figure 2 are approximate and were estimated with a handheld GPS location device and the elevations are approximated from regional topographic information; these should be considered accurate only to the degree implied by the method used. We permitted and backfilled the explorations in accordance with the requirements of San Mateo County Environmental Health Services Division. We marked the site at least 48 hours prior to drilling our borings for an Underground Service Alert utilities check. We retained a private utility locator to check for private utilities on site.

2.1.1 Exploratory Borings

We retained a truck-mounted rig equipped with 6-inch-diameter solid-flight auger to drill 30 exploratory borings to a maximum depth of approximately 30½ feet below existing grade (bgs). The exploratory borings were logged in the field and soil samples were collected using either a 2½-inch inside diameter California-type split-spoon sampler, fitted with 6-inch-long steel liners, or a 2-inch outside diameter a Standard Penetration Test split-spoon sampler. The penetration of the samplers was recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments. The boring logs record blow count results as the actual number of blows required for the last 1 foot of penetration; no conversion factors have been applied to the values on the boring logs in Appendix A. The samplers were driven with a 140-pound hammer falling a distance of 30 inches employing an automatic trip system for the hollow-stem auger drilling and a rope and cathead system for the solid flight auger drilling.

The boring logs depict the subsurface conditions encountered at the time of the exploration, and they describe the soil type, color, consistency, and visual classification in general accordance with the Unified Soil Classification System (USCS). Subsurface conditions at other locations may differ from conditions occurring at these boring locations, and the passage of time may result in altered subsurface conditions. In addition, stratification lines represent the approximate boundaries between soil types, and the transitions may be gradual. Select samples recovered during drilling activities were tested to determine various soil characteristics as described in Section 2.2.

2.1.2 Cone Penetration Tests

We retained a CPT rig to push the cone penetrometer to a maximum depth of about 50 feet. The CPT testing was performed in general accordance with ASTM D-3441. Measurements included in the CPT logs (Appendix C) include the tip resistance to penetration of the cone (Qc), the resistance of the surface sleeve (Fs), and pore pressure (U) (Robertson and Campanella, 1988).

2.1.3 Test Pits

We retained a backhoe excavator to excavate four test pits to a maximum depth of 16 feet. We logged the test pits and spoils in general accordance with the USCS. The soil logs are located in Appendix A.

2.2 LABORATORY TESTING

We performed laboratory testing on select samples recovered during drilling activities to determine various soil characteristics as presented on the following table.

TABLE 2.2-1
Laboratory Testing

Soil Characteristic	Testing Method	Location of Results
Unit Weight and Moisture Content	ASTM D2216 ASTM D2937	Appendix A
Passing #200 Sieve	ASTM D1140	Appendix B
Particle Size Distribution	ASTM D422	Appendix B
Resistance Value (R-Value)	Caltrans 301	Appendix B
Water-Soluble Sulfate in Soils	ASTM C1580	Appendix B
Corrosivity	ASTM D1498, D4972, G57, D4327, D4327	Appendix F

2.3 GEOLOGY AND SEISMICITY

2.3.1 Geology

The project site is located in the Coast Ranges geologic province of California, which is dominated by a series of northwest-trending valleys and ridges. The Coast Ranges physiographic province is typified by a system of northwest-trending, fault-bounded mountain ranges and intervening alluviated valleys. Bedrock in the Coast Ranges consists of igneous, metamorphic and sedimentary rocks that range in age from Jurassic to Pleistocene. The present physiography and geology of the Coast Ranges are the result of deformation and deposition along the tectonic boundary between the North American plate and the Pacific plate. Plate boundary fault movements are largely concentrated along the well-known fault zones, which in the area include the San Andreas, Hayward, and Calaveras faults, as well as other lesser-order faults.

Regional geologic mapping indicates that the site is underlain by Quaternary Colma formation (Qc) consisting of yellowish orange to gray sandy clay and silty sand (Bonilla, M.G., 1998). Quaternary alluvium (Qal) is mapped along El Camino Real, approximately 600 feet to the west of the property; the Qal in this area consists of mostly sand and silt, but locally containing clay, gravel or boulders. In addition to the mapped geology based on our research of historic maps and photographs, the previous development at the site and associated grading activities suggest the site is underlain by deposits of artificial “man-made” fill over the natural deposits. The regional geology mapping is shown in Figure 3.

2.3.2 Seismicity

The site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone and no known surface expression of active faults is believed to exist within the site (Figure 5). Fault rupture through the site is not anticipated; therefore, the risk of ground rupture at the site is low.

The region surrounding the proposed development contains numerous active earthquake faults. An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years) (Hart, 1997). We used the United States Geologic Survey (USGS) 2008 National Seismic Hazard Maps Fault Parameters to determine the distances of active faults to the subject site. The four nearest earthquake faults zoned as active by the USGS are the San Andreas, located approximately 1.4 miles to the west; the San Gregorio, located approximately 6.2 miles to the west; the Hayward-Rogers Creek, located approximately 16.6 miles to the east; and the Monte Vista-Shannon fault, located approximately 20.0 miles to the southeast.

Two inferred Quaternary fault traces have been historically mapped in the Town of Colma, which include the San Bruno fault and the Hillside fault. According to regional geologic mapping, the Hillside fault trace was shown as an inferred location northwest of the site (Bonilla, M.G., 1998). The Hillside fault trace and the San Bruno fault trace were shown as an inferred location northwest of the site (Wagner et al., 1991). According to the USGS Open-File Report 98-354, "A recent study of geophysical, geomorphic, and geological data found no evidence supporting the existence of the hypothetical San Bruno fault as a mappable structure (U.S. Geological Survey, 1997), and the fault has been deleted."

Numerous small earthquakes occur every year in the San Francisco Bay Region, and larger earthquakes have been recorded and can be expected to occur in the future. Figure 4 shows the approximate locations of these faults and significant historic earthquakes recorded within the San Francisco Bay Region.

The 2014 Working Group on California Earthquake Probabilities evaluated the regional seismicity of the Bay Area and published their results as The Uniform California Earthquake Rupture Forecast, Version 3 (UCERF 3). The Working Group periodically attempts to summarize seismic risk in California with time-dependent earthquake rupture forecasts, in which the probabilities of future events are conditioned upon the dates of previous earthquakes. According to UCERF 3, there is an aggregated 72 percent probability of 6.7 M_W or greater earthquake on an active Bay Area fault over the next 30 years. The probability of a 6.7M_W or greater earthquake on the Hayward Fault, Calaveras and San Andreas faults are 14, 7, and 6 percent, respectively, over the next 30 years.

Currently, the California Geological Survey (CGS) has not published updated maps for San Mateo County liquefaction and landslide risk. However, based upon regional geologic mapping and our experience with nearby projects, areas mapped as Quaternary alluvium (including the area fronting El Camino Real) may be susceptible to liquefaction. Furthermore, based upon USGS's regional liquefaction hazard analysis, the area along El Camino Real is mapped as moderate susceptibility (Witter et al., 2006).

2.4 SURFACE CONDITIONS

During our field exploration, we performed a brief site reconnaissance and observed the following site features:

- The ground surface ranges from approximately Elevation 175 feet at the southwest area of the site to approximately 215 feet at the northeast area of the site based on regional topographic mapping.

- The site is terraced between the three existing structures. The commercial buildings are vacant or occupied by auto dealers and various auto care/repair shops.

- There is a slope at the northeast site boundary between the properties. The elevation of the adjacent property up to 25 feet higher than the project ground surface (based on regional topographic information).

- The terraced slopes between the three buildings and associated parking lots onsite and the ground surface elevation differences compared to adjacent properties indicate that cuts into the native soil and historic fill maybe present. We have no documentation regarding the placement of any existing fill on the site as of the preparation of this report.

- The site is bounded by Serramonte Boulevard to the northwest, a casino to the northeast, the Home of Peace Cemetery to the southeast and an Acura dealership and service center to the southwest.

Please refer to the Site Plan, Figure 2, for more information on site features.

2.5 SUBSURFACE CONDITIONS

The exploration locations were located in the existing paved parking lot areas of the site. Generally, we encountered approximately 2 to 7 inches of asphalt overlaying approximately 0 to 10 inches of aggregate base. Generally, the exploratory borings in the northeast area of the site did not encounter fill. However, most of the exploratory borings and in the test pits in the southwest area of the site, encountered 2 to 13 feet of undocumented fill; the fill generally consisted of medium dense to very dense silty sand. The test pits along the southern perimeter of the structure at 445 Serramonte Boulevard encountered fill ranging in depth from 5½ feet adjacent to the southern side of the building to 10 feet adjacent to the southern site boundary. Historic aerial photography in this area indicates an old stream was infilled along this section of the site and the fill identified in the two southern test pits confirms this interpretation. The test pit on the northwestern corner of the structure at 445 Serramonte Boulevard also encountered fill to a depth of 13 feet. Based on the site development, the undocumented fill could be due to general site earthwork activities when the existing buildings were constructed. . Underlying the fill or in borings and test pits where no fill was encountered, we encountered native silty sand deposits of the Colma formation in our exploratory borings. The Colma formation we encountered generally consists of medium dense to very dense poorly graded sand with silt and silty sand. In general, we encountered discontinuous layers of medium dense silty sand that may be susceptible to liquefaction when saturated by the potentially shallow groundwater table.

The specific stratigraphy for each boring and test pit is depicted on the exploration logs in Appendix A and for each CPT sounding is depicted on the CPT report in Appendix C.

2.6 GROUNDWATER CONDITIONS

Groundwater was encountered during our field exploration at approximately 7 to 15 feet below ground surface in the borings and test pit 1-TP03 northeast of the structure located at 445 Serramonte Boulevard. Groundwater was not encountered during the field exploration in Borings 1-B01 through 1-B15 with a maximum depth of 30 feet bgs, nor test pits 1-TP01, 1-TP02 and 1-TP04 with a maximum depth of 15 feet and not measured in CPTs 1-CPT01 through 1-CPT05 with a maximum depth of 50 feet bgs. Based on this information, the area on the eastern portion of the site is underlain by shallow perched groundwater. The fluctuation of the groundwater throughout the site could be due to the presence of undocumented fill, previous site development, or a natural geologic horizontal or vertical barrier such as a hardpan soil layer. Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, changes in drainage patterns, irrigation, and water flow in nearby creeks, and other factors not evident at the time measurements were made.

3.0 DISCUSSION AND CONCLUSIONS

Based on the exploration data and laboratory test results, it is our opinion that, from a geotechnical standpoint, the proposed development is feasible provided the recommendations included in this report are incorporated into design and implemented during construction. The main geotechnical concerns regarding the proposed development include: (1) presence of undocumented fill and (2) potential shallow groundwater. Our conclusions and recommendations pertaining to these items, as well as related grading measures, as discussed in the following sections of this report.

3.1 NON-ENGINEERED FILL

The paved parking lot surface consisted of approximately 2 to 4 inches of asphalt overlaying approximately 6 to 10 inches of aggregate base. Under the parking lot, our exploratory borings indicate that the site is underlain by existing fill on the southwestern and southern portion of the site in borings 1-B01 through 1-B07 and test pits 1-TP01, 1-TP02 and 1-TP04. The fill extends across the southwestern portion of the site generally at a thickness of 3 to 13 feet. At the time of preparing this report, we have no records documenting the fill placement.

Without documentation of the fill placement, we recommend that it be considered non-engineered. The presence of non-engineered fill can lead to excessive foundation settlement of structures as well as pavement subgrade instability due to variable soil density and material properties. We recommend complete removal and compaction of the existing fill within all proposed building, retaining wall and wall footprints and partial removal and recompaction of the existing non-engineered fill within pavement areas. We present fill removal recommendations in Section 4.3.

3.2 POTENTIAL SHALLOW GROUNDWATER

We encountered groundwater in exploratory Borings 1-B16 through 1-B30 and test pit 1-TP03 as summarized in Section 2.6. The fluctuation of the groundwater throughout the site could be due to the presence of existing fill, previous site development, or a natural geologic horizontal or vertical barrier such as a hardpan soil layer. Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, changes in drainage patterns, irrigation, and water flow in nearby creeks, and other factors not evident at the time measurements were made.

During excavation activities onsite, shallow groundwater may be encountered at the site. The contractor should anticipate shoring and dewatering will be required in excavations below the groundwater table.

3.3 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include soil liquefaction, ground shaking, and ground lurching. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of lateral spreading, landslides, seiches, and tsunamis considered low to negligible at the site.

3.3.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

3.3.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the current California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads.

3.3.3 Liquefaction

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary loss of shear strength because of pore pressure build-up under the reversing cyclic shear stresses associated with earthquakes. Empirical evidence indicates that loose fine-grained soil including low plasticity silt and clay is also potentially liquefiable. When seismic ground shaking occurs, the soil is subjected to cyclic shear stresses that can cause excess hydrostatic pressures to

develop and liquefaction of susceptible soil to occur. If liquefaction occurs, and if the soil consolidates or vents to the surface during and following liquefaction, ground settlement and surface deformation may occur. Liquefaction is generally considered possible when the depth to groundwater is within about 50 feet from the ground surface and was analyzed as such in this report.

Currently, the California Geological Survey (CGS) has not published updated maps for San Mateo County liquefaction and landslide risk. Furthermore, based upon USGS's regional liquefaction hazard analysis, the area along El Camino Real, approximately 600 feet to the west of the project boundary is mapped as moderate liquefaction susceptibility (Witter et al., 2006). In general, the soil encountered in the exploration locations at the site comprise dense to very dense silty sand from the Colma formation.

An evaluation of liquefaction potential was performed using the CPT data with the software program Cliq (Version 1.7.1.6.49) applying the methodologies published by Robertson (2009). We used the methods outlined by Robertson (2009) to estimate volumetric strains on "claylike" soils. Robertson recommends capping the volumetric strain for cohesive soils at 0.5 percent. We used the existing ground surface based our field exploration. Since groundwater was not encountered in the exploration locations adjacent to 1-CPT01 and 1-CPT02, we did not include 1-CPT01 and 1-CPT02 in the liquefaction analysis. We used the Mapped MCE Geometric Mean peak ground acceleration (PGA_M) of 0.90 g for liquefaction analysis based on the 2013 California Building Code. Based on the 2008 United States Geologic Survey probabilistic seismic hazard deaggregation analysis, we used the San Andreas fault contribution to hazard with a moment magnitude (M_w) of 8.0. We evaluated the liquefaction potential for the soil encountered below the observed groundwater table. The results indicate that in general discontinuous lenses and layers silty sand and sandy silt less than two feet in thickness are potentially liquefiable in CPTs 1-CPT03, 1-CPT04, and 1-CPT05. The results of the liquefaction analyses for in CPTs 1-CPT03, 1-CPT04, and 1-CPT05 are attached as Appendix C.

3.3.4 Liquefaction-Induced Ground Settlement

We evaluated potential post-liquefaction ground settlement at the site using the CPT sounding and methods outlined above and assuming the shallow groundwater level as previously discussed. We considered liquefaction-related settlement in the upper 50 feet.

Based on our analysis of the CPTs from this study, we estimate that resulting liquefaction-induced settlements are negligible.

3.3.5 Lateral Spreading

Lateral spreading is a failure within weak soils, typically due to liquefaction, which causes a soil mass to move toward a free face, such as an open channel, or down a gentle slope. Even though there are susceptible liquefiable layers identified on the site, the risk of lateral spreading is considered low due to the discontinuous and limited layers of susceptible layers of silty sand.

3.3.6 Ground Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form in weaker soils. The potential for the formation of these cracks is considered greater at contacts between deep alluvium and bedrock. Such an occurrence is possible at the site as in other locations in the Bay Area Region, but based on the site location, it is our opinion that the offset is expected to be low.

3.4 SOIL CORROSION AND SULFATE CONTENT

3.4.1 Soil Corrosion Potential

Two soil samples were collected and transported under chain-of-custody to CERCO Analytical for laboratory testing. The two samples were tested for ASTM soil corrosivity laboratory test methods performed by CERCO Analytical, including redox potential, pH, resistivity, sulfate ion and chloride ion concentration. These tests provide an indication of the corrosion potential of the soil environment on buried concrete structures and metal pipes. The results of each of these tests are summarized below.

TABLE 3.4.1-1
Soil Corrosivity Test Results

Sample No.	Redox (mV)	pH	Resistivity (ohms-cm)	Sulfate* (mg/kg)	Chloride* (mg/kg)
1-B14 at 1-2’	370	7.13	2,600	47	18
1-B22 at 1-2’	360	7.80	4,300	32	N.D.

*Results reported on “As Received Basis”

CERCO Analytical provided a summary report of the corrosion results. With respect to bare steel or ductile iron, the range of the resistivity results classifies the soil samples tested as moderately corrosive. The range of results for chlorides and pH with respect to bare steel or ductile iron classifies the soil as non-corrosive. The range of results for redox potential with respect to bare steel or ductile iron classifies the soil as slightly corrosive. The range of results for sulfate with respect to mortar-coated steel classifies the soil as non-corrosive. For specific recommendations, we present the analytical lab test results in Appendix E.

3.4.2 Soil Sulfate Concentration

Samples of the near-surface soil (within upper 2 feet of existing grade) were collected from Borings 1-B13 and 1-B17. The soil samples at the proposed structural concrete footprints were tested for sulfate concentrations to determine appropriate cement and foundation concrete design parameters for the subject buildings based on the requirements of the 2013 California Building Code (CBC). The samples were tested for concentrations of water-soluble sulfate (SO_4) in accordance with ASTM C1580 and the laboratory test results are attached.

The sulfate test results indicate that the near-surface soil has a low (non-detectable) soluble sulfate concentration. The 2013 CBC references the 2011 American Concrete Institute Manual, ACI 318-11, Chapter 4 for structural concrete requirements. ACI Tables provide the exposure categories and classes, and concrete requirements in contact with soil based upon the exposure risk. The sulfate test results indicated that the near-surface soil falls in sulfate class 'S0.'

Considering a S0 class, or Not Applicable for sulfate exposure, there is no requirement for cement type or water-cement ratio; however, a minimum concrete compressive strength of 2,500 psi is specified by the building code. For this sulfate exposure class, we recommend Type II cement and a concrete mix design for foundations and building slabs-on-grade that incorporates a maximum water-cement ratio of 0.50. It should be noted, however, that the structural engineering design requirements for concrete may result in more stringent concrete specifications.

We present the analytical lab test results in Appendix B.

3.5 2013 CALIFORNIA BUILDING CODE SEISMIC DESIGN PARAMETERS

Based on the subsurface soil conditions encountered and local seismic sources, the site may be designed based on 2013 California Building Code (CBC) seismic design parameters shown in the following table.

TABLE 3.5-1
2013 CBC Seismic Design Parameters

Parameter	Value
Site Class	D
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S (g)	2.32
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1 (g)	1.11
Site Coefficient, F_A	1.00
Site Coefficient, F_V	1.50
MCE_R Spectral Response Acceleration at Short Periods, S_{MS} (g)	2.32
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1} (g)	1.67
Design Spectral Response Acceleration at Short Periods, S_{DS} (g)	1.55
Design Spectral Response Acceleration at 1-second Period, S_{D1} (g)	1.11
Mapped MCE Geometric Mean Peak Ground Acceleration (g)	0.90
Site Coefficient, F_{PGA}	1.00
MCE Geometric Mean Peak Ground Acceleration, PGA_M (g)	0.90

Site: Latitude = 37.6789; Longitude = -122.4542

4.0 EARTHWORK RECOMMENDATIONS

4.1 EARTHWORK

All grading and site development plans should be reviewed by the project Engineering Geologist and the Geotechnical Engineer. Review of the corrective grading procedures for the site including a quantitative analysis of the grading should be done prior to commencement of any construction work.

The project Geotechnical Engineer or qualified representative should be present during the site work to observe demolition, site preparation and grading operations. The Geotechnical Engineer should be notified a minimum of 72 hours prior to the commencement of any grading or stripping operations at the site. This is to provide time to coordinate the work with the Grading Contractor.

Ponding of stormwater, other than within engineered detention basins, should not be permitted at the site, particularly during work stoppage for rainy weather. Before the grading is halted by rain, positive slopes should be provided to carry the surface runoff to storm drainage structures in a controlled manner to prevent erosion damage.

4.2 DEMOLITION AND GENERAL SITE CLEARING

Areas to be developed should be cleared of all surface and subsurface deleterious materials, including existing building foundations, slabs, buried utility and irrigation lines, pavements, debris, and designated trees, shrubs, and associated roots. Site development will commence with the general clearing of the site and the excavation and removal of buried structures, including abandoned utilities. Any soft compressible soils should be removed from areas to receive fill or structures. Subject to approval by the Landscape Architect, strippings and organically contaminated soils can be used in landscape areas. Otherwise, such soils should be removed from the project site. Clean and backfill excavations extending below the planned finished site grades with suitable material compacted to the recommendations presented in Section 4.6. Retain ENGEO to observe and test all backfilling. No loose or uncontrolled backfilling of depressions resulting from demolition or stripping is permitted.

All excavations from demolition and stripping below design grades should be cleaned to a firm undisturbed soil surface determined by the Geotechnical Engineer. This surface should then be scarified to a depth of 12 inches, moisture conditioned, and backfilled with compacted engineered fill. The requirements for backfill materials and placement operations are the same as for engineered fill.

Due to the granular material encountered in our exploration locations and the potential for shallow groundwater, trenches below the groundwater table may collapse. Construction methods for trench work should include dealing with unstable and saturated trench conditions.

4.3 EXISTING FILL REMOVAL

In general, our exploratory borings and test pits in the footprint of the proposed buildings did not encounter fill. However, we observed fill in exploratory borings and test pits onsite. Based on our review of historical aerial photographs, fill could be encountered below the proposed building and CMU wall and retaining wall areas. If fill is encountered during site grading, the contractor should remove all existing fill to competent native soil in the planned building and CMU wall and retaining wall areas, as determined by an ENGEO representative. The lateral extent and depth of fill is expected to vary across the site. We recommend removing the non-engineered fill below all planned building footprints.

As a minimum in areas of existing fill removal and recompaction, we recommend removal of existing fill a minimum horizontal extent of 5 feet beyond the building footprints and 2 feet beyond the CMU and retaining wall footprints. If a differential fill thickness greater than 10 feet is expected during non-engineered fill removal, differential fill thickness recommendations are discussed in Section 4.4.

The fill and loose soil outside the building and CMU and retaining wall footprint "zone" should be overexcavated to a depth of at least 12-inches and replaced with engineered fill. After removal, the exposed non-yielding surface should be scarified to a depth of 12 inches and recompacted to provide adequate bonding with the initial lift of fill.

Due to the granular material encountered in our exploration locations and the potential for shallow groundwater, groundwater may be encountered in various locations during the existing fill removal. Unsupported excavation below the groundwater table may collapse. Construction methods for excavation work below encountered groundwater conditions should include dealing with unstable and saturated conditions.

4.4 DIFFERENTIAL FILL THICKNESS

Differential building movements may result from conditions where building pads have significant differentials in fill thickness. We recommend that the differential fill thickness across any building pad or CMU and retaining wall foundation be no greater than 10 feet. Local subexcavation of soil material and replacement with compacted fill may be needed to achieve this recommendation.

4.5 ACCEPTABLE FILL

Onsite soil is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 4 inches in maximum dimension. Imported fill material should be approved by the Geotechnical Engineer, meet the above requirements and have a plasticity index less than 12. Allow ENGEO to sample and test proposed imported fill materials at least 72 hours prior to delivery to the site.

4.6 FILL COMPACTION

After removal of the loose/disturbed soil, the exposed non-yielding surface of areas to receive backfill/structures should be scarified to a depth of 12 inches, moisture conditioned, and recompacted. The loose lift thickness should not exceed 12 inches or the depth of penetration of the compaction equipment used, whichever is less.

The following compaction control requirements should generally be applied to general fills:

Test Procedures:	ASTM D-1557 (most recent).
Required Moisture Content:	Not less than 2 percentage points above optimum moisture content.
Minimum Relative Compaction:	Not less than 90 percent.

Compact the pavement Caltrans Class 2 Aggregate Base section to at least 95 percent relative compaction (ASTM D1557). Moisture condition aggregate base to or slightly above the optimum moisture content prior to compaction.

4.7 SITE DRAINAGE

4.7.1 Surface Drainage

The project civil engineer is responsible for designing surface drainage improvements. With regard to geotechnical engineering issues, we recommend that finish grades be sloped away from buildings and pavements to the maximum extent practical. The latest California Building Code Section 1804.3 specifies minimum slopes of 5 percent away from foundations. Where surface improvements restrict meeting this slope requirement, we recommend that specific drainage requirements be developed. As a minimum, we recommend the following:

1. Discharge roof downspouts into closed conduits and direct away from foundations to appropriate drainage devices.

2. Do not allow water to pond near foundations, pavements, or exterior flatwork.

4.8 GRADED SLOPES

We recommend the graded slopes should generally be inclined at a maximum 3:1 (horizontal:vertical) slope gradient not higher than 20 feet.

All fill should be adequately keyed into firm natural materials. The minimum key sizes and details are shown on Figure 6. Horizontal benches should be excavated into firm soil or bedrock as the filing proceeds. The vertical spacing of benches should be no more than five feet. Based on the preliminary site development plan, we anticipate that a keyway will be needed at the bottom of the graded slope at the southwestern site boundary.

4.9 STORMWATER BIORETENTION AREAS

If bioretention areas are implemented, we recommend that, when practical, they be planned a minimum of 5 feet away from property lines, keyways and structural site improvements, such as buildings, streets, retaining walls, and sidewalks/driveways. When this is not practical, bioretention areas located within 5 feet of structural site improvements can either:

1. Be constructed with structural side walls capable of withstanding the loads from the adjacent improvements, or

2. Incorporate filter material compacted to between 85 and 90 percent relative compaction (ASTM D1557, latest edition) and a waterproofing system designed to reduce the potential for moisture transmission into the subgrade soil beneath the adjacent improvement.

In addition, site improvements located adjacent to bioretention areas that are underlain by base rock, sand, or other imported granular materials, should be designed with a deepened edge that extends to the bottom of the imported material underlying the improvement.

Where adjacent site improvements include buildings greater than three stories, streets steeper than 3 percent, or design elements that will experience lateral loads (such as from impact or traffic patterns), additional design considerations may be required. If the surface of the bioretention area is depressed, the slope gradient should follow the slope guidelines described in earlier section(s) of this document. In addition, although not recommended, if trees are to be planted within bioretention areas, HDPE Tree Boxes that extend below the bottom of the bioretention system should be installed to reduce potential impact to subdrain systems that may be part of the bioretention area design. For this condition, the waterproofing system should be connected to the HPDE Tree Box with a waterproof seal.

Given the nature of bioretention systems and possible proximity to improvements, we recommend ENGEO be retained to review design plans and provide testing and observation services during the installation of linings, compaction of the filter material, and connection of designed drains.

It should be noted that the contractor is responsible for conducting all excavation and shoring in a manner that does not cause damage to adjacent improvements during construction and future maintenance of the bioretention areas. As with any excavation adjacent to improvements, the contractor should minimize the exposure time such that the improvements are not detrimentally impacted.

5.0 FOUNDATION RECOMMENDATIONS

The main consideration in foundation design for this project is the differential movement due to the non-engineered fill. In order to mitigate the potential differential settlement due to potential irregularities in the fill, the foundation should bear on engineered fill material in conformance with the existing fill removal recommendations discussed in Section 4.3. We developed

foundation recommendations using data obtained from our field exploration, laboratory test results, and engineering analysis. We recommend the following two foundation options:

- Structural mat foundation
- Shallow foundations with slab-on-grade

5.1 STRUCTURAL MAT FOUNDATIONS

The proposed commercial structure can be supported on a structural mat foundation system.

A minimum mat thickness of 12 inches is recommended. The minimum soil backfill height against the slab at the perimeter should be 6 inches. Mat foundations should be designed for a uniform bearing pressure of 1,000 pounds per square foot (psf) for dead-plus-live load. This value may be increased to 1,500 psf under individual columns or walls to accommodate stress concentrations at those locations. These values can be increased by one-third for seismic loading.

The mat foundation should be placed on a minimum 12 inches of engineered fill. The engineered fill should be firm or native soil that is scarified to a depth of 12 inches. If existing fill is encountered in the foundation footprint, the undocumented fill should be removed and reompacted in conformance with the existing fill removal recommendations discussed in Section 4.3

The structural engineer should provide final design thickness and reinforcement, as necessary, for the intended structural loads.

5.1.1 Subgrade Modulus for Structural Slab Design

We recommend using a modulus of subgrade reaction of 120 pci (pounds per square inch per inch of settlement) for mat design.

5.2 SHALLOW FOUNDATIONS WITH SLAB-ON-GRADE

5.2.1 Continuous and Interconnected Strip Footings

The proposed commercial structures may be supported by a conventional continuous and interconnected strip or isolated footing foundation system. The slab-on-grade should be placed on a minimum 12 inches of engineered fill. The engineered fill should be firm or native soil that is scarified to a depth of 12 inches. If existing fill is encountered in the foundation footprint, the undocumented fill should be removed and reompacted in conformance with the existing fill removal recommendations discussed in Section 4.3

Conventional continuous and interconnected footings should be designed utilizing to the following design criteria:

TABLE 5.2.1-1
Minimum Footing Dimensions

Footing Type	Minimum Depth (inches)	Minimum Width (inches)
Continuous	24	12
Isolated	24	24

Minimum footing depths shown above are taken from lowest adjacent pad grade. The cold joint between the exterior footing and slab-on-grade should be located at least 4 inches above adjacent exterior grade.

Design foundations recommended above for a maximum allowable bearing pressure of 2,500 pounds per square foot (psf) for dead-plus-live loads. Increase this bearing capacity by one-third for the short-term effects of wind or seismic loading.

All footings located adjacent to utility trenches should have their bearing surfaces below an imaginary 1:1 (horizontal:vertical) plane projected upward from the bottom edge of the trench to the footing.

Footing trenches should be cleared of all loose soil prior to placing concrete. It is important that footing trenches not be allowed to desiccate prior to concrete placement. If a two-pour system is used for footings and slab, the cold joint between the exterior footing and slab-on-grade should be located at least 4 inches above adjacent finish exterior grade. If this is not done, then we recommend the addition of a waterstop between the two pours to reduce moisture penetration through the cold joint and migration under the slab. Use of a monolithic pour would eliminate the need for the waterstop.

Provided our report recommendations are followed, and given the proposed construction, we estimate total and differential foundation static settlements will be less than approximately 1 and ½ inch, respectively.

5.2.2 Lateral Resistance

Lateral loads may be resisted by friction along the base and by passive pressure along the sides of foundations. The passive pressure is based on an equivalent fluid pressure in pounds per cubic foot (pcf). We recommend the following allowable values for design:

- Passive Lateral Pressure: 300 pcf
- Coefficient of Friction: 0.40

Increase the above values by one-third for the short-term effects of wind or seismic loading. Passive lateral pressure should not be used for footings on or above slopes.

The recommendations for slab moisture vapor reduction in Section 5.2.4.2 should be used when water vapor migrating through the slab would be undesirable. The recommendations will reduce, but not stop, upward water vapor transmission through the mat foundations.

5.2.3 Waterstop

If a two-pour system is used for footings and slab, the cold joint between the exterior footing and slab-on-grade should be located at least 4 inches above adjacent finish exterior grade. If this is not done, then we recommend the addition of a waterstop between the two pours to reduce moisture penetration through the cold joint and migration under the slab. Use of a monolithic pour would eliminate the need for the waterstop.

5.2.4 Slab-on-Grade Interior Concrete Floor Slabs

5.2.4.1 Minimum Design Section

We recommend the following minimum design:

1. Provide a minimum concrete thickness of 5 inches.

The structural engineer should provide final design thickness and reinforcement, as necessary, for the intended structural loads.

5.2.4.2 Slab Moisture Vapor Reduction

When buildings are constructed with concrete slab-on-grade, water vapor from beneath the slab will migrate through the slab and into the building. This water vapor can be reduced but not stopped. Vapor transmission can negatively affect floor coverings and lead to increased moisture within a building. When water vapor migrating through the slab would be undesirable, we recommend the following to reduce, but not stop, water vapor transmission upward through the slab-on-grade.

1. Install a vapor retarder membrane directly beneath the slab. Seal the vapor retarder at all seams and pipe penetrations. Vapor retarders shall conform to Class A vapor retarder in accordance with ASTM E 1745-97 “Standard Specification for Plastic Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs”.

2. Concrete should have a concrete water-cement ratio of no more than 0.50.

3. Provide inspection and testing during concrete placement to check that the proper concrete and water cement ratio are used.

4. Moist cure slabs for a minimum of 3 days or use other equivalent curing specific by the structural engineer.

The structural engineer should be consulted as to the use of a layer of clean sand or pea gravel (less than 5 percent passing the U.S. Standard No. 200 Sieve) placed on top of the vapor retarder membrane to assist in concrete curing.

6.0 RETAINING WALLS

6.1 LATERAL SOIL PRESSURES

Retaining walls not restrained from the top should be designed for active lateral loading conditions, while walls restrained at the top should be designed for at-rest lateral loading conditions. The recommended lateral equivalent fluid pressures (static case) are presented below:

TABLE 6.1-1
Lateral Earth Pressures

Loading Condition	Equivalent Fluid Pressures (pcf)
Cantilevered (Active) Level Backfill	40
Cantilevered (Active) 4 to 1 Backfill	50
Cantilevered (Active) 3 to 1 Backfill	60
Cantilevered (Active) 2 to 1 Backfill	70
Restrained (At-Rest) Level Backfill	70

Where surcharge loads from vehicles are expected within a distance equal to the height of the walls, the walls should be designed for an additional uniform lateral pressure of 250 psf to be applied over the entire height of the wall or 10 feet, whichever is less.

Passive pressures acting on retaining walls may be assumed as 300 pounds per cubic foot (pcf), provided that the area in front of the retaining wall is level for a distance of at least 10 feet or three times the depth of foundation and keyway, whichever is greater. The upper 1 foot of soil should be excluded from passive pressure computations unless it is confined by pavement or concrete slab. The friction factor for sliding resistance may be assumed as 0.40. Appropriate safety factors against overturning and sliding should be incorporated into the design calculations.

Seismic conditions need to be considered in the design of the retaining walls that are greater than 6 feet in height. Under seismic conditions, the active incremental seismic force along the face of a retaining wall should be added to the static active pressures (even in restrained wall conditions, the seismic load should be added to the active pressures for that wall height and backfill slope), and can be calculated as follows:

$$\Delta P = 13 \times H^2$$

H is the design height of the wall (in feet) and ΔP is the active incremental seismic force in pounds per foot of wall length. This force has a horizontal direction and should be applied at 0.3 x H from the base of the wall.

6.2 RETAINING WALL DRAINAGE

All walls retaining more than 2 feet of soil should be provided with drainage facilities to prevent the build-up of hydrostatic pressures behind the walls. Wall drainage may be provided using a 4-inch-diameter perforated pipe embedded in either free-draining gravel surrounded by synthetic filter fabric (minimum 6-ounce) or Class 2 permeable material (Part 2 of Supplemental Recommendations, Section 2.05B). The width of the drain blanket should be at least 12 inches, and the drain blanket should extend to about 1 foot below the finished grades. The upper 1 foot of wall backfill should consist of compacted site soils. Drainage should be collected into solid pipes and directed to an outlet approved by the Civil Engineer. Synthetic filter fabric should meet the minimum requirement listed in the Supplemental Recommendations and be preapproved by the Geotechnical Engineer prior to delivery.

All backfill should be placed in accordance with recommendations provided above for engineered fill. Light equipment should be used during backfill compaction to minimize possible overstressing of the walls.

6.3 RETAINING WALL FOUNDATIONS

Retaining walls may be supported on continuous footings designed for an allowable bearing pressure of 2,500 psf embedded to a minimum depth of 24 inches. Increase this bearing capacity by one-third for the short-term effects of wind or seismic loading.

The retaining wall foundation should be placed on a minimum 12 inches of engineered fill. The engineered fill should be firm or native soil that is scarified to a depth of 12 inches. If existing fill is encountered in the retaining wall foundation footprint, the undocumented fill should be removed and reompacted in conformance with the existing fill removal recommendations discussed in Section 4.3

The contractor should use proper construction techniques to construct retaining walls at the toe of cut slopes. Vertical cuts should remain open for only 24 hours.

7.0 MISCELLANEOUS STRUCTURES

7.1 LIGHT POLE FOUNDATIONS

We understand that as part of the parking area improvements, light poles will be constructed. Typical light pole design is controlled by lateral loads, and conventional drilled piers are used to resist these loads. Passive pressures acting on one pier diameter may be assumed as 300 pounds per cubic foot (pcf) provided that the area in front of pier is level for a distance of at least 10 feet or three times the depth of foundation, whichever is greater. The upper 1 foot of soil should be excluded from passive pressure computations unless it is confined by pavement or concrete slab.

7.2 CMU WALL FOUNDATIONS

We understand that part of the parking area improvements, freestanding CMU walls are planned throughout the site. CMU walls may be supported on continuous footings designed for an allowable bearing pressure of 2,500 psf at 24 inches embedment depth.

The CMU wall foundation should be placed on a minimum 12 inches of engineered fill. The engineered fill should be firm or native soil that is scarified to a depth of 12 inches. If existing fill is encountered in the CMU wall foundation footprint, the undocumented fill should be removed and reompacted in conformance with the existing fill removal recommendations discussed in Section 4.3

8.0 PAVEMENT DESIGN

We obtained a representative bulk sample of the surface soil from the pavement area and performed a Resistance-Value (R-Value) test to provide data for pavement design. The results of the test are included in Appendix B and indicate an R-Value of 78. Based on our experience and our field exploration, we judge an R-Value of 40 to be appropriate for design. As noted in the specifications, heavy-duty pavement design is to be based on a loading of 75,000 equivalent single axle loads (ESALs) and light-duty pavement design is based on a loading of 7,500 ESALs. The pavement life specified for design is 20 years.

The design specifications require flexible pavement to be designed in accordance with the most current American Association of State Highway and Transportation Officials (AASHTO) design methods and Portland cement concrete pavement (PCCP) or rigid pavement to be designed in accordance with the most current American Concrete Institute (ACI) design methodology. The methods and calculations for the pavement sections are shown in Appendix E.

8.1 FLEXIBLE PAVEMENTS

Using the 1993 AASHTO Guide for Design of Pavement Structures, we developed flexible pavement sections for light and heavy-duty loading conditions. The calculations for the pavement sections are attached and the pavement section recommendations are presented in the following table.

TABLE 8.1-1
Recommended Asphalt Concrete Pavement Sections

Design Loading Type	ESALs	AC (inches)	AB (inches)
Light Duty	7,500	3½	4
Heavy Duty	75,000	3½	6

Notes:
i. AC is asphalt concrete.
ii. AB is Class 2 aggregate base material with a minimum R-value of 78.
iii. The minimum calculated AC thicknesses of 1½ and 2½ inches were increased to 3½ inches to accommodate the design requirements of a minimum depth of 3 inches, and placement in two lifts.

Asphalt concrete (AC) should be placed in two lifts. The base course must be at least 2 inches thick with a maximum aggregate size of ½ inch and the surface course must be at least 1½ inches thick with a maximum aggregate size of ⅜ inch. Caltrans provides a hot mix asphalt (HMA) ⅜-inch maximum aggregate gradation specification in Section 39-1.02E of the Caltrans Standard Specifications (2010). Based on the Caltrans Highway Design Manual, the binder should be PG 64-10 for asphalt placed in Colma (located within the Central Coast pavement climate region).

8.2 RIGID PAVEMENTS

We developed the following rigid pavement recommendations using the ACI Guide for the Design and Construction of Concrete Parking Lots (ACI 330R-08). The calculations for the pavement sections are attached and the pavement section recommendations are presented in the following table.

TABLE 8.2-1
Recommended Concrete Pavement Sections

Design Loading Type	TI	ADTT	Concrete (inches)	AB (inches)
Light Duty	5	5	5	6
Heavy Duty	7	24	6	6

Provide a maximum control joint spacing of 12½ feet for light-duty pavement and 15 feet for heavy-duty pavement in accordance with ACI recommendations. We recommend that Portland cement concrete pavement have a minimum 28-day compressive strength of 3,000 pounds per square inch.

8.3 SUBGRADE AND AGGREGATE BASE COMPACTION

Fill placed within 1 foot of subgrade level in roadway and pavement areas should be compacted to at least 95 percent relative compaction, at a minimum moisture content of 2 points over optimum, prior to placing aggregate base. The contractor should compact the pavement Caltrans Class 2 Aggregate Base section to at least 95 percent relative compaction (ASTM D1557). Moisture condition aggregate base to or slightly above the optimum moisture content prior to compaction. Aggregate Base should meet the requirements for ¾-inch maximum Caltrans Class 2 Aggregate Base in accordance with Section 26-1.02B of the latest Caltrans Standard Specifications.

8.4 CUT-OFF CURBS

Saturated pavement subgrade or aggregate base can cause premature failure or increased maintenance of asphalt concrete pavements. This condition often occurs where landscape areas directly abut and drain toward pavements. If desired to install pavement cutoff barriers, they should be considered where pavement areas lie downslope of any landscape areas that are to be

sprinklered or irrigated, and should extend to a depth of at least 4 inches below the base rock layer. Cutoff barriers may consist of deepened concrete curbs or deep-root moisture barriers.

If reduced pavement life and greater than normal pavement maintenance are acceptable to the owner, then the cutoff barrier may be eliminated.

9.0 UTILITIES

We recommend that utility trench backfilling be done under the observation of a Geotechnical Engineer. Pipe zone backfill (i.e. material beneath and immediately surrounding the pipe) may consist of a well-graded import or native material less than ¾ inch in maximum dimension compacted in accordance with recommendations provided above for engineered fill. Trench zone backfill (i.e. material placed between the pipe zone backfill and the ground surface) may consist of native soil compacted in accordance with recommendations for engineered fill.

Due to the granular material encountered in our exploration locations and the potential for shallow groundwater, unsupported trenches below the groundwater table may collapse. Construction methods for trench work should include dealing with unstable and saturated trench conditions.

Where import material is used for pipe zone backfill, we recommend it consist of fine- to medium-grained sand or a well-graded mixture of sand and gravel, and that this material not be used within 2 feet of finish grades. In general, uniformly graded gravel should not be used for pipe or trench zone backfill due to the potential for migration of (1) soil into the relatively large void spaces present in this type of material, and (2) water along trenches backfilled with this type of material. All utility trenches entering buildings and paved areas must be provided with an impervious seal consisting of native materials or concrete where the trenches pass under the building perimeter or curb lines. The impervious plug should extend at least 4 feet to either side of the crossing. This is to prevent surface water percolation into the sands under foundations and pavements where such water would remain trapped in a perched condition.

Care should be exercised where utility trenches are located beside foundation areas. Utility trenches constructed parallel to foundations should be located entirely above a plane extending down from the lower edge of the footing at an angle of 45 degrees. Utility companies and Landscape Architects should be made aware of this information.

Utility trenches in areas to be paved should be constructed in accordance with Town of Colma and San Mateo County requirements. Compaction of trench backfill by jetting should not be allowed at this site. If there appears to be a conflict between the Town/County or other agency requirements and the recommendations contained in this report, this should be brought to the Owner's attention for resolution prior to submitting bids.

10.0 CONSTRUCTION MONITORING

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to:

1. Review the final grading and foundation plans and specifications prior to construction to evaluate whether our recommendations have been implemented, and to provide additional or modified recommendations, as needed. This also allows us to check if any changes have occurred in the nature, design or location of the proposed improvements and provides the opportunity to prepare a written response with updated recommendations.

2. Perform construction monitoring to check the validity of the assumptions we made to prepare this report. Earthwork operations should be performed under the observation of our representative to check that the site is properly prepared, the selected fill materials are satisfactory, and that placement and compaction of the fills has been performed in accordance with our recommendations and the project specifications. Sufficient notification to us prior to earthwork is important.

If we are not retained to perform the services described above, then we are not responsible for any party's interpretation of our report (and subsequent addenda, letters, and verbal discussions).

11.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the improvements discussed in Section 1.3 for the CarMax Automotive Dealership project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data is representative of the actual subsurface conditions across the site. Considering possible underground variability of soil, rock, and groundwater, additional costs may be required to complete the project. We recommend that the owner establish a contingency

fund to cover such costs. If unexpected conditions are encountered, notify us immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, then notify the proper regulatory officials immediately.

This document must not be subject to unauthorized reuse that is, reusing without our written authorization. Such authorization is essential because it requires us to evaluate the document's applicability given new circumstances, not the least of which is passage of time.

Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to our documents. Therefore, we must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If our scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, we cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transition between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

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FIGURES

Figure 1 – Vicinity Map
Figure 2 – Site Plan
Figure 3 – Regional Geologic Map
Figure 4 – Regional Faulting and Seismicity Map
Figure 5 – Earthquake Fault Zone Map
Figure 6 – Typical Keyway Detail

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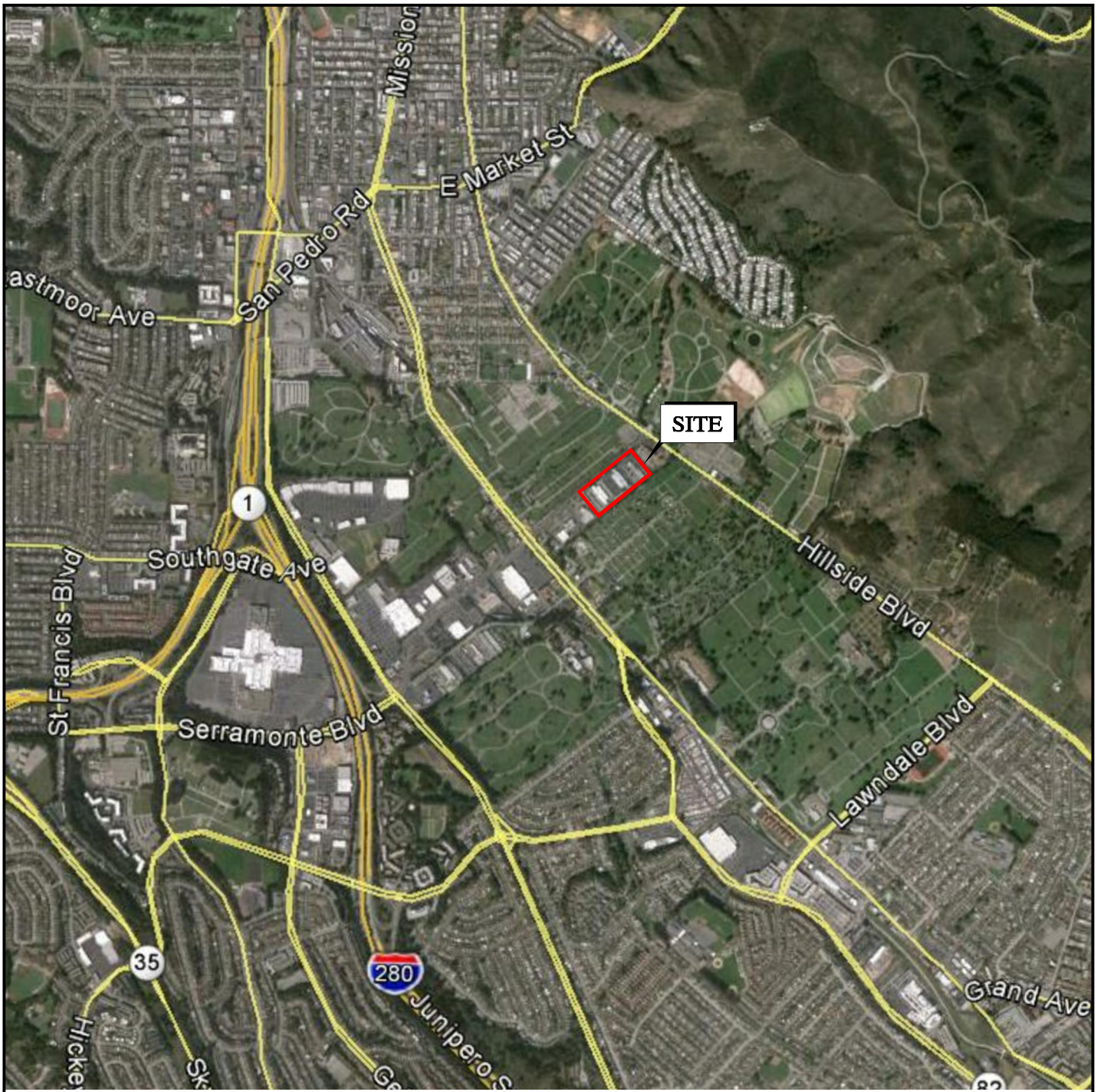

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BASE MAP SOURCE: GOOGLE EARTH PRO

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VICINITY MAP

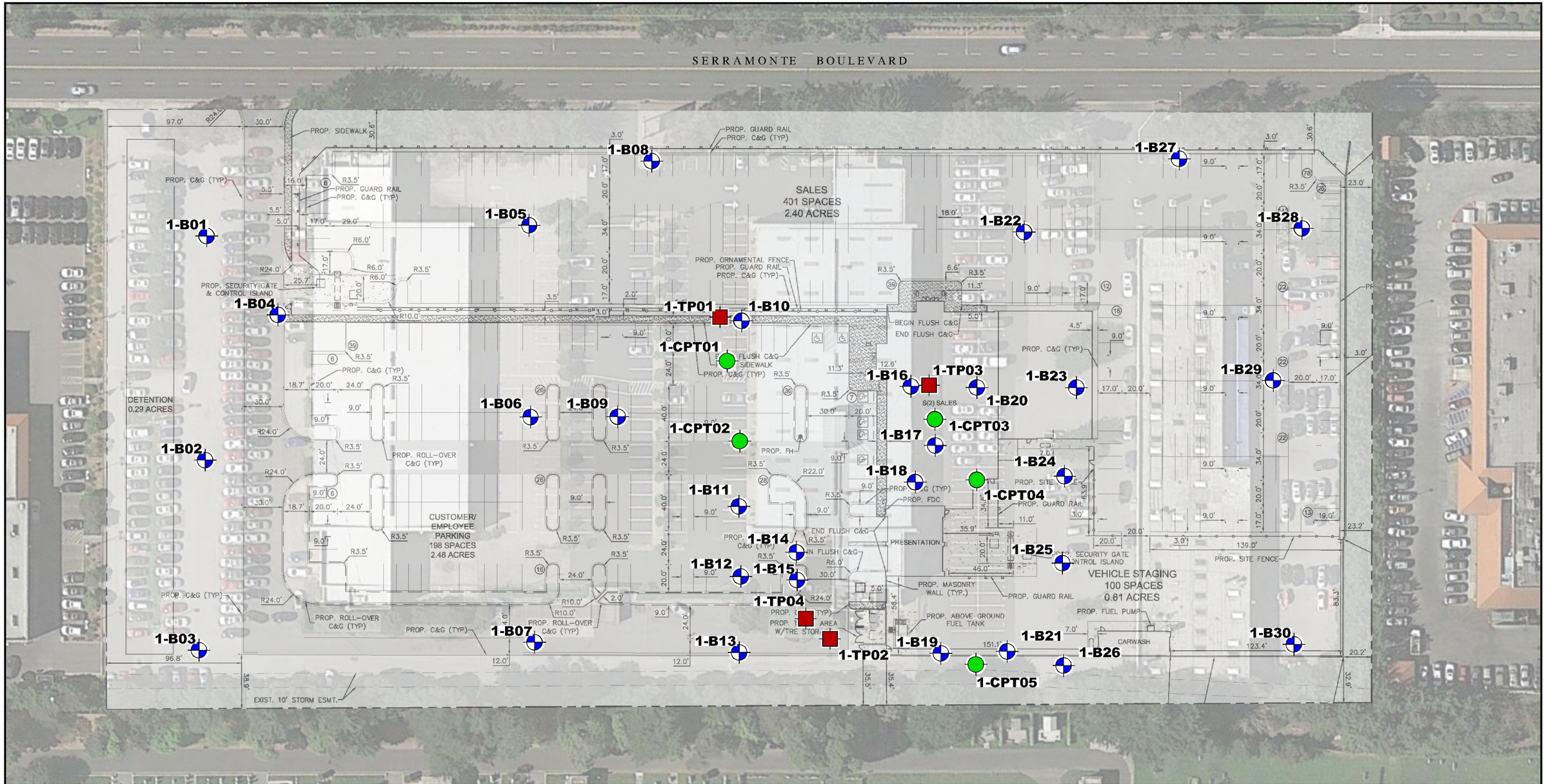
CARMAX COLMA

COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000		FIGURE NO.
SCALE: AS SHOWN		1
DRAWN BY: LL	CHECKED BY: PE	

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\12054\000\GEX\12054000000-GEX-1-VICMAP-0515.dwg Plot Date: 5-15-15 llee

ORIGINAL FIGURE PRINTED IN COLOR



EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

1-B30 — SOLID FLIGHT AUGER BORING

1-CPT05 — CONE PENETRATION TEST

1-TP04 — TEST PIT

BASE MAP SOURCE: GOOGLE EARTH PRO & CENTERPOINT, 2015

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SITE PLAN CARMAX IN COLMA COLMA, CALIFORNIA	PROJECT NO.: 12054.000.000	FIGURE NO.
	SCALE: AS SHOWN	2
	DRAWN BY: LL / CHECKED BY: PE	

ORIGINAL FIGURE PRINTED IN COLOR

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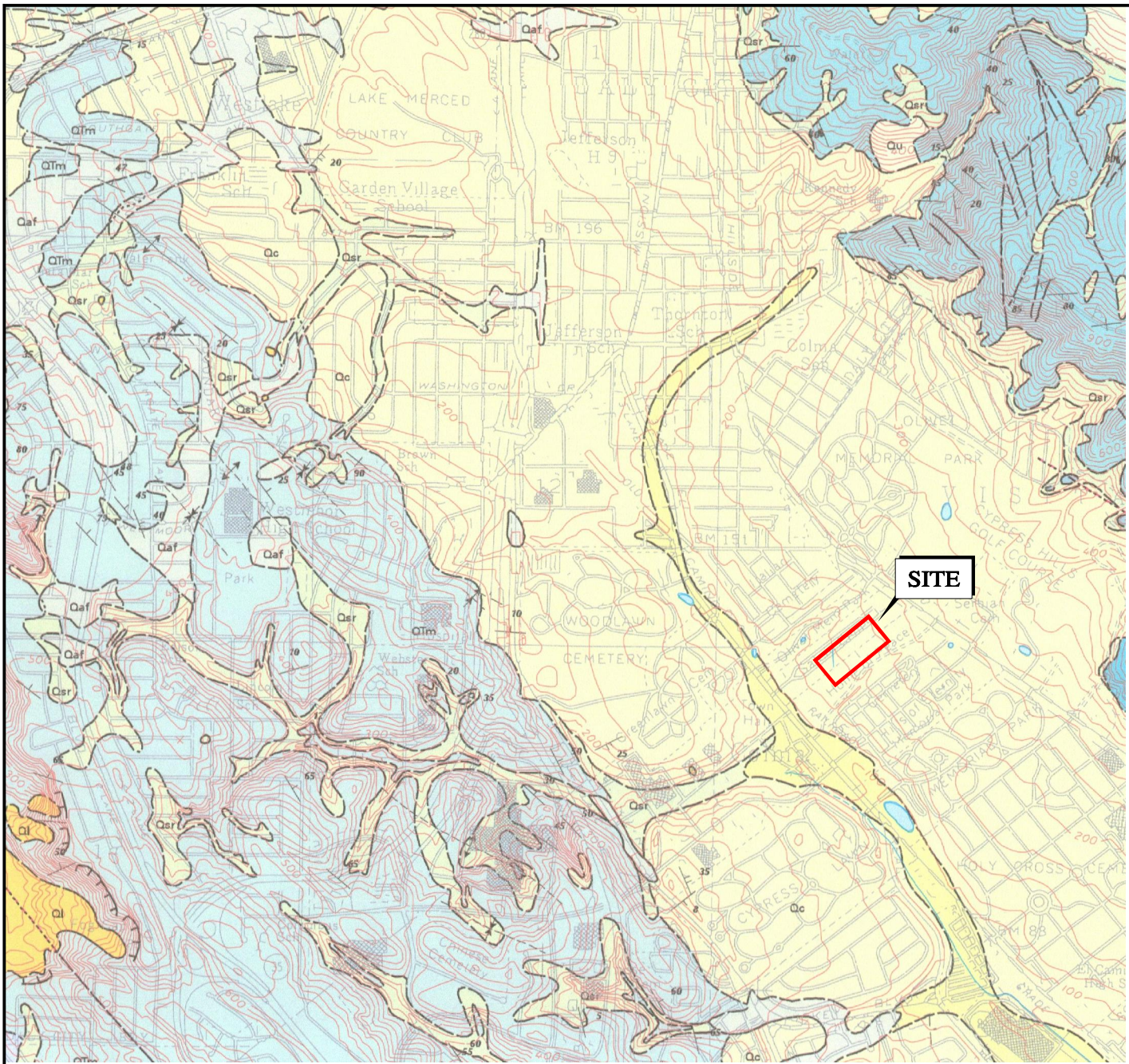

N

0 FEET 2000

0 METERS 1000

EXPLANATION

Qaf	ARTIFICIAL FILL
Ql	LANDSLIDE DEPOSITS
Qal	ALLUVIUM
Qsr	SLOPE DEBRIS & RAVINE FILL
Qc	COLMA FORMATION
Qu	SEDIMENTARY DEPOSITS
Qtm	MERCED FORMATION

BASE MAP SOURCE: BONILLA, 1980

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REGIONAL GEOLOGIC MAP

CARMAX COLMA

COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000		FIGURE NO.
SCALE: AS SHOWN		3
DRAWN BY: LL	CHECKED BY: PE	

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\12054\000\GEX\12054000000-GEX-3-GEOMAP-0515.dwg Plot Date: 5-15-15 llee

ORIGINAL FIGURE PRINTED IN COLOR

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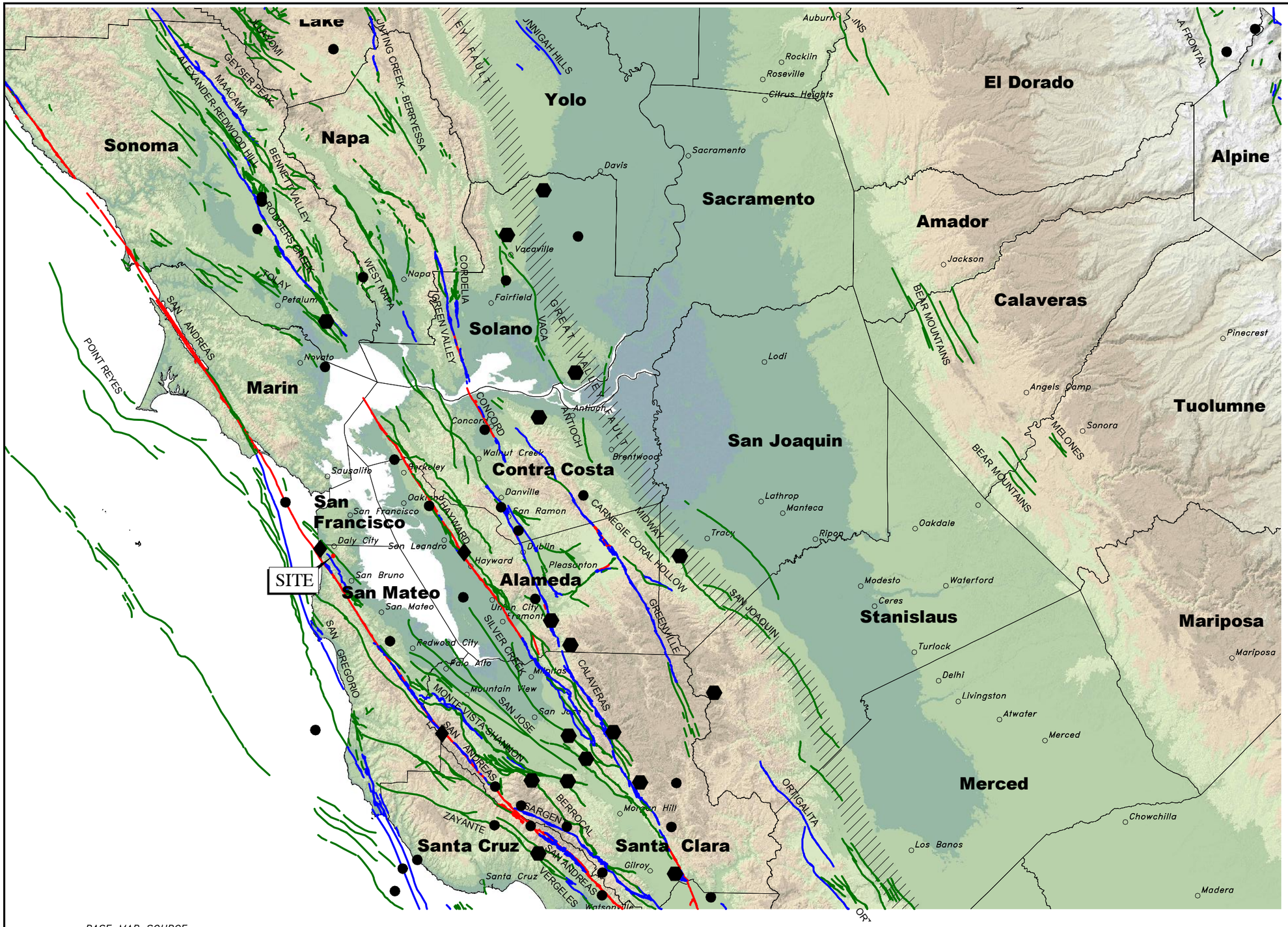

BASE MAP SOURCE:
COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATASET (NED) AT 30 METER RESOLUTION
U.S.G.S. QUATERNARY FAULT DATABASE, NOVEMBER, 2010
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800–2000)

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REGIONAL FAULTING AND SEISMICITY
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.:	12054.000.000
SCALE:	AS SHOWN
DRAWN BY: LL	CHECKED BY: PE
FIGURE NO.	4

ORIGINAL FIGURE PRINTED IN COLOR

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\12054\000\GEX\12054000000-GEX-4-REGFAULTMAP-0515.dwg Plot Date: 5-15-15 llee

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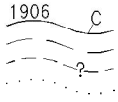
EXPLANATION



FAULTS CONSIDERED TO HAVE BEEN ACTIVE DURING HOLOCENE TIME AND TO HAVE A RELATIVELY HIGH POTENTIAL FOR SURFACE RUPTURE; SOLID LINE WHERE ACCURATELY LOCATED, LONG DASH WHERE APPROXIMATELY LOCATED, SHORT DASH WHERE INFERRED, DOTTED WHERE CONCEALED; QUERY (?) INDICATES ADDITIONAL UNCERTAINTY. EVIDENCE OF HISTORIC OFFSET INDICATED BY YEAR OF EARTHQUAKE-ASSOCIATED EVENT OR C FOR DISPLACEMENT CAUSED BY CREEP OR POSSIBLE CREEP

EARTHQUAKE FAULT ZONE BOUNDARIES; DELINEATED AS STRAIGHT-LINE SEGMENTS THAT CONNECT ENCIRCLED TURNING POINTS SO AS TO DEFINE EARTHQUAKE FAULT ZONE SEGMENTS

N

0 FEET 4000

0 METERS 2000

BASE MAP SOURCE: CDMG, 1993

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EARTHQUAKE FAULT ZONE MAP

CARMAX IN COLMA

COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000		FIGURE NO.
SCALE: AS SHOWN		5
DRAWN BY: LL	CHECKED BY: PE	

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\12054\000\GEX\12054000000-GEX-5-APMAP-0515.dwg Plot Date: 5-21-15 llee

ORIGINAL FIGURE PRINTED IN COLOR

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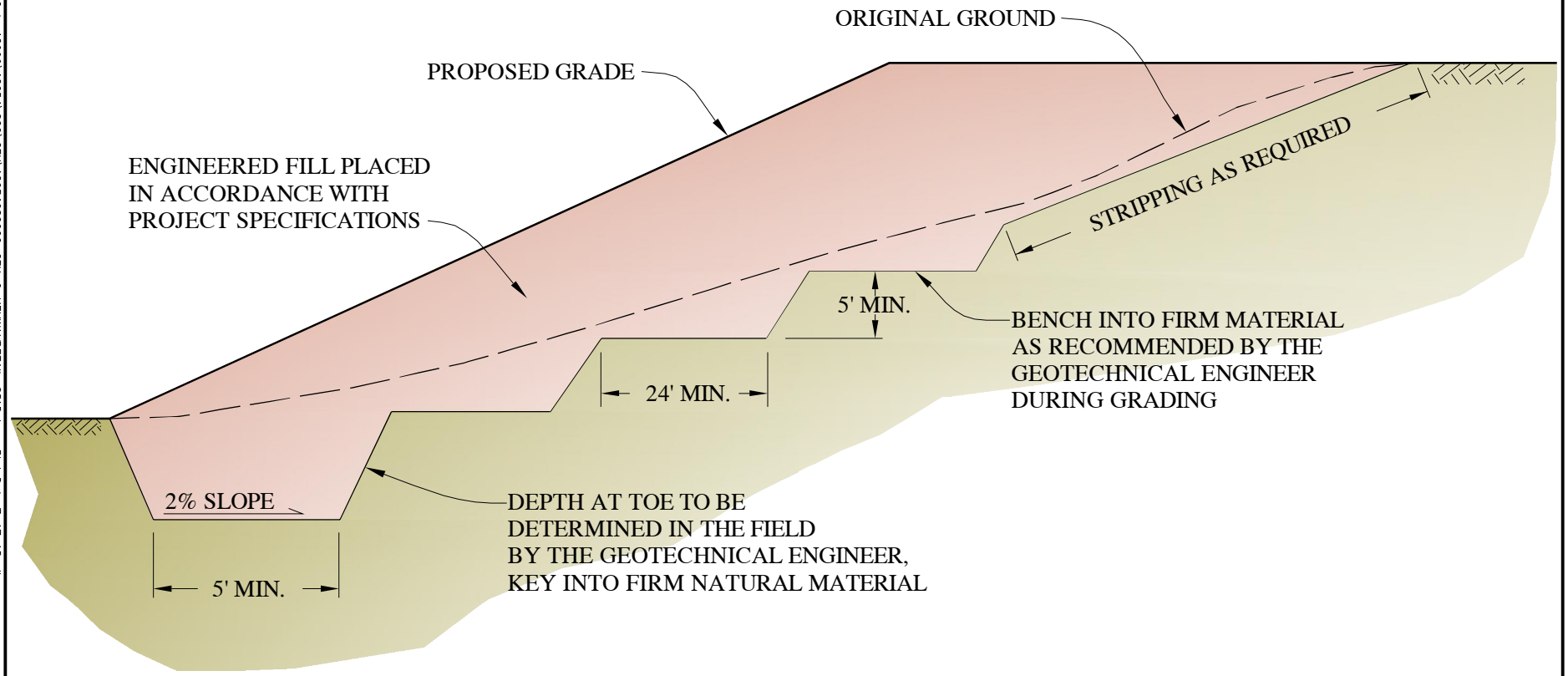
G:\Drafting\DRAFTING2_Dwg_10000 to 12999\12054\000\GEX\12054000000-GEX-6-KEYWAYDETAIL-0515.dwg Plot Date:7-17-15 llee



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TYPICAL KEYWAY DETAIL
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO.
SCALE: NO SCALE	6
DRAWN BY: LL / CHECKED BY: PE	

ORIGINAL FIGURE PRINTED IN COLOR

APPENDIX A

Key to Boring Logs
Exploration Logs

APPENDIX A

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4	3/4 "		3"	12"
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- Solid - Layer Break
- Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

- Groundwater level during drilling
- Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING 1-B01

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/27/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 181 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2" ASPHALT												
			5" AGGREGATE BASE												
			SILTY SAND (SM), dark brown, moist, fine-grained sand (FILL)												
	1														
5			Yellowish red, medium dense			11									
	2														
			SILTY SAND (SM), yellowish red, very dense, moist, 0-5% fine to coarse subangular gravel			50/6"									
10	3					55									
	4														
15			SANDY SILT (ML), dark reddish brown, very stiff, moist, fine-grained sand			26									
	5														
20	6		Hard			80									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.6784052° N 122.4555486°W

LOG OF BORING 1-B02

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/27/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 180 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			5½" ASPHALT												
	1		SILTY SAND (SM), dark brown, very dense, moist, fine-grained sand (FILL)			50/5"									
5	2		SILTY SAND (SM), dark reddish brown, dense, moist, fine-grained sand			40				13					
10	3		Very dense			55									
	4														
15	5		Yellowish red, fine-grained sand, 5-12% fine subangular gravel, 0-5% clay			75/11"									
20	6		Dark reddish brown, No gravel			50/6"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67806705°N 122.4551932°W

LOG OF BORING 1-B03

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/27/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 178 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			4" ASPHALT												
			3½" AGGREGATE BASE												
	1														
5			CLAYEY SAND (SC), dark brown, dense, moist, fine-grained sand, 0-5% silt (FILL)			50/5"								2.5*	PP
	2		SILTY SAND (SM), dark brown, dense, moist, fine-grained sand			50/6"									
10	3		Dark reddish brown, very dense			50/6"									
	4														
15	5		Yellowish red			80									
20	6		SANDY SILT (ML), yellowish red, very dense, moist			50/6"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.677774°N 122.454901°W

LOG OF BORING 1-B04

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/27/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 184 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2" ASPHALT												
			5" AGGREGATE BASE												
	1		SILTY SAND (SM), dark brown, dense, moist, fine-grained sand (FILL)			40									
5			Yellowish red, medium dense			17									
	2									11					
10	3		SILTY SAND (SM), yellowish red, very dense, moist			50/5"									
	4														
15	5					70									
20	6					50/5"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67837788°N 122.4552872°W

LOG OF BORING 1-B05

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/27/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 188 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			5" ASPHALT												
	1		SILTY SAND (SM), yellowish red, dense, moist, fine-grained sand (FILL)			50									
5	2		0-5% fine to coarse subangular gravel			55									
10	3		SILTY SAND (SM), yellowish red, very dense, moist, No gravel			60									
	4														
15	5					50/6"									
20	6					50/6"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67883167°N 122.454956°W

LOG OF BORING 1-B06

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/27/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 187 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2½" ASPHALT												
			6" AGGREGATE BASE												
	1		SILTY SAND (SM), dark brown, dense, moist, fine-grained sand (FILL)			30				21					
5	2		SILTY SAND (SM), yellowish red, dense, moist, fine-grained sand			32									
10	3		Brown, very dense			52									
	4														
15	5		Medium dense			16									
20	6		Yellowish red, dense			44									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67854593°N 122.4546466°W

LOG OF BORING 1-B07

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/27/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 189 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			6" ASPHALT												
			4" AGGREGATE BASE												
			POORLY GRADED SAND WITH SILT (SP-SM), dark brown, moist, fine-grained sand, 5-12% silt, roots (FILL)												
	1														
5			SILTY SAND (SM), very dense, no roots			73									
	2		SILTY SAND (SM), dark reddish brown, very dense, moist			65									
10	3		Fine-grained sand			90									
	4														
15						67									
	5														
20	6		0-5% fine to coarse subanguar gravel			65									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67821315°N 122.454279°W

LOG OF BORING 1-B08

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/28/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 193 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2" ASPHALT												
			8" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, very dense, dry, fine-grained sand			52									
5	2		Dense			36									
10	3		Very dense, 0-5% fine to coarse subangular gravel			55/6"									
	4														
15	5		Dense, No gravel			45									
20	6		Very dense, very moist			68									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67908377°N 122.4548271°W

LOG OF BORING 1-B09

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/28/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 192 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2" ASPHALT												
			9½" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, very dense, moist, fine-grained sand			70									
5	2		Dense, dark brown to black clay seams			44				14					
10	3		POORLY GRADED SAND WITH SILT (SP-SM), yellowish red, dense, moist, fine-grained sand, 5-10% clay, 5-12% silt			32				20					
15	4		SILTY SAND (SM), yellowish red, medium dense, moist			28									
20	5					27									
	6														

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67865721°N 122.4544826°W

LOG OF BORING 1-B10

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/28/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 199 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2" ASPHALT												
			8" AGGREGATE BASE												
			POORLY GRADED SAND WITH SILT (SP-SM), dark reddish brown, very dense, moist, fine-grained sand, 5-12% silt (FILL)			56				20	8.5				
5	1		Dark brown, dense, fine-grained sand			44									
10	2		Dark reddish brown, medium dense			13				15	9.6				
15	3		POORLY GRADED SAND WITH SILT (SP-SM), dark reddish brown, very dense, moist, fine-grained sand, 5-12% silt			52/6"									
20	4		SILTY SAND (SM), dark reddish brown, very dense, moist, fine-grained sand			78									
	5														
	6														

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.6789582°N 122.4544023°W

LOG OF BORING 1-B11

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/28/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 199 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			7" ASPHALT												
			5" AGGREGATE BASE												
	1		POORLY GRADED SAND WITH SILT (SP-SM), brown, dense, moist, fine- to coarse-grained sand, 5-12% silt, 0-5% fine subangular to subrounded gravel (FILL)			35/6"									
5			SILTY SAND (SM), brown, dense, moist, fine-grained sand (FILL)			50/3"									
	2					60									
10	3		POORLY GRADED SAND WITH CLAY (SP-SC), yellowish red, dense, moist, fine-grained sand, 5-12% clay			55				19	12.5				
	4														
15			Very dense			50/6"									
	5														
20	6					50/6"									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67867629°N 122.4541109°W

LOG OF BORING 1-B12

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/28/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 198 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			7" ASPHALT												
			5" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, very dense, moist, fine-grained sand (FILL)			58				20	11				
5			Fine-grained sand			67									
	2		Dense, 0-5% dark brown clay seams			44									
10	3		Very dense			50									
	4														
15	5		POORLY GRADED SAND WITH CLAY (SP-SC), dark reddish brown, dense, moist, 5-12% clay			37									
20	6		SILTY SAND (SM), dark reddish brown, dense, moist, No clay			35									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67857357°N 122.4539951°W

LOG OF BORING 1-B13

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/28/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 195 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			3" ASPHALT												
			2" AGGREGATE												
	1		SILTY SAND (SM), dark reddish brown, dense, moist, fine-grained sand			50/4"									
5			0-5% fine to coarse subangular gravel			50/6"									
	2														
10	3		Brown			50/6"									
	4														
15	5		Dark reddish brown, dense, 5-12% fine to coarse subangular to rounded gravel			40									
20	6		Very dense			60									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67845765°N 122.4538767°W

LOG OF BORING 1-B14

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/28/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 200 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2½" ASPHALT												
			2" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, dense, dry, fine-grained sand			40									
5			Medium dense			23									
	2		Dark yellowish red			25				23	7.1	115.7			
10	3		Dense			34									
	4														
15	5		POORLY GRADED SAND WITH CLAY (SP-SC), dark yellowish red, dense, dry, 5-12% clay			34									
20	6		SILTY SAND (SM), dark yellowish red, dense, dry			28									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67868103°N 122.4539282°W

LOG OF BORING 1-B15

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/29/2015
HOLE DEPTH: 30.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 200 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2½" ASPHALT												
			5" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, very dense, dry, fine-grained sand			53/6"									
5			Fine- to medium-grained sand			60/6"									
	2		Yellowish red, dense, slightly moist			34				20	3.8				
10	3		Very dense, moist			54				21	10.9				
	4														
15	5		Dark reddish brown			67									
20	6		POORLY GRADED SAND WITH CLAY (SP-SC), dark reddish brown, dense, moist, 5-12% clay			34				13	10.1				
	7														
25	8		SILTY SAND (SM), dark reddish brown, very dense, moist, 0-5% fine to coarse angular to subangular gravel			53/6"									
30	9		POORLY GRADED SAND WITH SILT (SP-SM), dark reddish brown, very dense, very moist, 5-12% silt			60/6"									

Bottom of boring approximately 30½ feet below ground surface.
Groundwater was not encountered at time of drilling.
Boring location 37.67864038°N 122.4538824°W

LOG OF BORING 1-B16

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/29/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 201 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			4½" ASPHALT												
	1		SILTY SAND (SM), dark reddish brown, very dense, moist, fine-grained sand			75									
5			No recovery			75									
	2		POORLY GRADED SAND WITH SILT (SP-SM), reddish brown, dense, wet, fine- to medium-grained sand, 5-12% silt		▽	48				12	24.4				
10	3		Yellowish red, very dense			80									
	4														
15	5		SILTY SAND (SM), dark reddish brown, dense, wet, fine-grained sand			45									
20	6					50/5"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater encountered at approximately 7 feet below ground surface at time of drilling.
Boring location 37.67907511°N 122.4539777°W

LOG OF BORING 1-B17

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/29/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 200 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			6" ASPHALT												
			SILTY SAND (SM), dark yellowish red, dense, moist, fine- to coarse-grained sand, mottled with very dark brown			50				16	8.2	113.6			
	1														
5			Fine-grained sand			75				16	17.3	105.9			
	2				▽										
			No recovery			50/6"									
10	3		Wet			50/5"									
	4														
15			Wet			90/9"									
	5														
20	6		Wet, 0-5% fine to coarse subangular gravel			85/11"									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater encountered at approximately 7 feet below ground surface at time of drilling.
Boring location 37.67901738°N 122.4538375°W

LOG OF BORING 1-B18

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/29/2015
HOLE DEPTH: 20.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 201 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			4" ASPHALT										
			2" AGGREGATE BASE										
	1		SILTY SAND (SM), dark brown, dense, moist, fine-grained sand	55				19	7.8	111.5			
5	2		POORLY GRADED SAND WITH CLAY (SP-SC), dark brown, dense, moist, 5-12% clay, 0-5% fine subangular gravel	58				11	25.5	97			
			No recovery	50									
10	3		SILTY SAND (SM), dark brown, very dense, wet, no clay, no gravel	50/6"									
			CLAYEY SAND (SC), dark brown, dense, wet, fine-grained sand, 5-12% silt, scattered dark red bedrock fragments	50/6"									
15	4		Very dense, 0-5% coarse subangular gravel	50/6"									
20	5		No gravel	50/5"									
	6												

Bottom of boring approximately 20½ feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Boring location 37.6789369°N 122.4538165°W

LOG OF BORING 1-B19

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/29/2015
HOLE DEPTH: 20.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 200 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2" ASPHALT												
			5" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, medium dense, moist, fine-grained sand (FILL)			24				14	9.8	110.9			
5	2					17									
			SILTY SAND (SM), yellowish red, medium dense, wet, fine-grained sand			26									
10	3		Dense		▽	37									
	4														
15	5		Very dense, No recovery			51/6"									
20	6		Dark reddish brown			52/6"									

Bottom of boring approximately 20½ feet below ground surface.
Groundwater encountered at approximately 11 feet below ground surface at time of drilling.
Boring location 37.67871252°N 122.4534946°W

LOG OF BORING 1-B20

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/29/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 202 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			6" ASPHALT												
	1		SILTY SAND (SM), yellowish brown, dense, moist, fine-grained sand			65									
5						90									
	2		Reddish brown, very moist			50/6"									
10	3		Very dense, wet		▽	75									
	4														
15	5		POORLY GRADED SAND WITH CLAY (SP-SC), reddish brown, very dense, wet, 5-12% clay			50/6"									
20	6		SILTY SAND (SM), reddish brown, very dense, wet, 0-5% fine to coarse subangular to subrounded gravel, no clay			50/6"									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Boring location 37.67915688°N 122.4538517°W

LOG OF BORING 1-B21

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/29/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 202 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2½" ASPHALT												
			4" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, very dense, moist, fine-grained sand (FILL)			50/6"									
5			Loose			8				13	11.8	109.9			
	2		Very loose			2				13	13				
10	3		POORLY GRADED SAND (SP), dark reddish brown, dense, wet		▽	42				2	25				
	4														
15	5		SILTY SAND (SM), dark reddish brown, very dense, wet			50/5"									
20	6					50/3"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Boring location 37.67879948°N 122.4533729°W

LOG OF BORING 1-B22

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 20.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 204 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			4" ASPHALT												
	1		POORLY GRADED SAND (SP), dark yellowish brown, dense, moist, fine- to coarse-grained sand			55									
5	2		SILTY SAND (SM), yellowish red, dense, moist, fine-grained sand			35									
10	3		Very dense, wet		▽	50/6"									
	4														
15	5		POORLY GRADED SAND WITH CLAY (SP-SC), dark yellowish red, very dense, wet, 5-12% clay			50/6"									
20	6		SILTY SAND (SM), dark yellowish red, very dense, wet, 0-5% coarse subangular gravel			50/3"									

Bottom of boring approximately 20½ feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Boring location 37.67945015°N 122.4540114°W

LOG OF BORING 1-B23

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 206 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			6" ASPHALT												
			4" AGGREGATE BASE												
	1		SILTY SAND (SM), reddish brown, dense, moist, fine-grained sand			50/6"									
5			POORLY GRADED SAND WITH SILT (SP-SM), reddish brown, dense, moist, 5-12% silt			50/6"									
	2		No recovery			50/6"									
10	3					85/11"									
			SILTY SAND (SM), dark yellowish brown, very dense, wet, fine-grained sand												
	4														
15			Dark reddish brown			50/6"									
	5														
20	6					50/5"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Boring location 37.67928366°N 122.4536633°W

LOG OF BORING 1-B24

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 205 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			5" ASPHALT												
	1		SILTY SAND (SM), light reddish brown, dense, dry, fine-grained sand			60									
5			Moist			50/6"									
	2		Wet		▽	50/5"									
10	3		Very dense, 5-12% fine to coarse angular to subangular gravel			50/5"									
	4														
15	5														
20	6		No gravel			50/6"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Boring location 37.67913558°N 122.4535441°W

LOG OF BORING 1-B25

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 20.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 205 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			4" ASPHALT												
			2½" AGGREGATE BASE												
	1		POORLY GRADED SAND WITH SILT (SP-SM), yellowish red, dense, moist, fine-grained sand, 5-12% silt			50									
5	2		POORLY GRADED SAND (SP), yellowish red, very dense, moist			60									
			Wet			50/6"									
10	3		SILTY SAND (SM), dark reddish brown, very dense, wet, fine- to medium grained sand, 0-5% fine subngular gravel, 0-5% clay			50/6"									
	4														
15	5		No gravel, fine-grained sand			50/6"									
20	6		No clay, fine- to medium-grained sand			50/6"									

Bottom of boring approximately 20½ feet below ground surface.
Groundwater encountered at approximately 7 feet below ground surface at time of drilling.
Boring location 37.67900236°N 122.4534091°W

LOG OF BORING 1-B26

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 21 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 205 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			2" ASPHALT												
			6" AGGREGATE BASE												
	1		SILTY SAND (SM), dark reddish brown, medium dense, moist, fine-grained sand, 5-12% gravel			35				13	8.9	111.5			
5	2		Black, medium dense			23				19	10.8	109.8			
			Dark gray, wet			21									
10	3		POORLY GRADED SAND WITH CLAY (SP-SC), reddish brown, dense, wet			30				8	21.5				
	4														
15	5		SILTY SAND (SM), brown, very dense, wet			71									
20	6		Dark reddish brown			53/6"									

Bottom of boring approximately 21 feet below ground surface.
Groundwater encountered at approximately 9 feet below ground surface at time of drilling.
Boring location 37.67885034°N 122.4532432°W

LOG OF BORING 1-B27

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 211 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			6" ASPHALT												
			3" AGGREGATE BASE												
	1														
5			POORLY GRADED SAND WITH SILT (SP-SM), dark reddish brown, very dense, slightly moist, fine-grained sand, 5-12% silt, 5-12% fine to coarse subangular gravel			50/3"									
	2					70									
10	3		SILTY SAND (SM), dark yellowish brown, very dense, moist, fine-grained sand			50/6"									
	4														
15			POORLY GRADED SAND WITH CLAY (SP-SC), dark yellowish red, very dense, wet, fine-grained sand, 5-12% clay		▽	80									
	5														
20	6		SILTY SAND (SM), yellowish red, very dense, wet			70									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater encountered at approximately 15 feet below ground surface at time of drilling.
Boring location 37.67975733°N 122.4538351°W

LOG OF BORING 1-B28

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 20.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 211 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			5" ASPHALT												
			2" AGGREGATE BASE												
	1														
5			SILTY SAND (SM), yellowish red, very dense, moist, fine-grained sand			57									
	2		Yellowish brown			50									
10	3		Very moist			55									
	4														
15			Yellowish red, wet		▽	50/6"									
	5														
20	6					50/3"									

Bottom of boring approximately 20½ feet below ground surface.
Groundwater encountered at approximately 15 feet below ground surface at time of drilling.
Boring location 37.67980874°N 122.4534925°W

LOG OF BORING 1-B29

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 209 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			6½" ASPHALT												
5	1, 2		POORLY GRADED SAND (SP), dark reddish brown, very dense, moist, fine-grained sand			55				2	11.2				
10	3, 4, 5, 6		SILTY SAND (SM), dark reddish brown, very dense, wet		▽	50/5"									
20						50/5*									

Bottom of boring approximately 21½ feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Hole experienced caving from approximately 10 to 15 feet below ground surface.
Boring location 37.67954413°N 122.4533036°W

LOG OF BORING 1-B30

ENGEO INCORPORATED

Geotechnical Exploration
CarMax Automotive Dealership
Colma, California
12054.000.000

DATE DRILLED: 4/30/2015
HOLE DEPTH: 21.5 ft.
HOLE DIAMETER: 6.0 in.
SURF ELEV (NAVD88): 209 ft.

LOGGED / REVIEWED BY: F. Pilcher / PE
DRILLING CONTRACTOR: West Coast Exploration
DRILLING METHOD: Solid Flight Auger
HAMMER TYPE: 140 lb. Rope and Cathead

Depth in Feet	Depth in Meters	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			5" ASPHALT												
			SILTY SAND (SM), yellowish red, very dense, moist, fine-grained sand			50/3"									
5	1		No recovery			50/6"									
10	2		Yellowish brown, dense, wet		▽	50/5"									
15	3														
20	4														
	5														
	6														

Bottom of boring approximately 21½ feet below ground surface.
Groundwater encountered at approximately 10 feet below ground surface at time of drilling.
Hole caving at 10 feet below ground surface to bottom of boring.
Boring location 37.67917447°N 122.4528427°W

ENGEO Expect Excellence	TEST PIT LOG
435-455 Serremonte Boulevard Colma, California 12054.000.000	Logged By: Rowan Cook Logged Date: 06/29/2015

Test Pit Number	Depth (feet)	Description
1-TP01	0 – ½	3 inches asphalt, 3 inches aggregate base
	½ – 10	SAND (SP), grey/olive greenish brown, loose, moist, fine to medium grained, minor silt content. Hydrocarbon aroma during excavation. [FILL] Potentially some cobbles in upper 10 feet.
	10 – 13	Gravelly SAND (SW), reddish orange brown, loose, moist-wet. Sand, fine to coarse, sub-angular. Gravel, pebble to cobble, sub-rounded to sub-angular. Spalling from trench wall. [FILL]
	13 – 16	SAND (SP), reddish brown, medium dense, moist, fine to medium grained with minor clay/silt. Dark manganese veins present, excavates in blocky chunks. No groundwater present in excavation.
1-TP02	0 – ½	3 inches asphalt, 3 inches aggregate base
	½ – 10	SAND (SP), orange brown, medium dense, moist, fine to medium grained, minor silt, appears to thicken eastwards. [FILL] Soil darkens with depth, becomes finer grained, hydrocarbon aroma present with plastic in trench wall at 9 feet depth.
	10 – 16	SAND (SP), orange brown, medium dense, moist, fine to medium grained, manganese veins, excavates in blocky chunks. No groundwater present in excavation.
1-TP03	0 – ½	3 inches asphalt, 3 inches aggregate base
	½ – 4	SAND (SW), reddish yellow brown, medium dense, moist, fine to coarse grained, iron oxidation present.
	4 – 9	SAND (SP), grey, loose to medium dense, moist, fine to medium grained. Lenses of dense, light grey sand at 4-4½ feet and 6-6½ feet. Lenses may be siltier. Groundwater encountered at 9 feet depth in excavation.

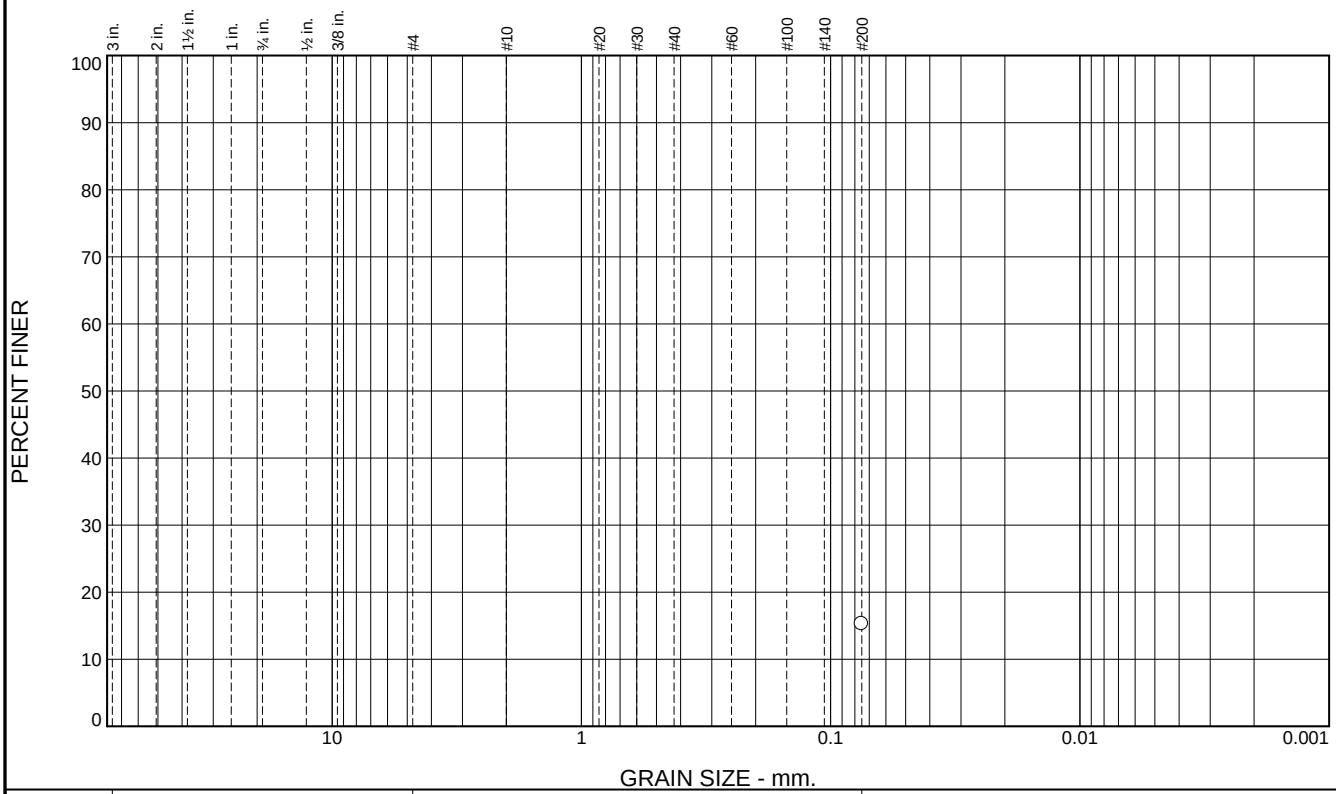
ENGEO Expect Excellence	TEST PIT LOG	
435-455 Serremonte Boulevard Colma, California 12054.000.000	Logged By: Rowan Cook Logged Date: 06/29/2015	
Test Pit Number	Depth (feet)	Description
1-TP04	0 – ½	3 inches asphalt, 3 inches aggregate base
	½ – 5½	SAND (SW), orange brown, loose to medium dense, dry-moist, fine to coarse grained. [FILL] Dark layer of soil (½ feet thick) at 5 feet depth, soil lightens in color below this depth then darkens with depth.
	5½ – 15	SAND (SP), light grey becoming mottled orange/grey with depth, medium dense, moist, fine to medium grained, manganese veins present, excavating as blocky chunks at depth. No groundwater present in excavation.

APPENDIX B

Laboratory Test Data

APPENDIX B

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						15.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	15.3		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B10 @ 11.5 **Depth:** 11.5

Date: 5-18-15

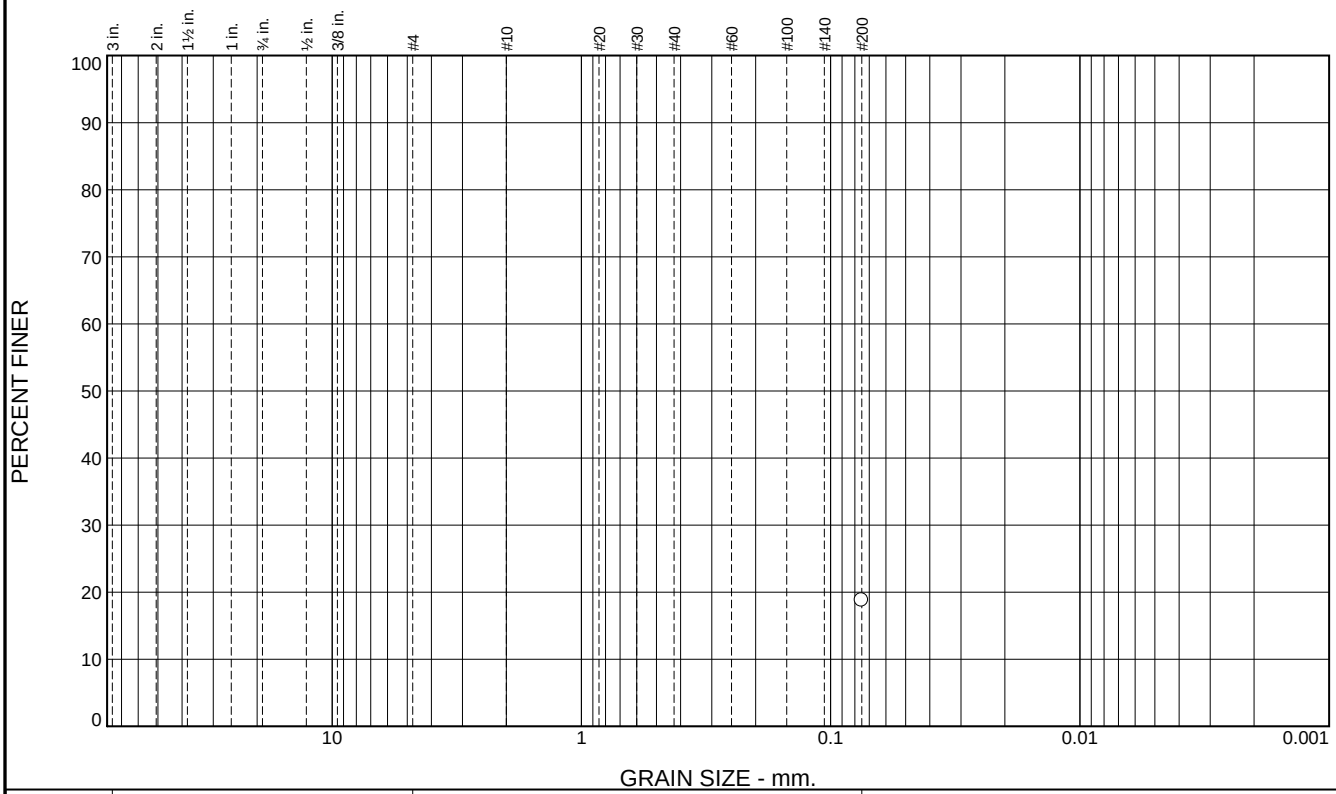
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						18.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	18.8		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B11 @ 11.5 **Depth:** 11.5

Date: 5-18-15

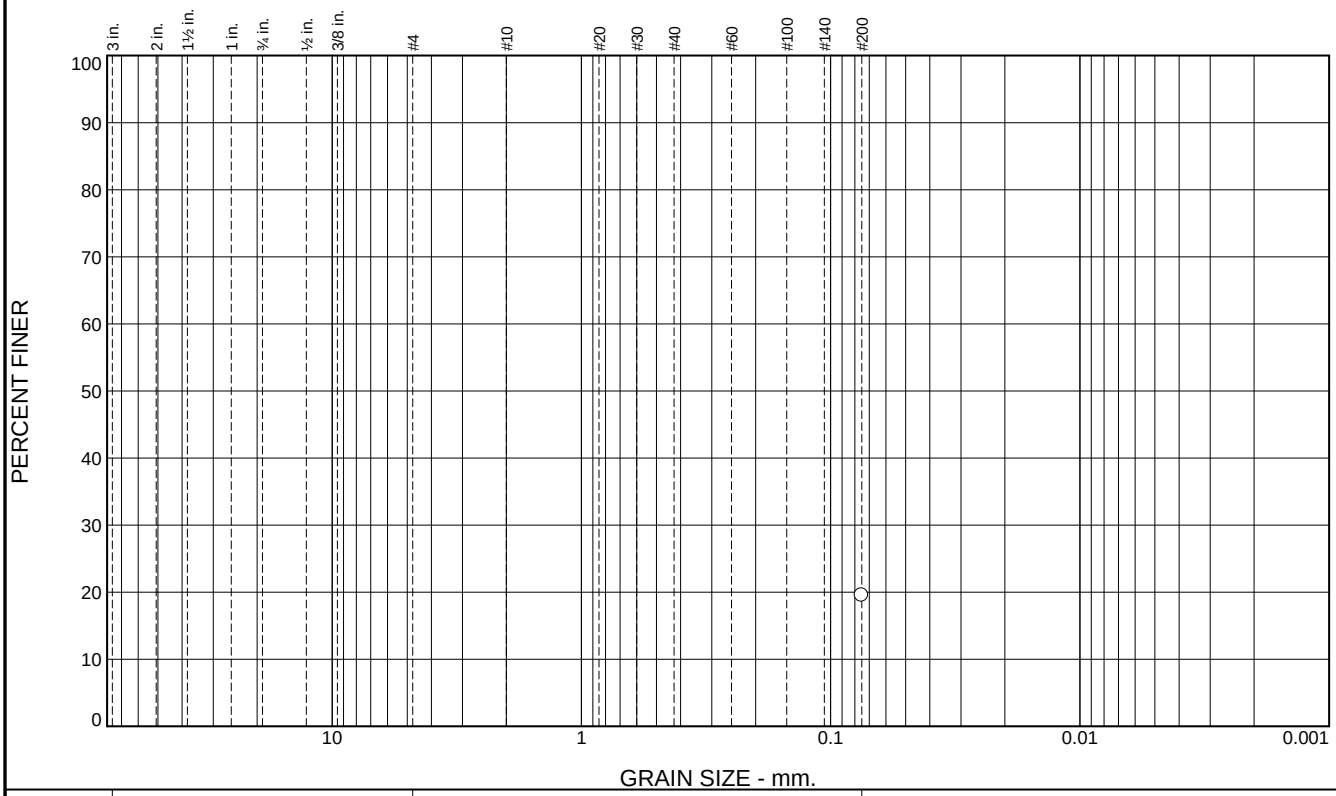
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						19.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	19.5		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B12 @ 3.5 **Depth:** 3.5

Date: 5-18-15

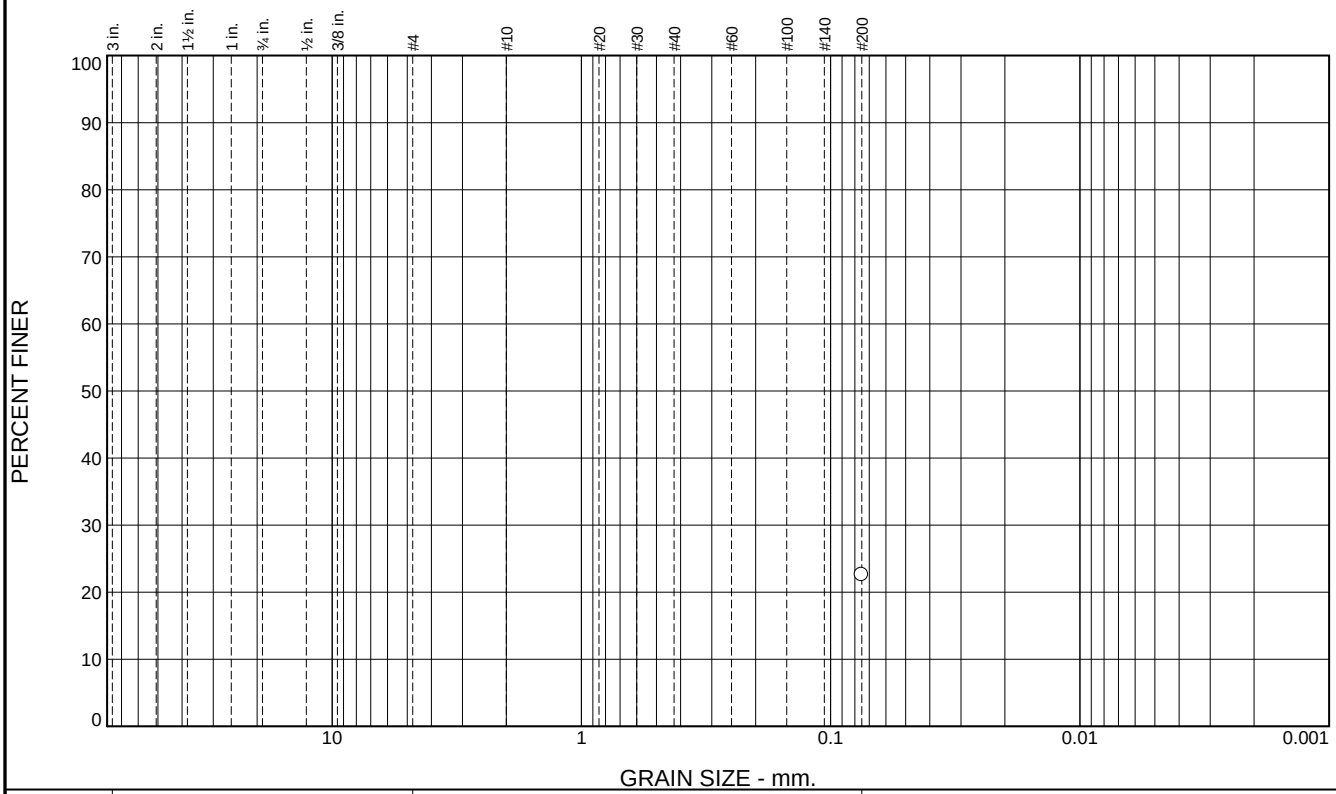
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						22.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	22.6		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B14 @ 8 **Depth:** 8

Date: 5-18-15

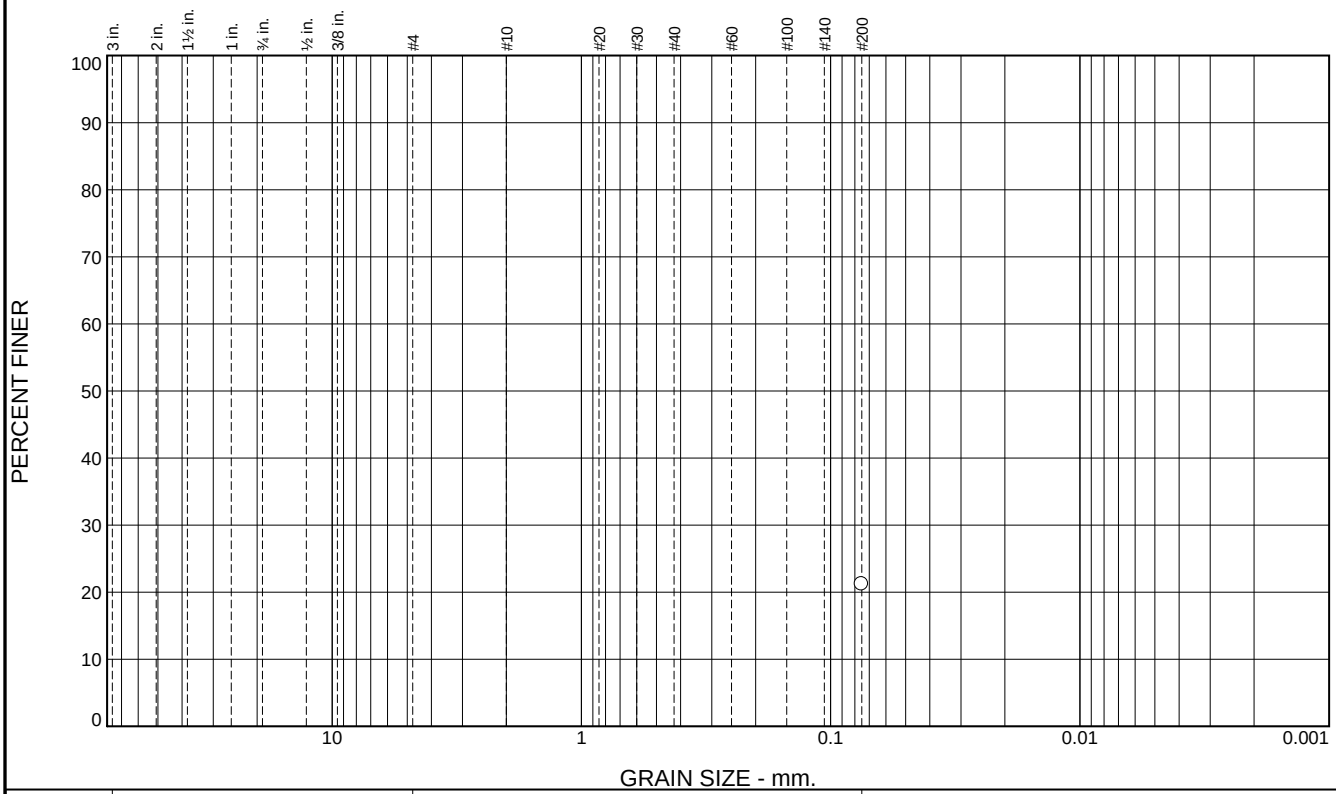
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						21.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	21.2		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B15 @ 11.5 **Depth:** 11.5

Date: 5-18-15

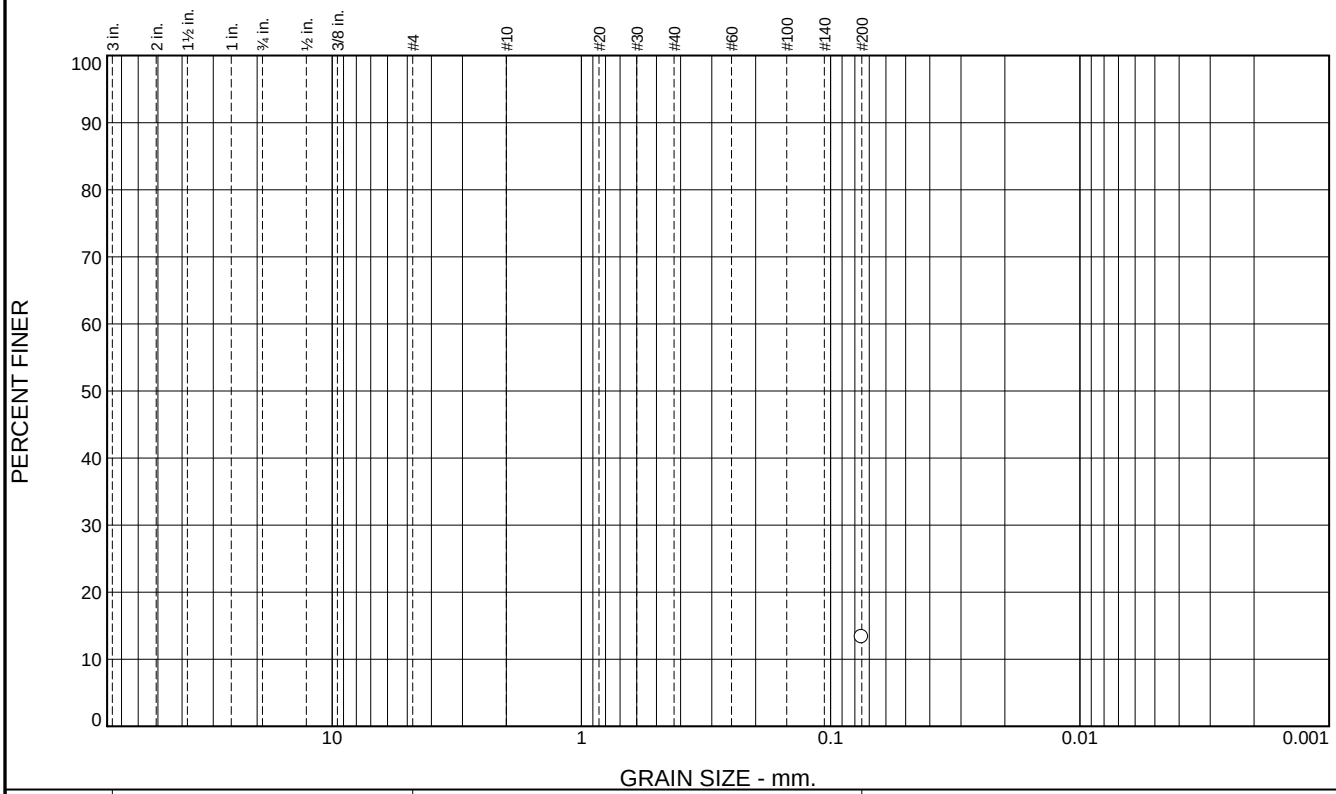
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						13.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	13.3		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B15 @ 21.5 **Depth:** 21.5

Date: 5-18-15

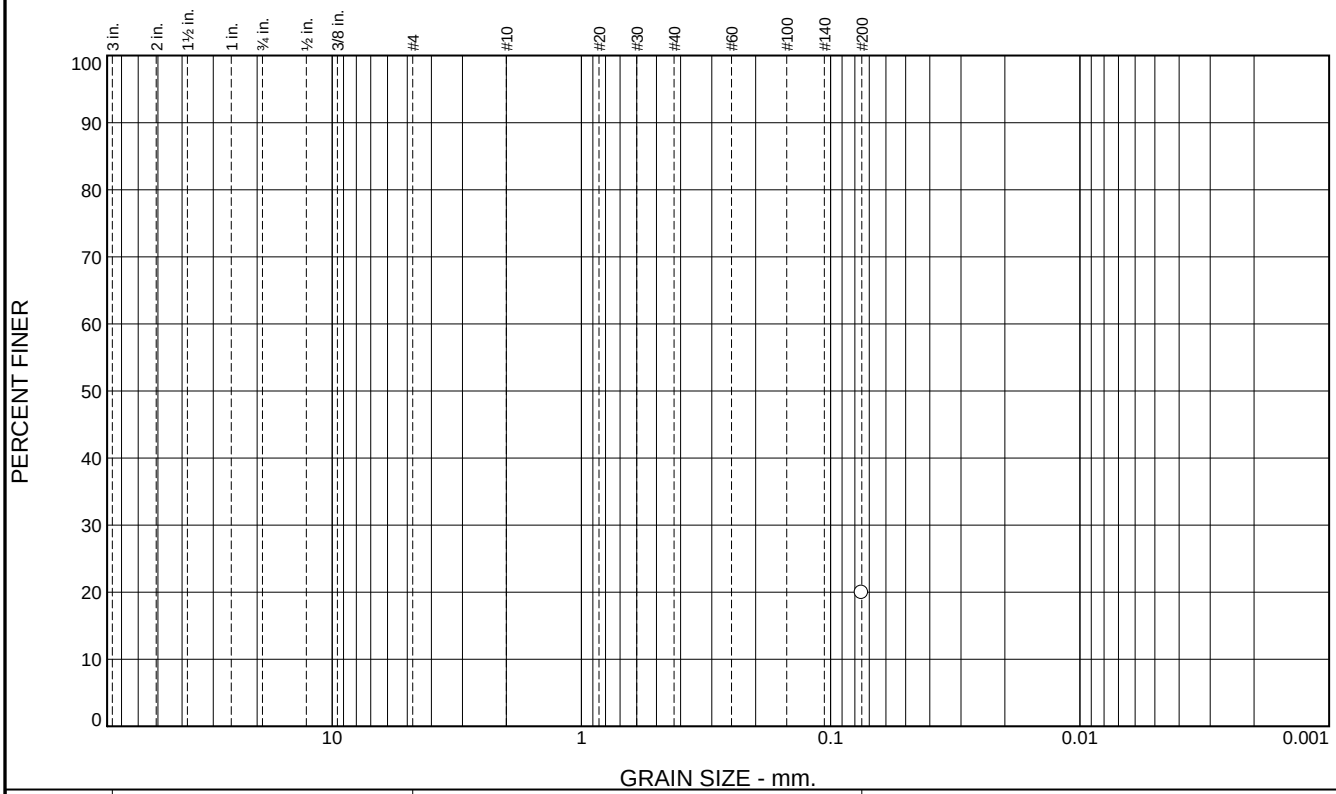
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						19.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	19.9		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B15 @ 8.5 **Depth:** 8.5

Date: 5-18-15

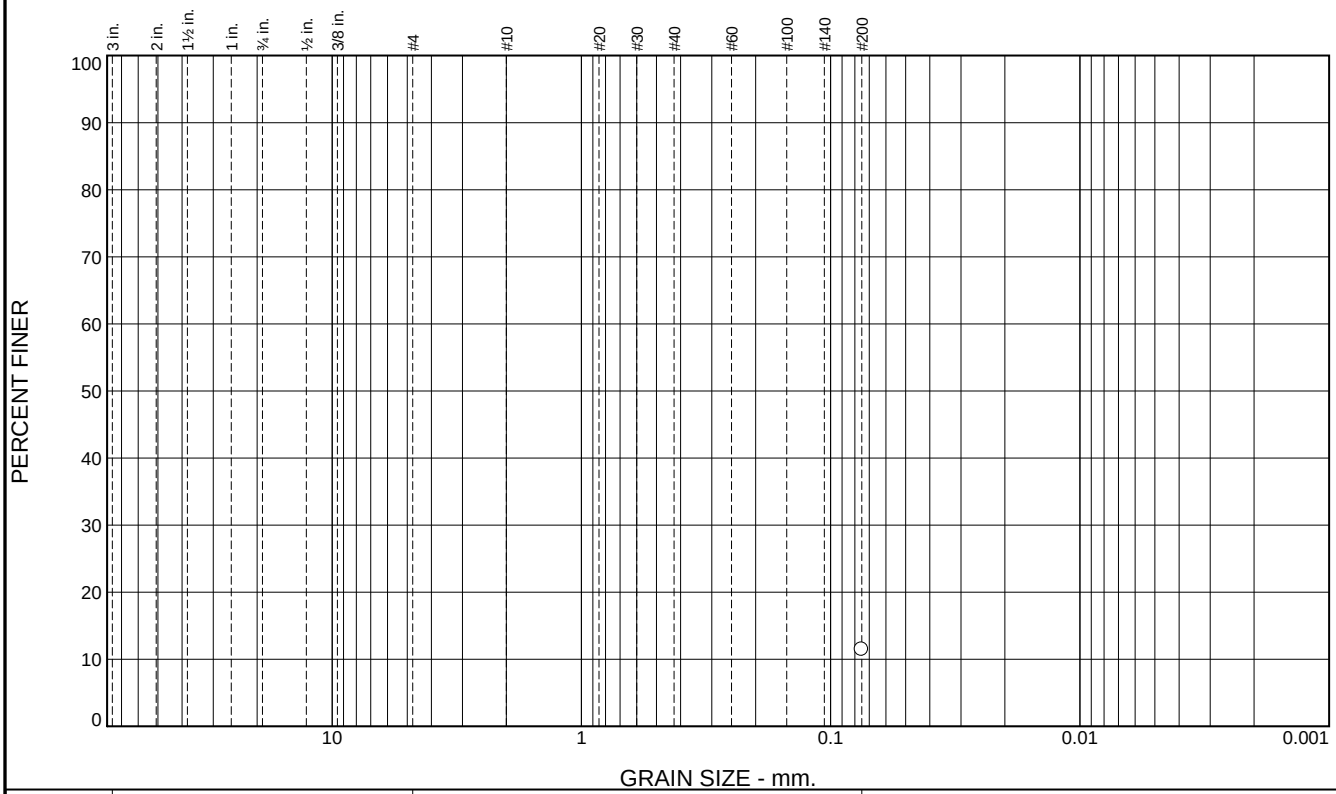
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						11.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	11.5		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B16 @ 8.5 **Depth:** 8.5

Date: 5-18-15

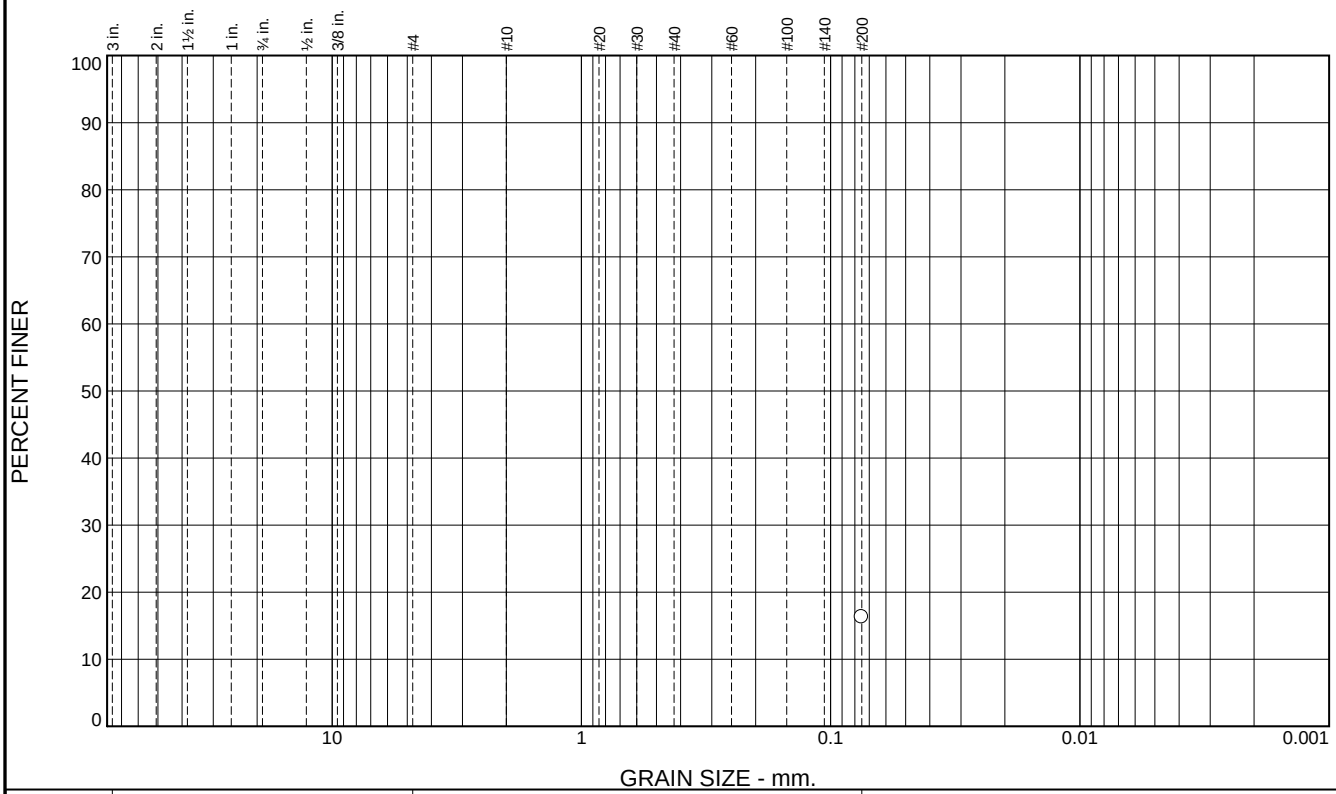
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						16.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	16.3		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B17 @ 5 **Depth:** 5

Date: 5-18-15

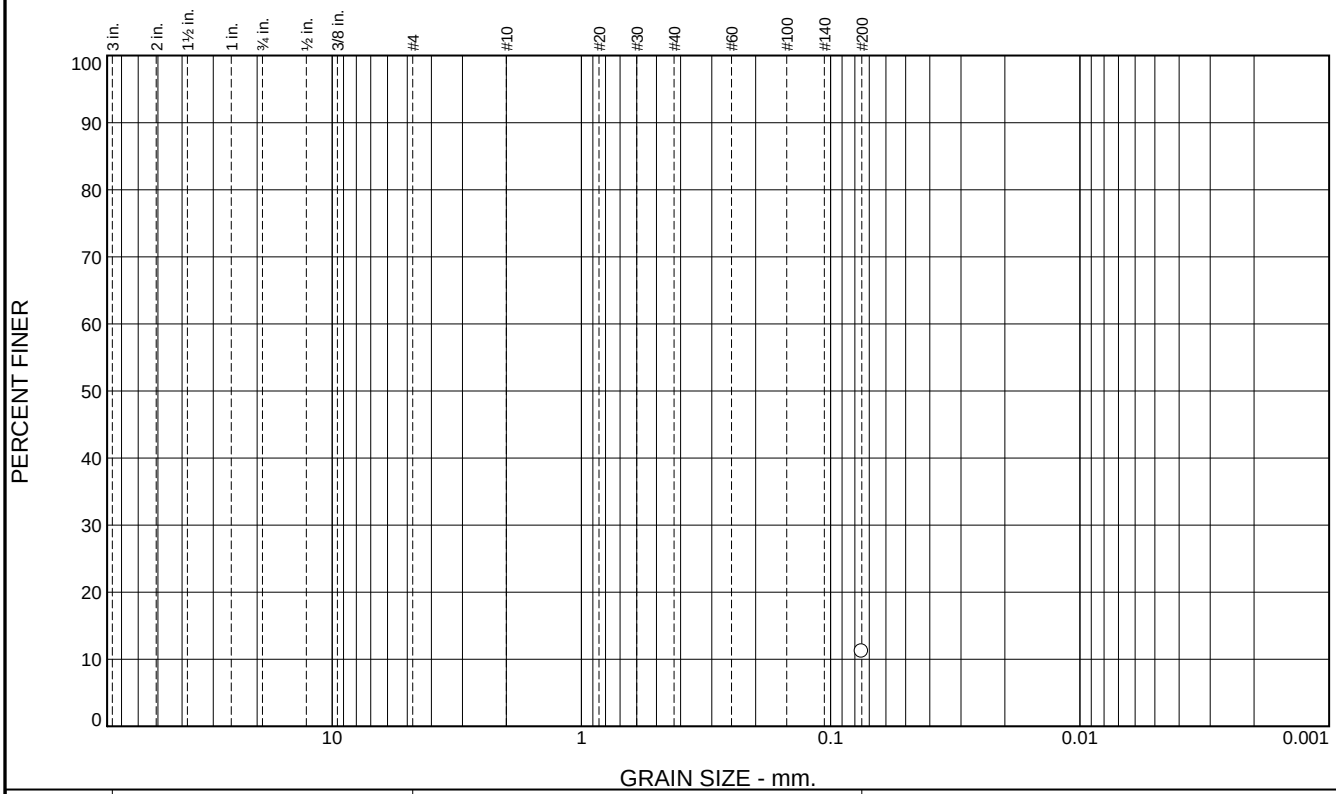
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						11.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	11.2		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B18 @ 6 **Depth:** 6

Date: 5-18-15

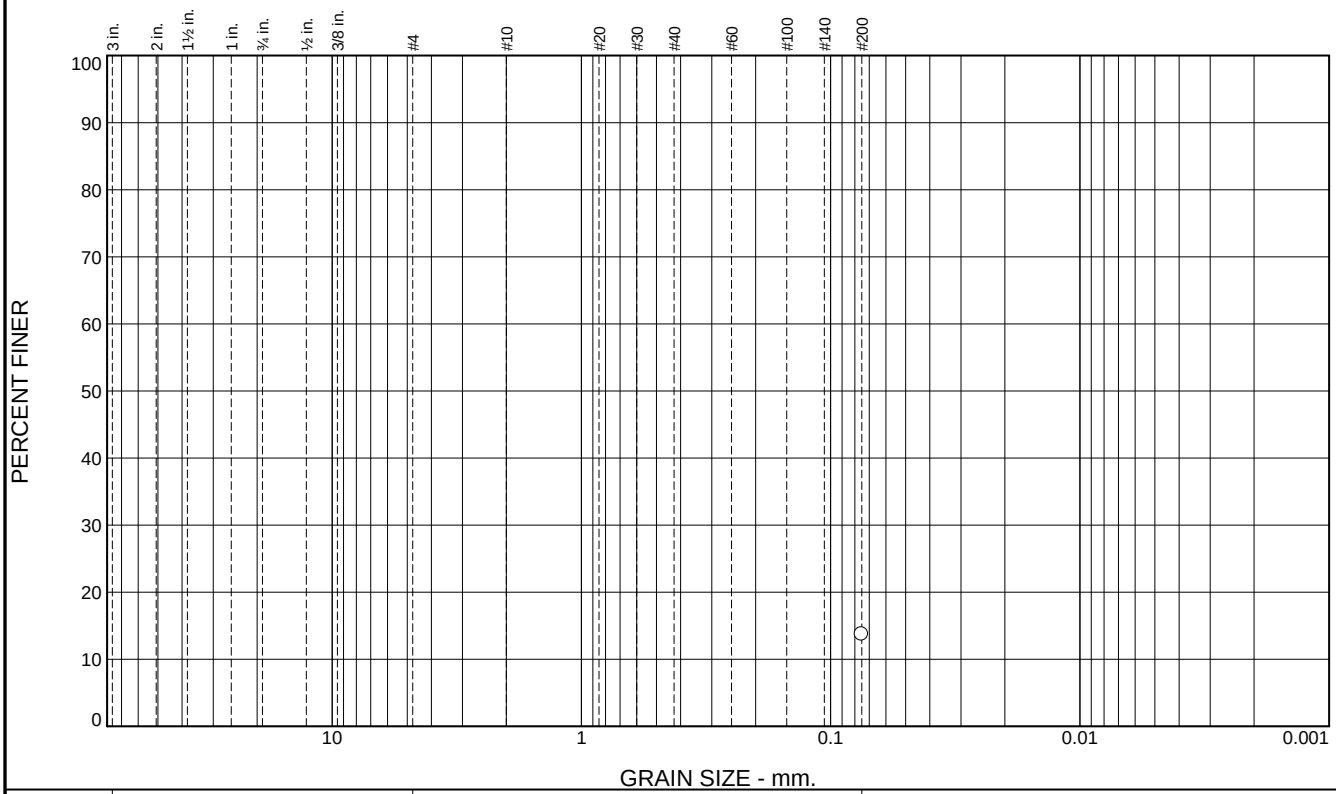
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						13.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	13.7		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B19 @ 3 **Depth:** 3

Date: 5-18-15

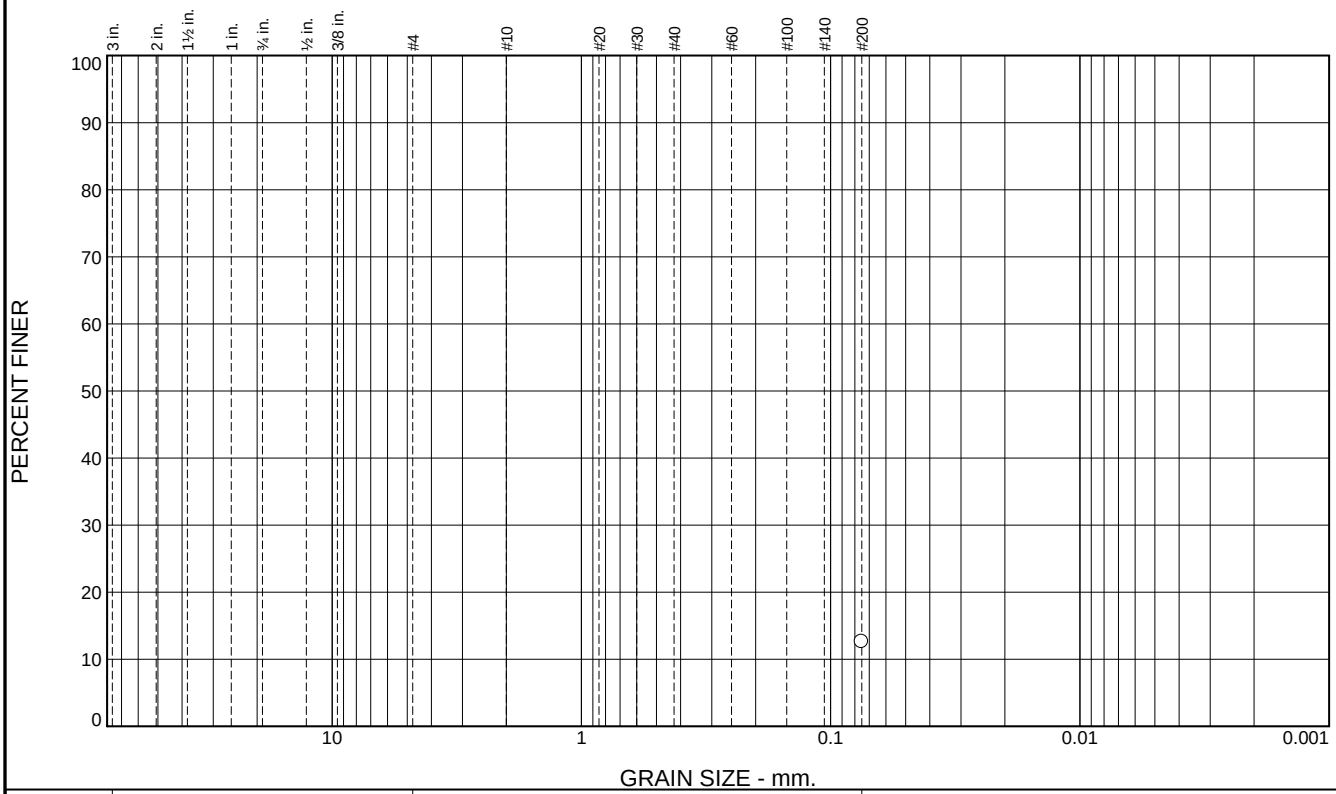
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						12.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	12.6		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B2 @ 6.5 **Depth:** 6.5

Date: 5-18-15

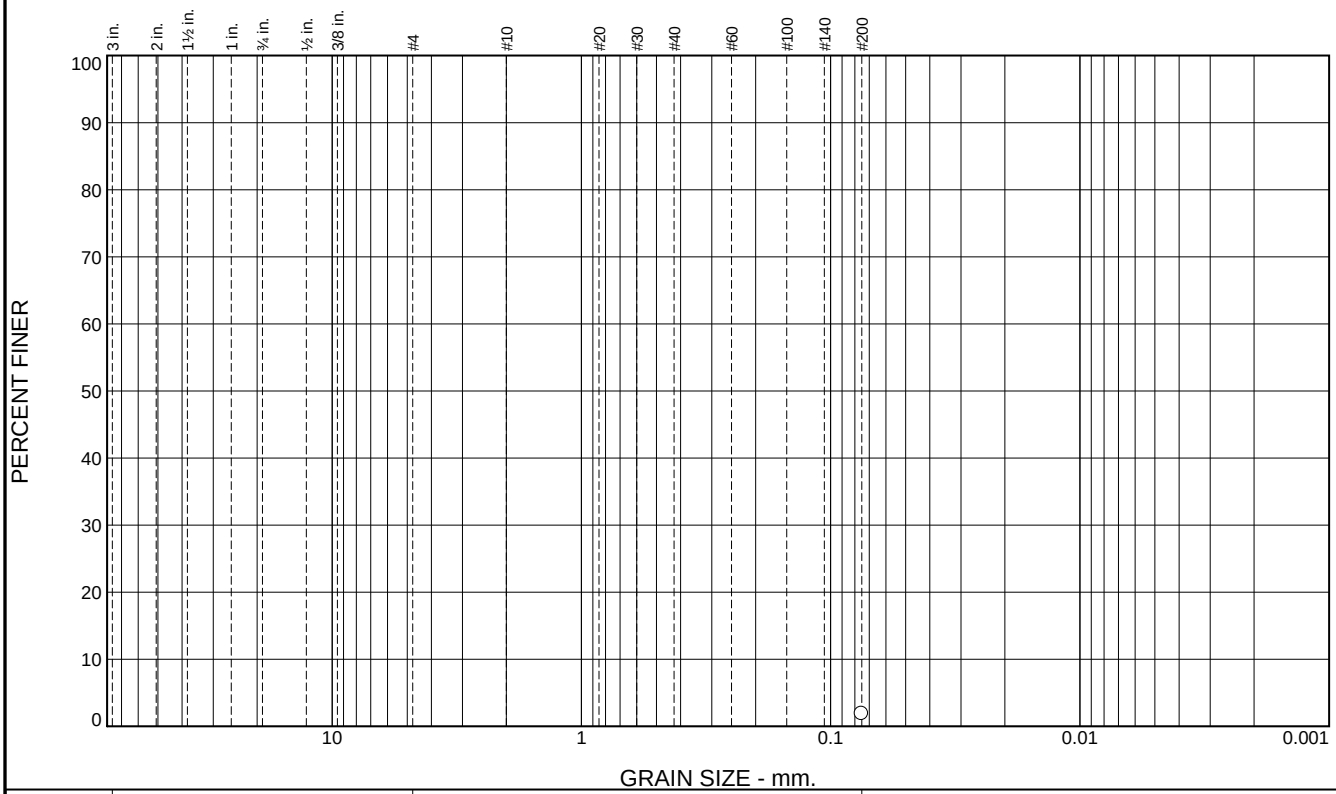
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						1.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	1.9		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B21 @ 11.5 **Depth:** 11.5

Date: 5-18-15

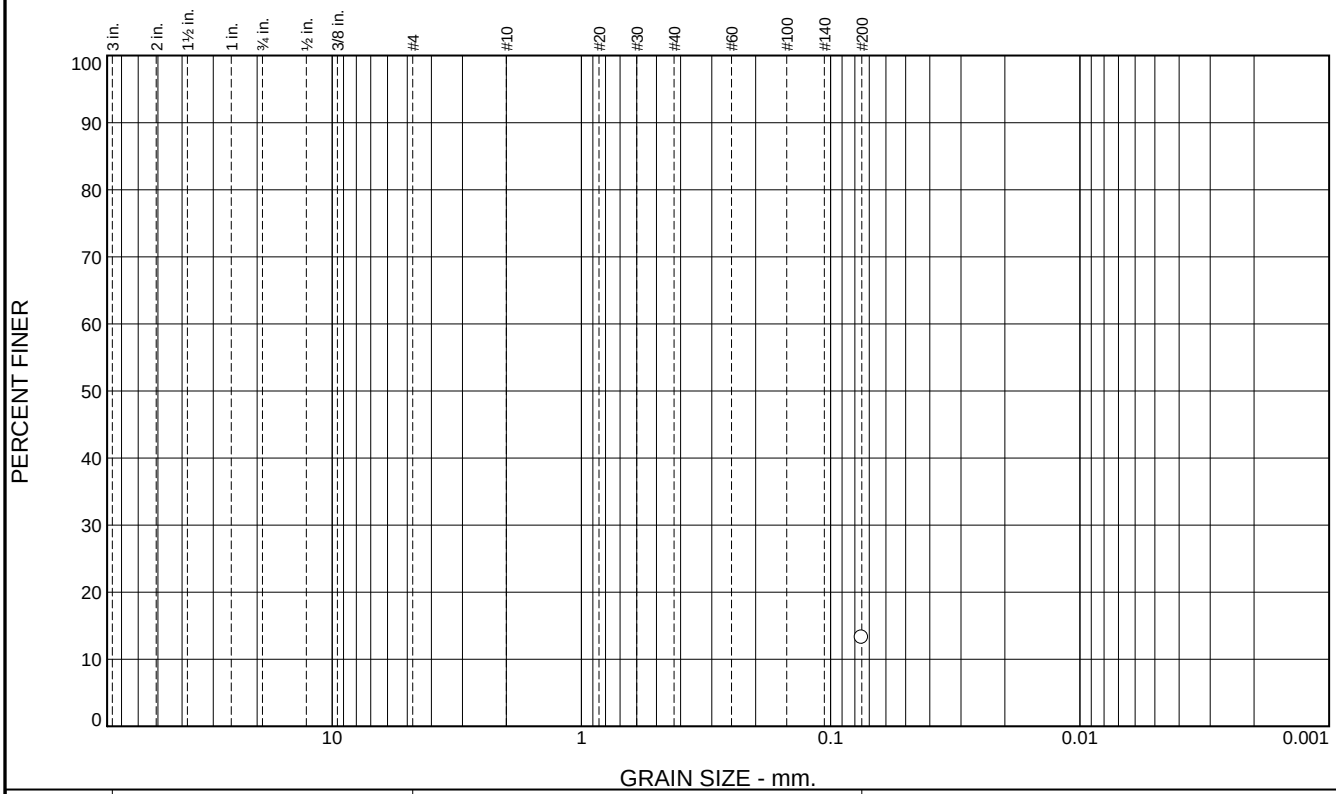
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						13.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	13.2		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B21 @ 6 **Depth:** 6

Date: 5-18-15

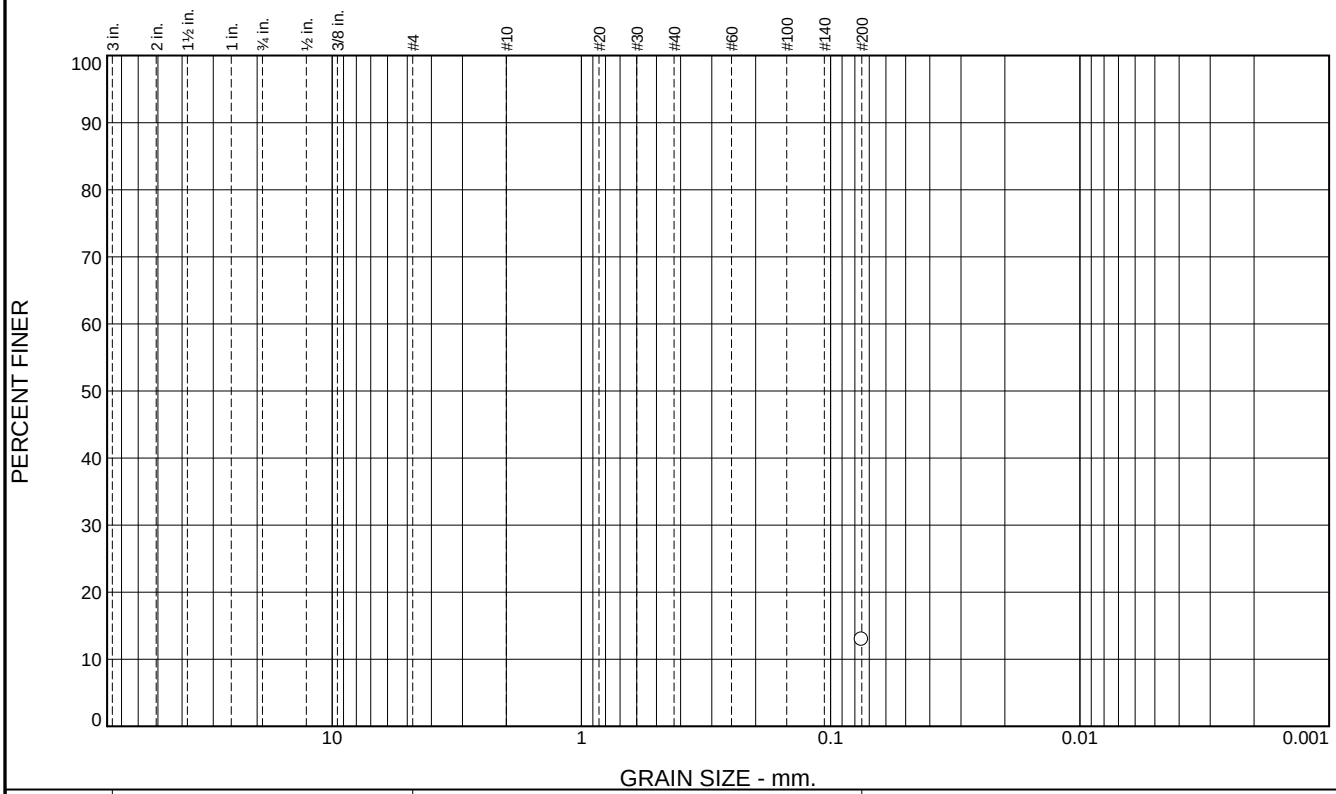
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	12.9		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B21 @ 8.5 **Depth:** 8.5

Date: 5-18-15

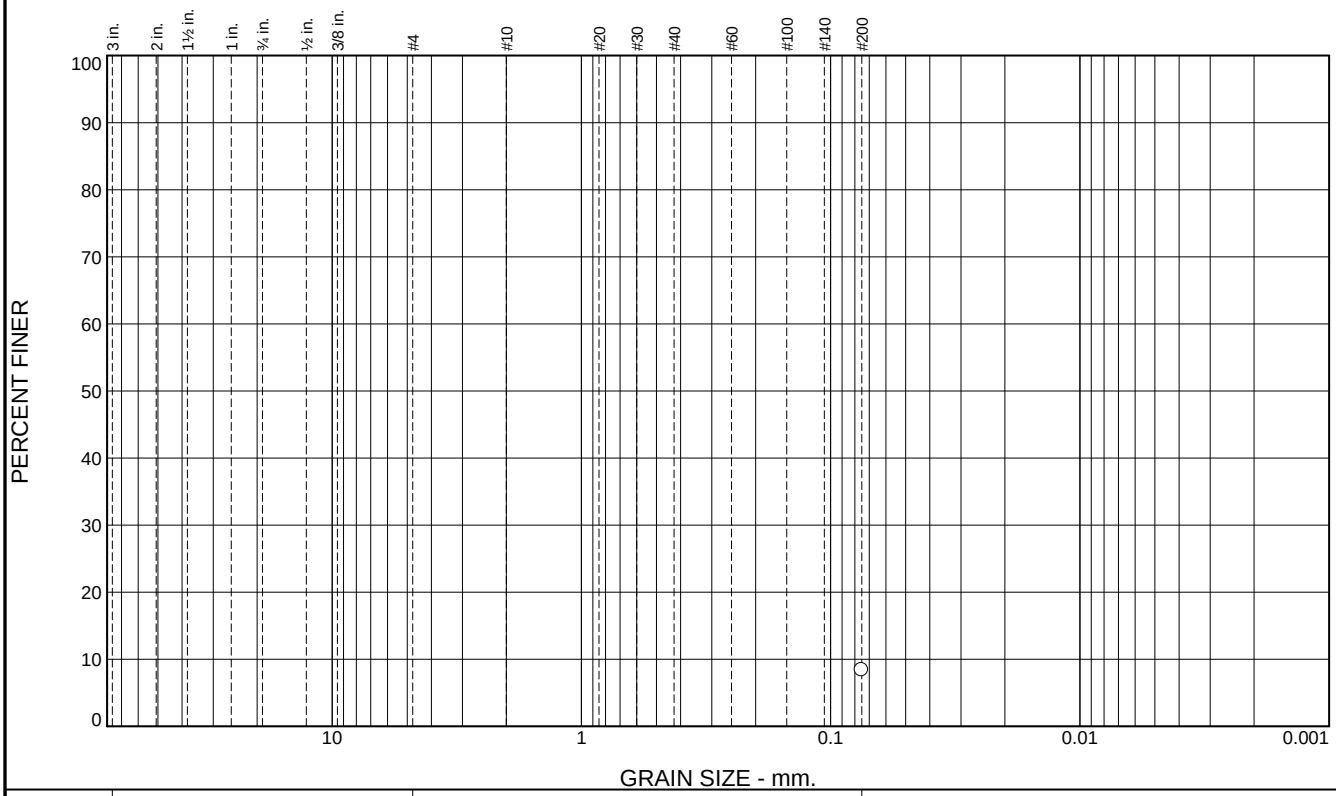
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						8.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	8.4		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B26 @ 11.5 **Depth:** 11.5

Date: 5-18-15

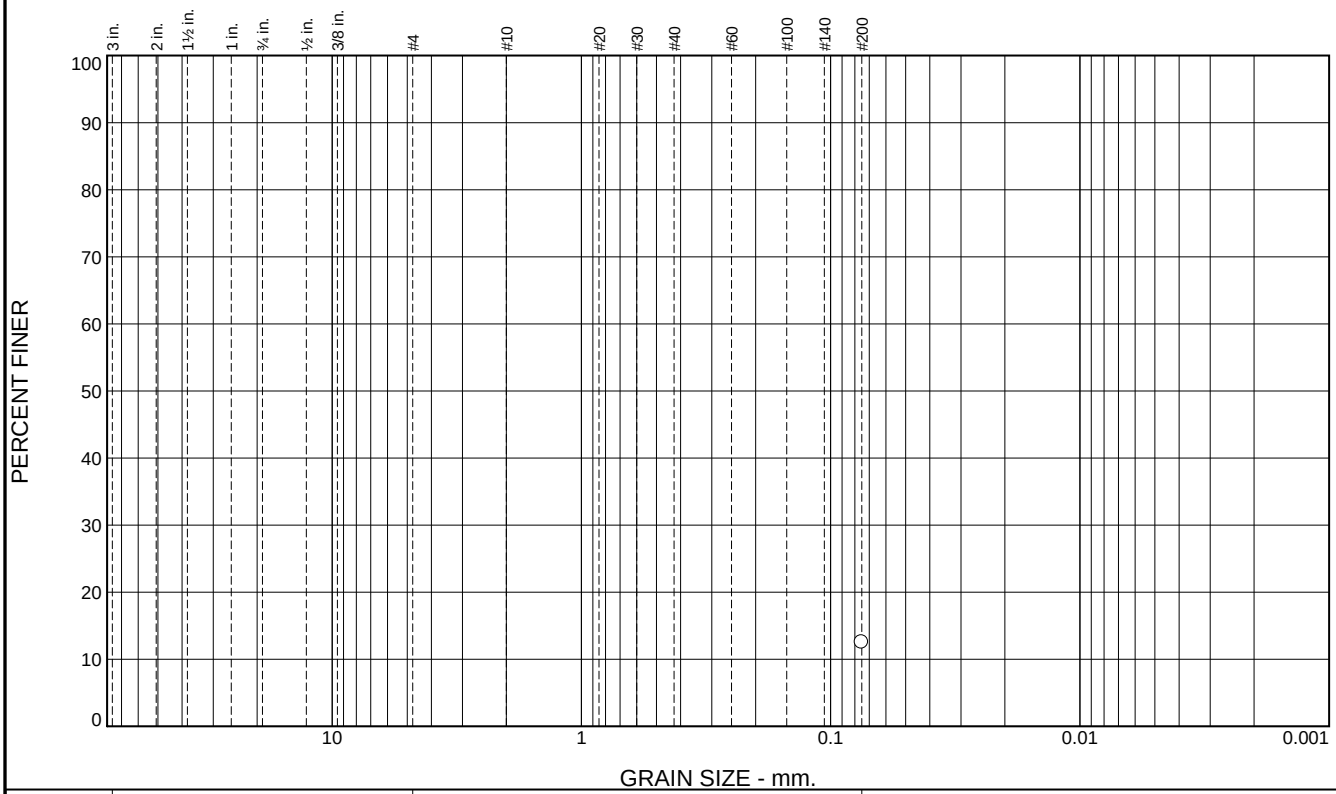
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						12.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	12.5		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B26 @ 3 **Depth:** 3

Date: 5-18-15

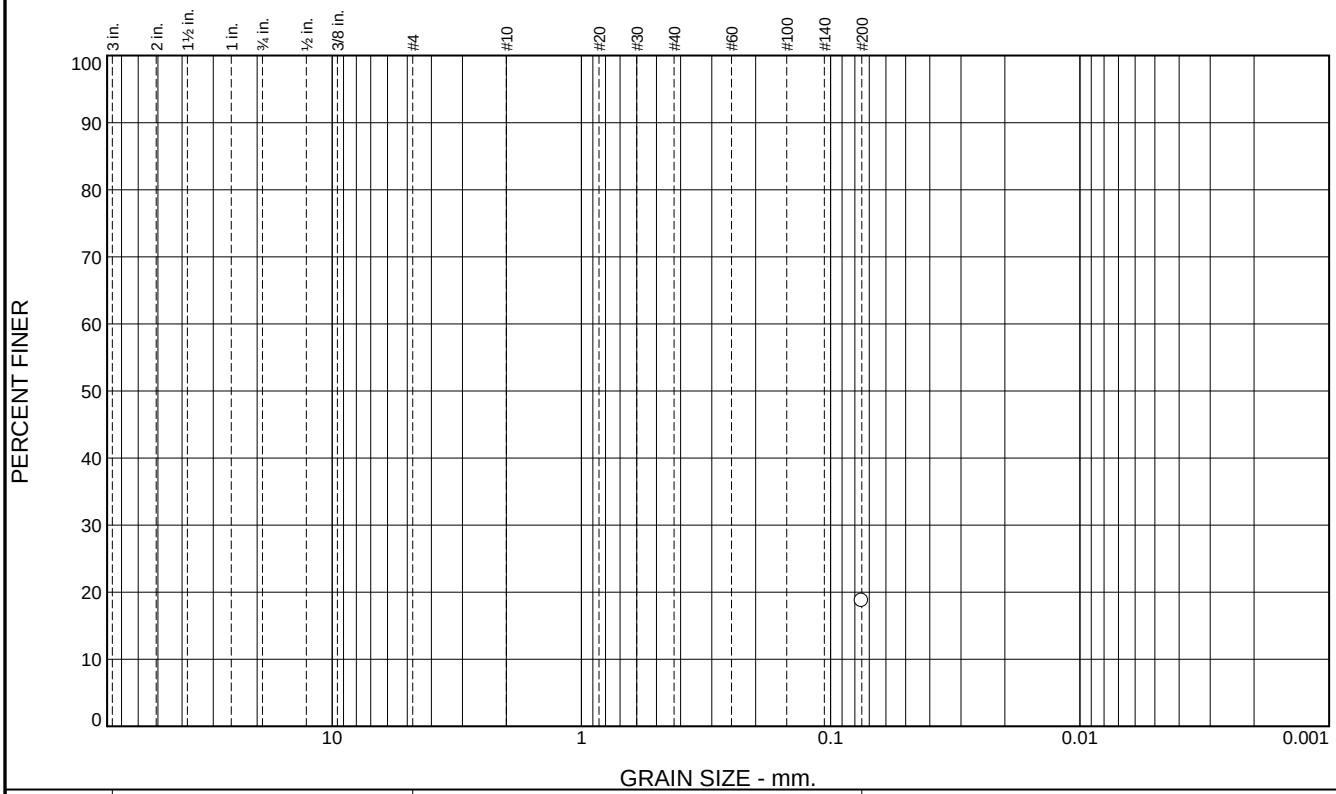
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						18.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	18.7		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B26 @ 6 **Depth:** 6

Date: 5-18-15

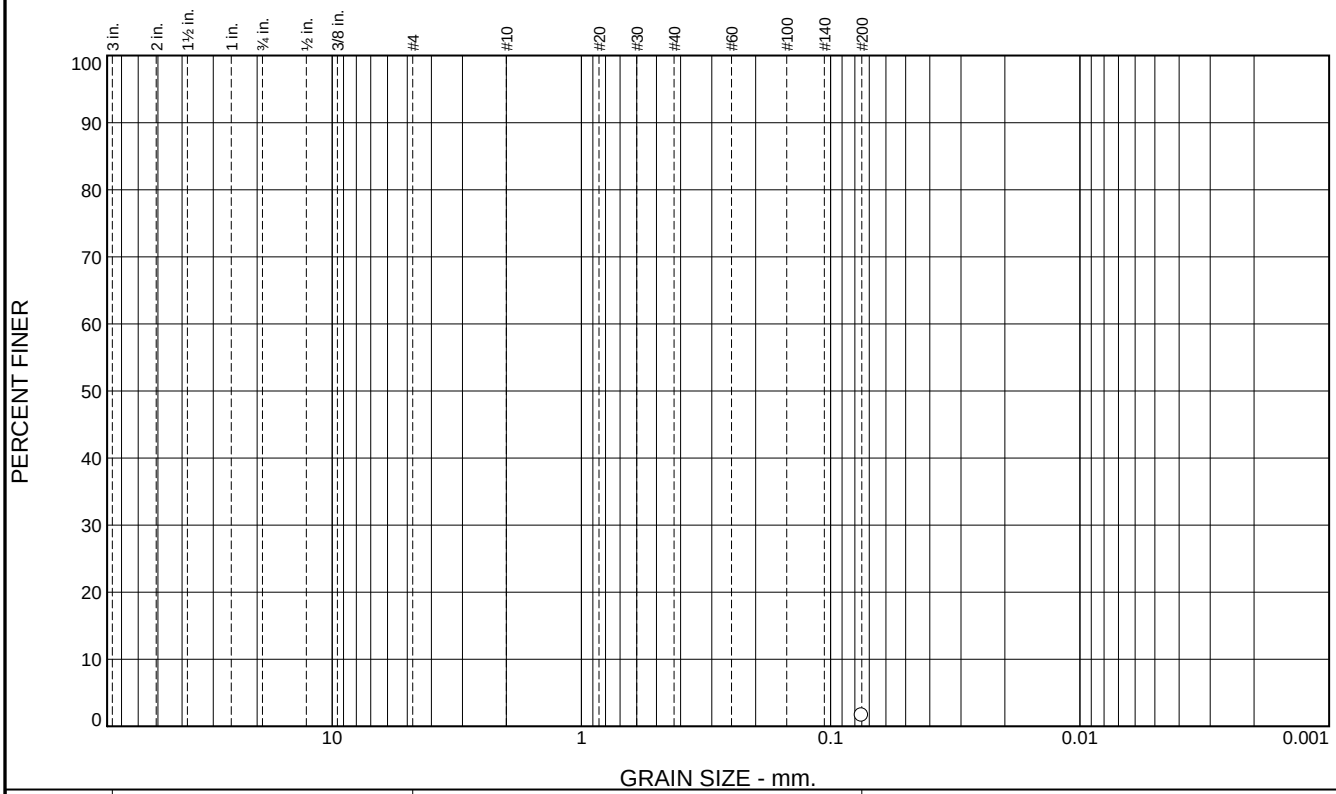
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						1.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	1.6		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B29 @ 6.5 **Depth:** 6.5

Date: 5-18-15

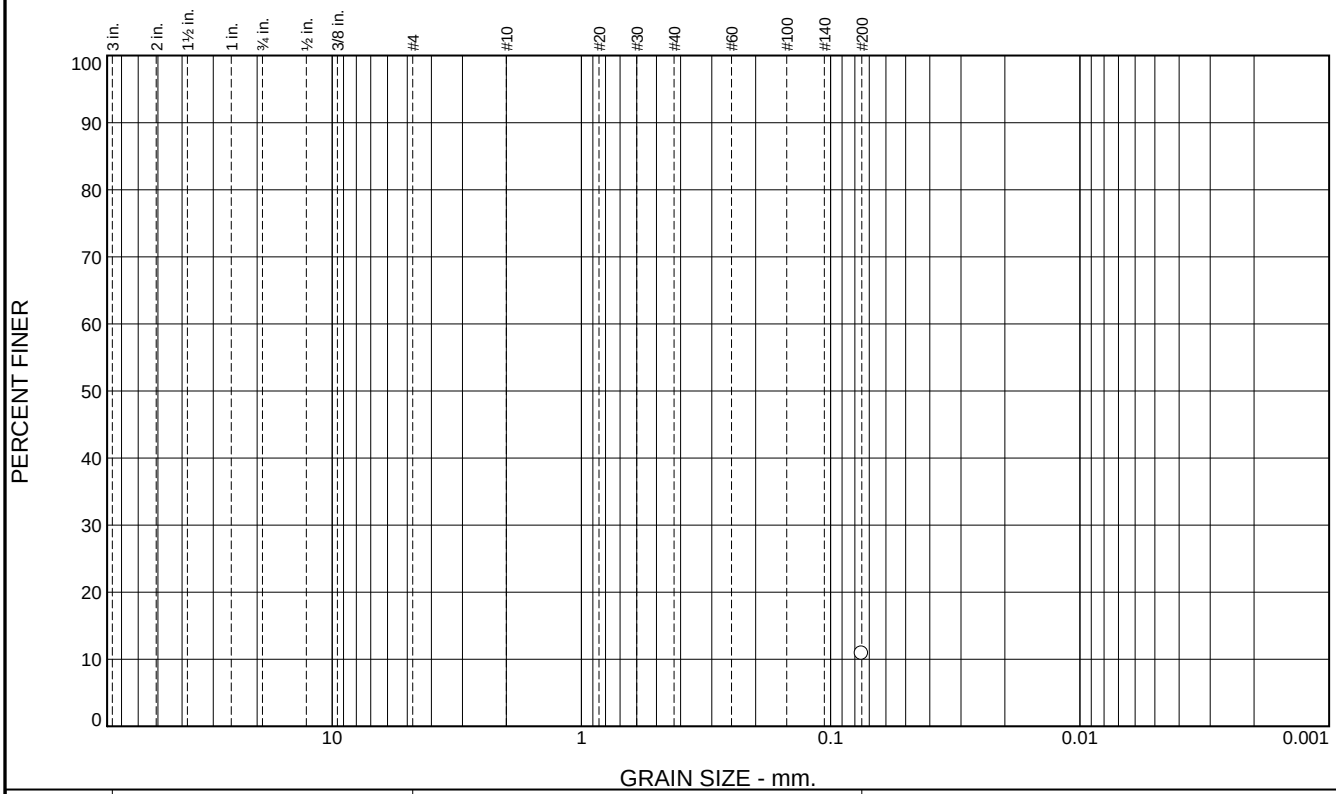
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						10.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	10.9		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B4 @ 6.5 **Depth:** 6.5

Date: 5-18-15

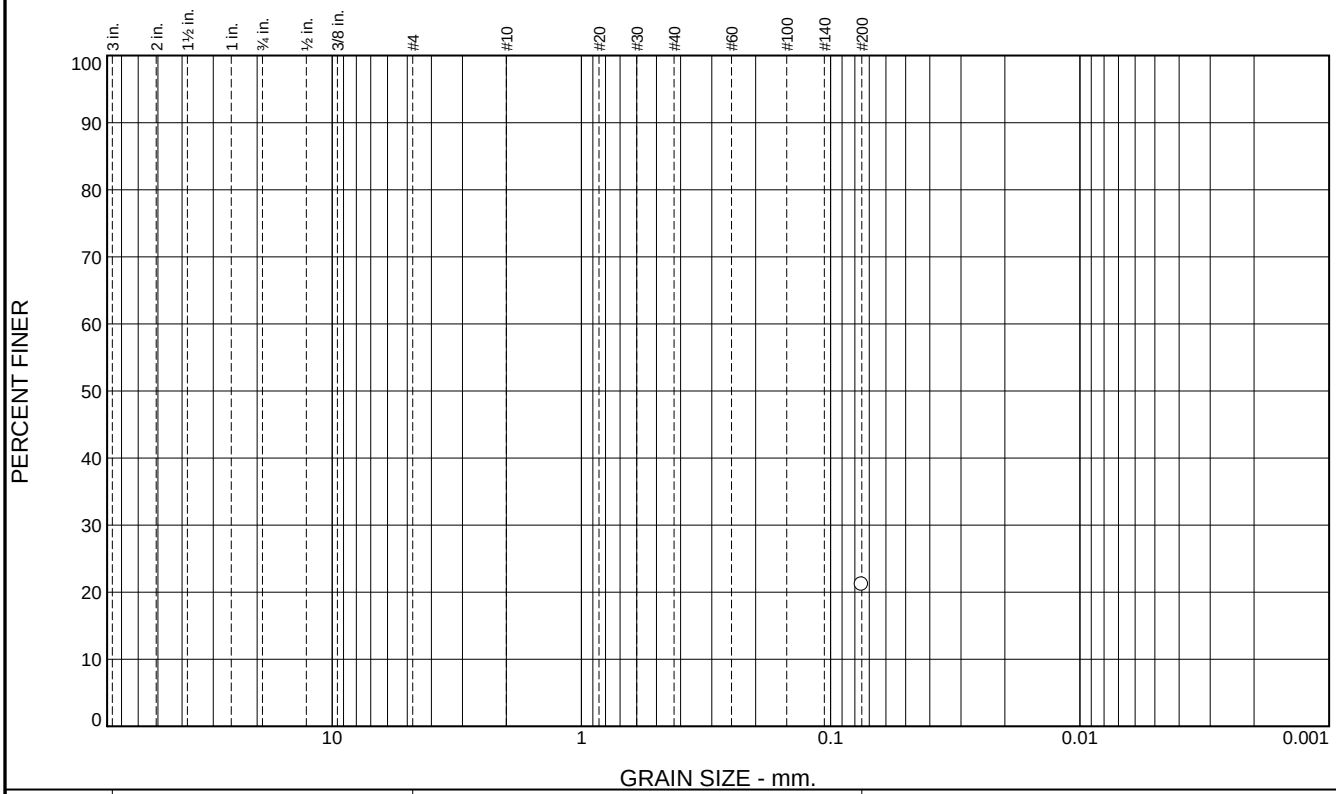
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						21.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	21.2		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B6 @ 3.5 **Depth:** 3.5

Date: 5-18-15

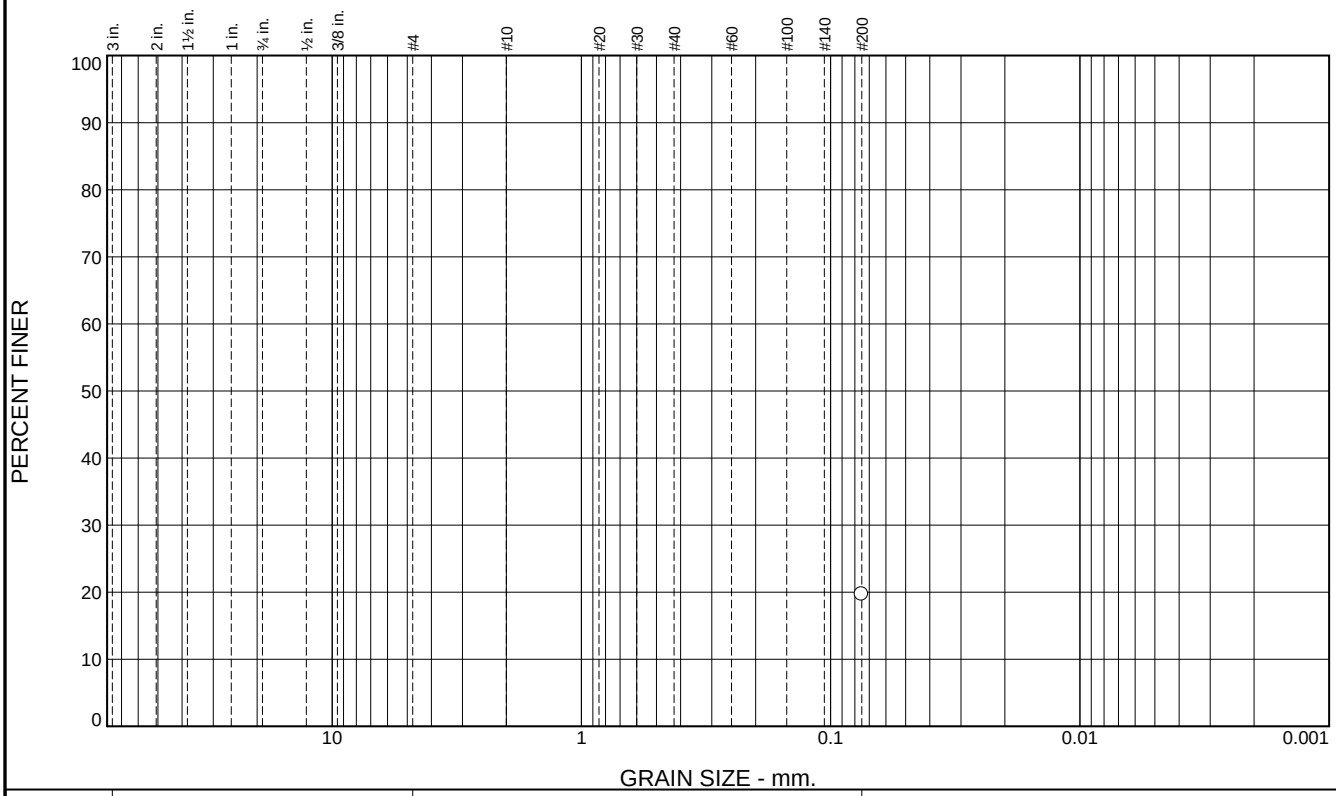
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						19.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	19.7		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B9 @ 11.5 **Depth:** 11.5

Date: 5-18-15

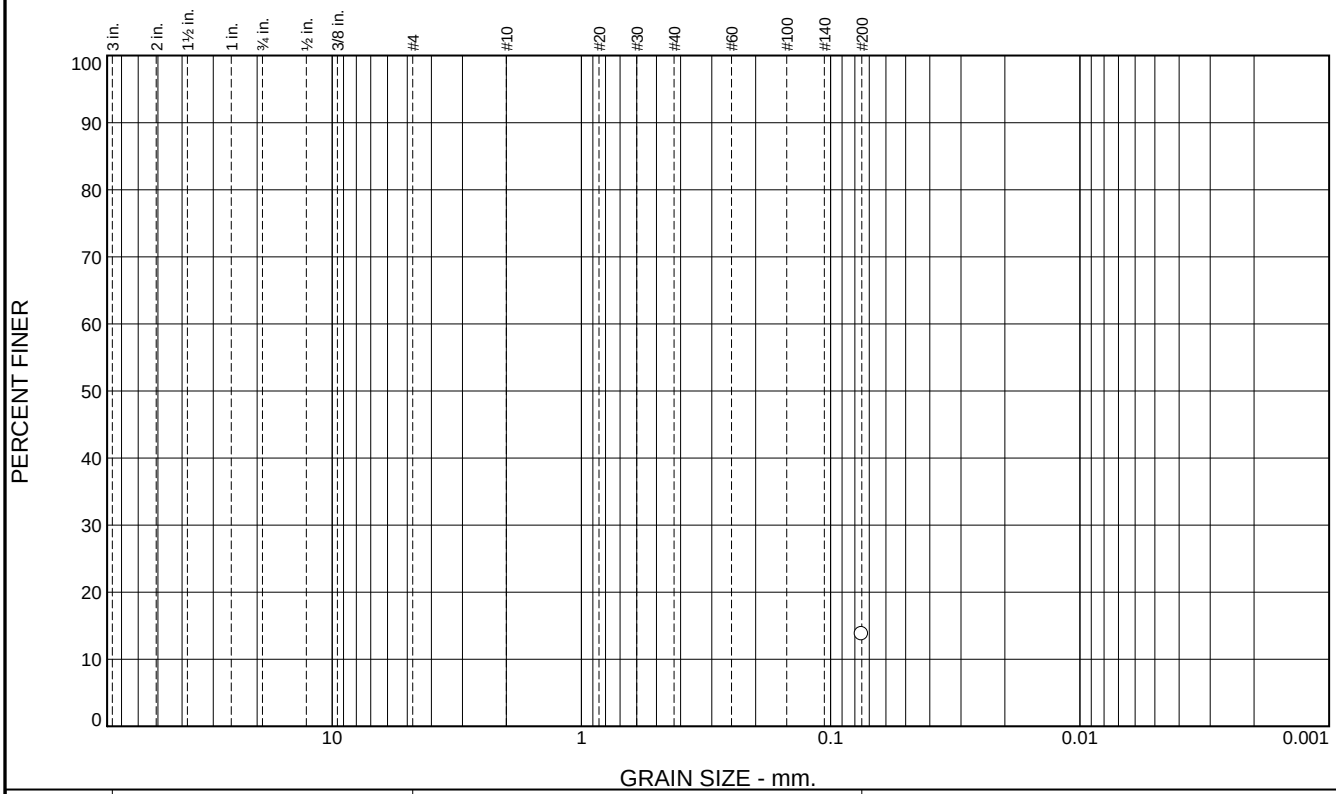
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						13.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	13.8		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B9 @ 6.5 **Depth:** 6.5

Date: 5-18-15

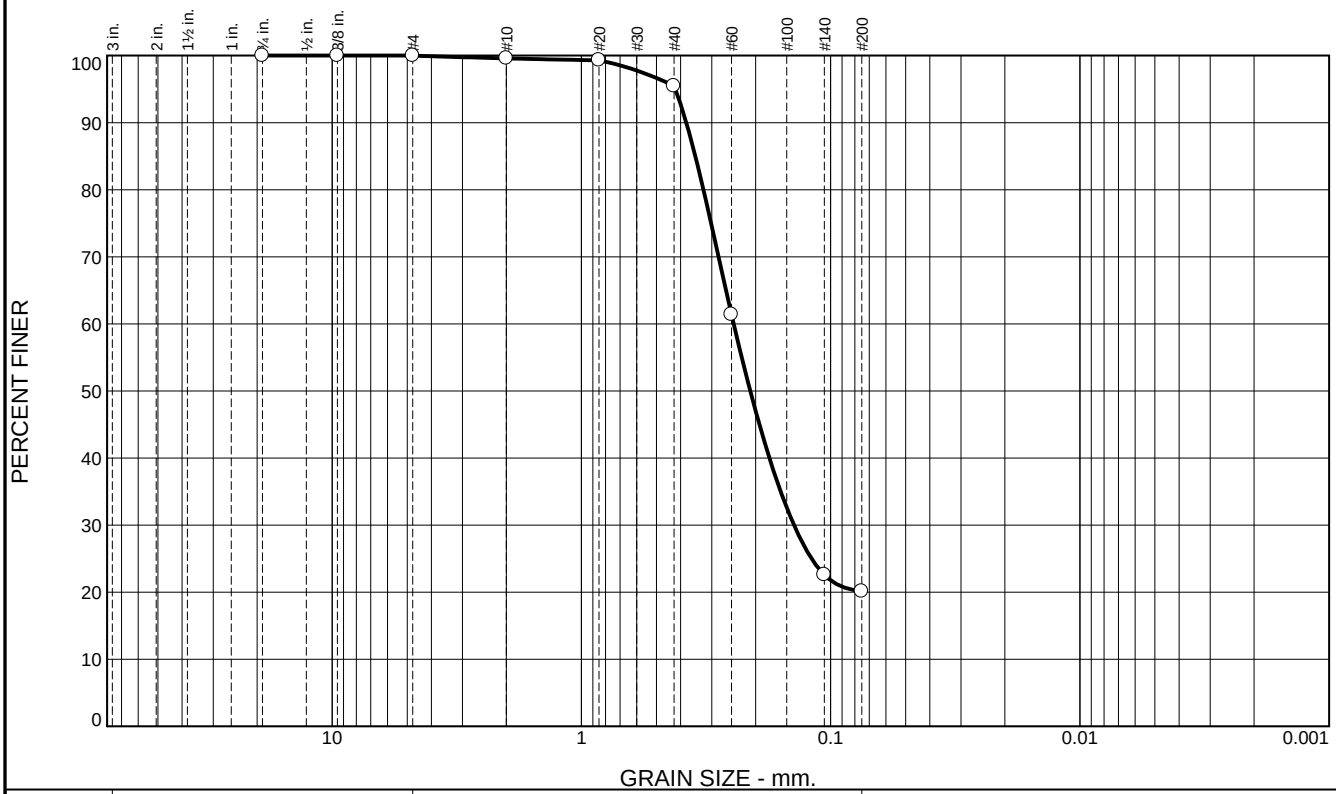
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	4.1	75.4	20.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.6		
#20	99.3		
#40	95.5		
#60	61.4		
#140	22.6		
#200	20.1		

* (no specification provided)

Soil Description

See Exploratory Logg

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3794 D_{85}= 0.3491 D_{60}= 0.2451
D_{50}= 0.2103 D_{30}= 0.1403 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D422, C136

Sample Number: 1-B10 @ 2.5 **Depth:** 2.5

Date: 5-18-15

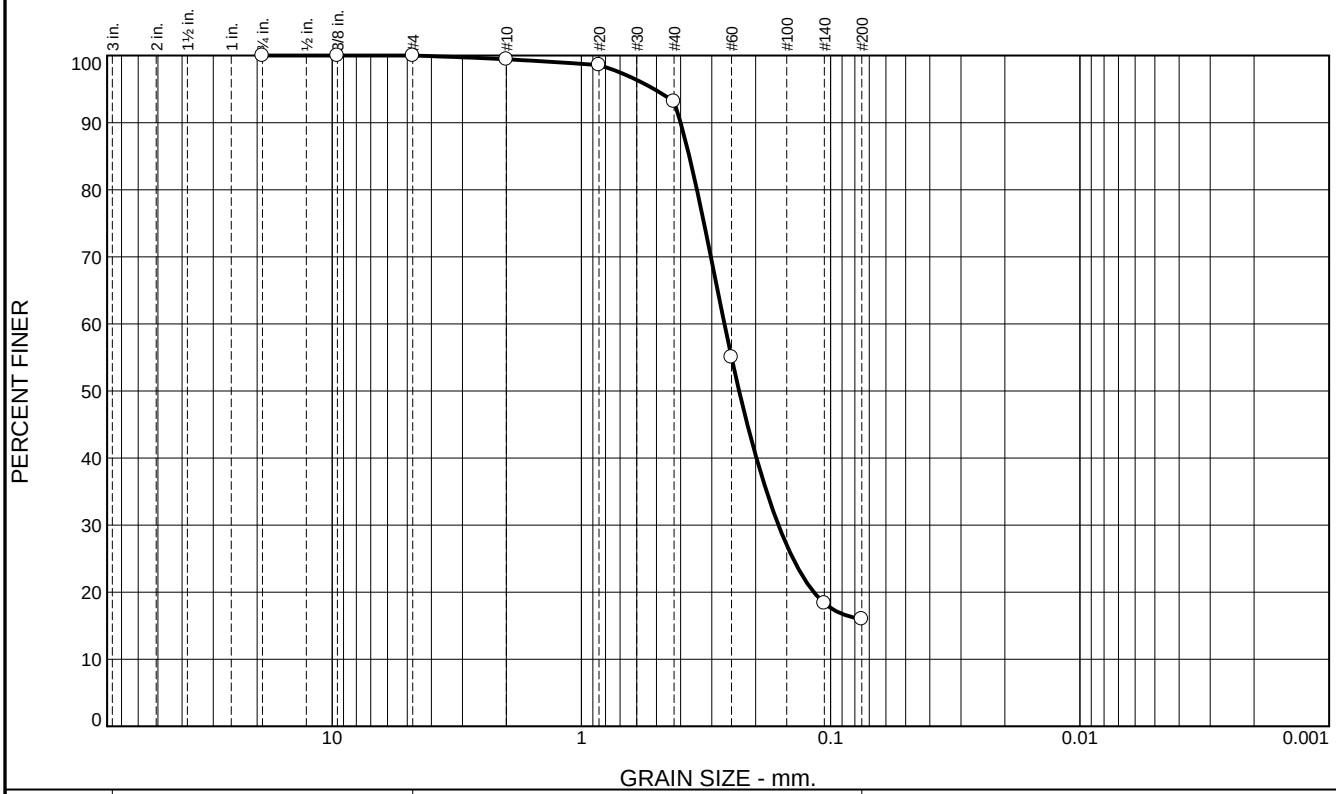
ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	6.3	77.1	16.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.4		
#20	98.6		
#40	93.1		
#60	55.0		
#140	18.3		
#200	16.0		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4000 D_{85}= 0.3691 D_{60}= 0.2669
D_{50}= 0.2330 D_{30}= 0.1619 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D422, C136

Sample Number: 1-B17 @ 2 **Depth:** 2

Date: 5-18-15

ENGEO INCORPORATED

Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: M. Tan **Checked By:** K. Lecce

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	4.2	76.5	13.2	6.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	99.7		
#40	95.8		
#60	62.3		
#140	22.6		
#200	19.3		
0.0345 mm.	11.2		
0.0221 mm.	9.3		
0.0188 mm.	8.4		
0.0129 mm.	7.5		
0.0092 mm.	7.0		
0.0065 mm.	6.5		
0.0046 mm.	5.9		
0.0038 mm.	4.5		
0.0032 mm.	4.5		
0.0023 mm.	3.6		
0.0014 mm.	2.8		

* (no specification provided)

Soil Description

See Exploratory Log

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3761 D_{85}= 0.3459 D_{60}= 0.2418
D_{50}= 0.2072 D_{30}= 0.1388 D_{15}= 0.0501
D_{10}= 0.0260 C_u= 9.32 C_c= 3.07

Classification

USCS= AASHTO=

Remarks

ASTM D422

Sample Number: 1-B18 @ 3 **Depth:** 3

Date: 5-19-15

ENGEO INCORPORATED

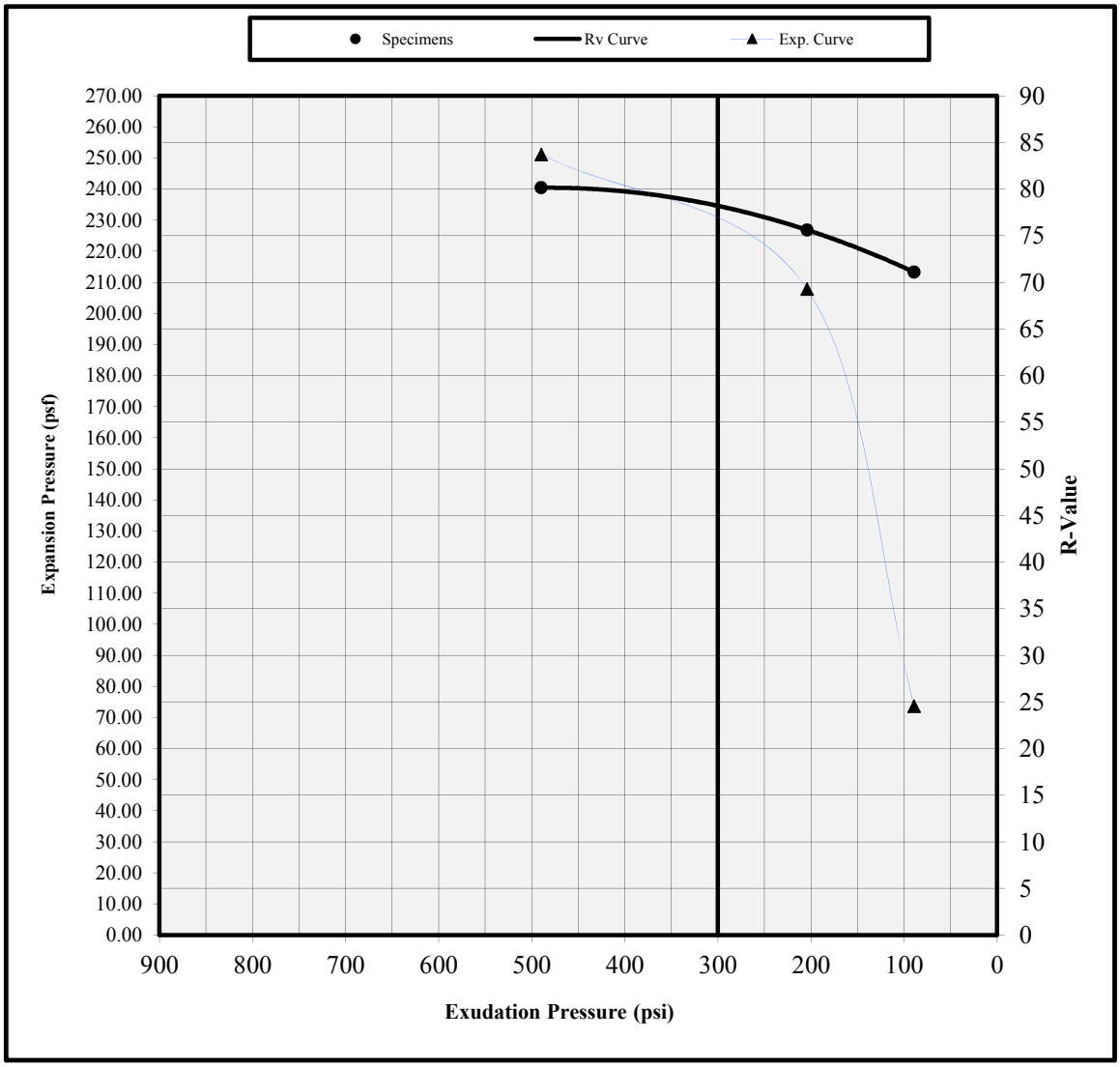
Client: CenterPoint Integrated Solutions, LLC
Project: CarMax in Colma

Project No: 12054.000.000 **Figure**

Tested By: K. Lecce **Checked By:** M. Tan

ENGEO INCORPORATED

R VALUE TEST REPORT
CTM-301



Date: 05/14/15
Project Name: CarMax in Colma
Project Number: 12054.000.000
Sample Location: 1-B01 @ 1-2
Description: Yellowish brown SAND
Test Performed By: J. Lawton
Reviewed By: G. Criste

Specimen	Specimen 1	Specimen 2	Specimen 3
Exudation Pressure (p.s.i.)	490	204	89
Expansion dial (0.0001")	58	48	17
Expansion Pressure (p.s.f.)	251	208	74
Resistance Value, "R"	80	76	71
% Moisture at Test	10.4	11.1	13.1
Dry Density at Test, p.c.f.	125.5	123.2	120.7
"R" Value at Exudation Pressure of 300 psi.	78		
Expansion Pressure (psf) at Exudation Pressure of 300 psi.	230		

Lab Address : 3420 Fostoria Way Suite E, San Ramon, CA 94583, Phone No.:(925)355-9047

WATER-SOLUBLE SULFATE IN SOILS

ASTM C1580

Sample Number	Sample ID / Location	Matrix	Water soluble sulfate in soil
			% by weight
1	1-B17 @ 1-2ft	soil	ND
2	1-B13 @ 1-2ft	soil	ND

Testing remarks: Per the test method, results are reported to the nearest 0.01% by weight. Results less than 0.01% will be reported as ND (Not Detectable).

Project Name: CarMax in Colma
Project Number: 12054.000.000
Client: CenterPoint Integrated Solutions, LLC
Phase Number: 001

Date: 05/12/15

ENGEO INCORPORATED

Tested by: J. Lawton **Reviewed by:** G. Criste

APPENDIX C

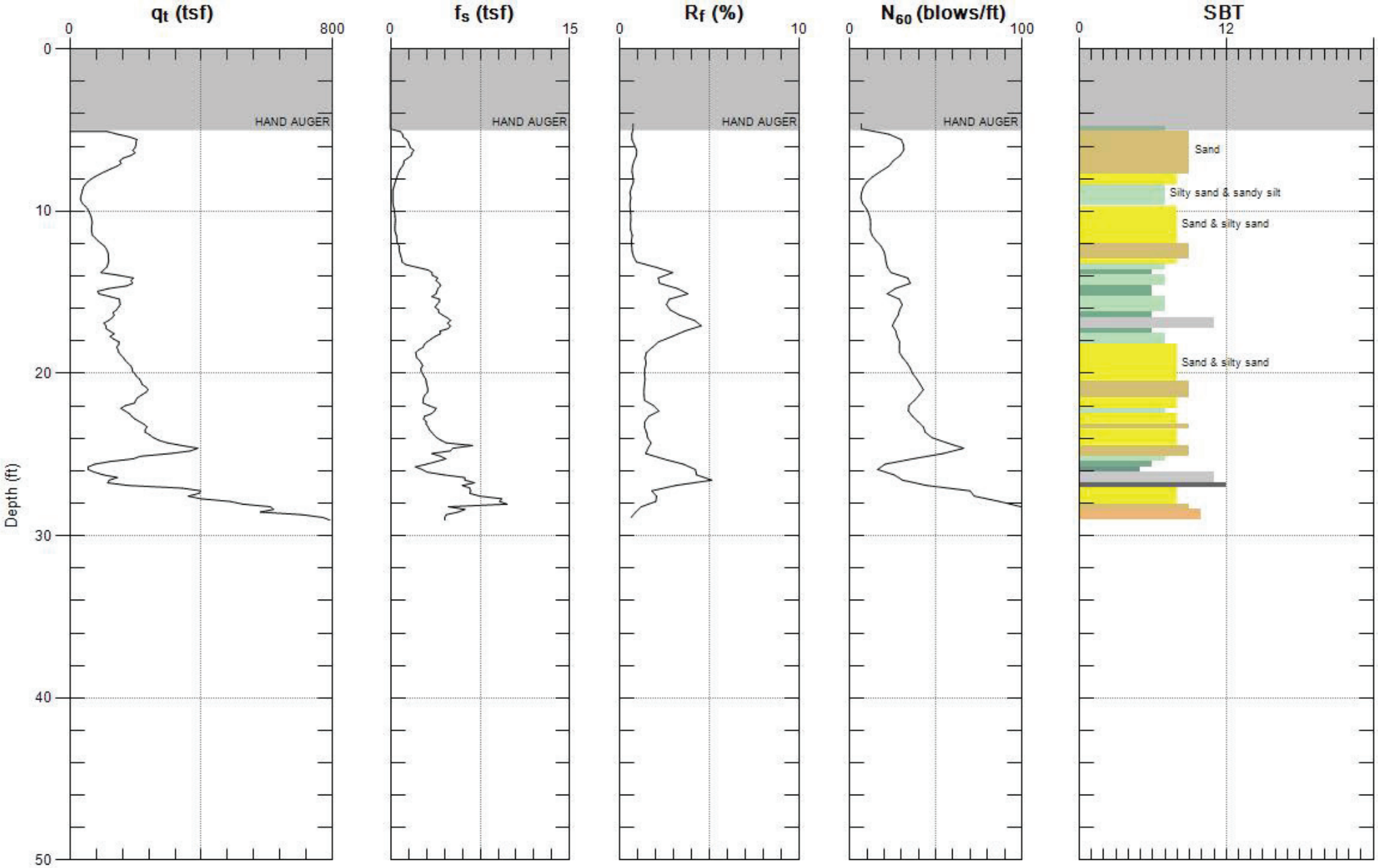
Cone Penetration Test Report

APPENDIX C

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT01 Date: 4/24/2015 08:12



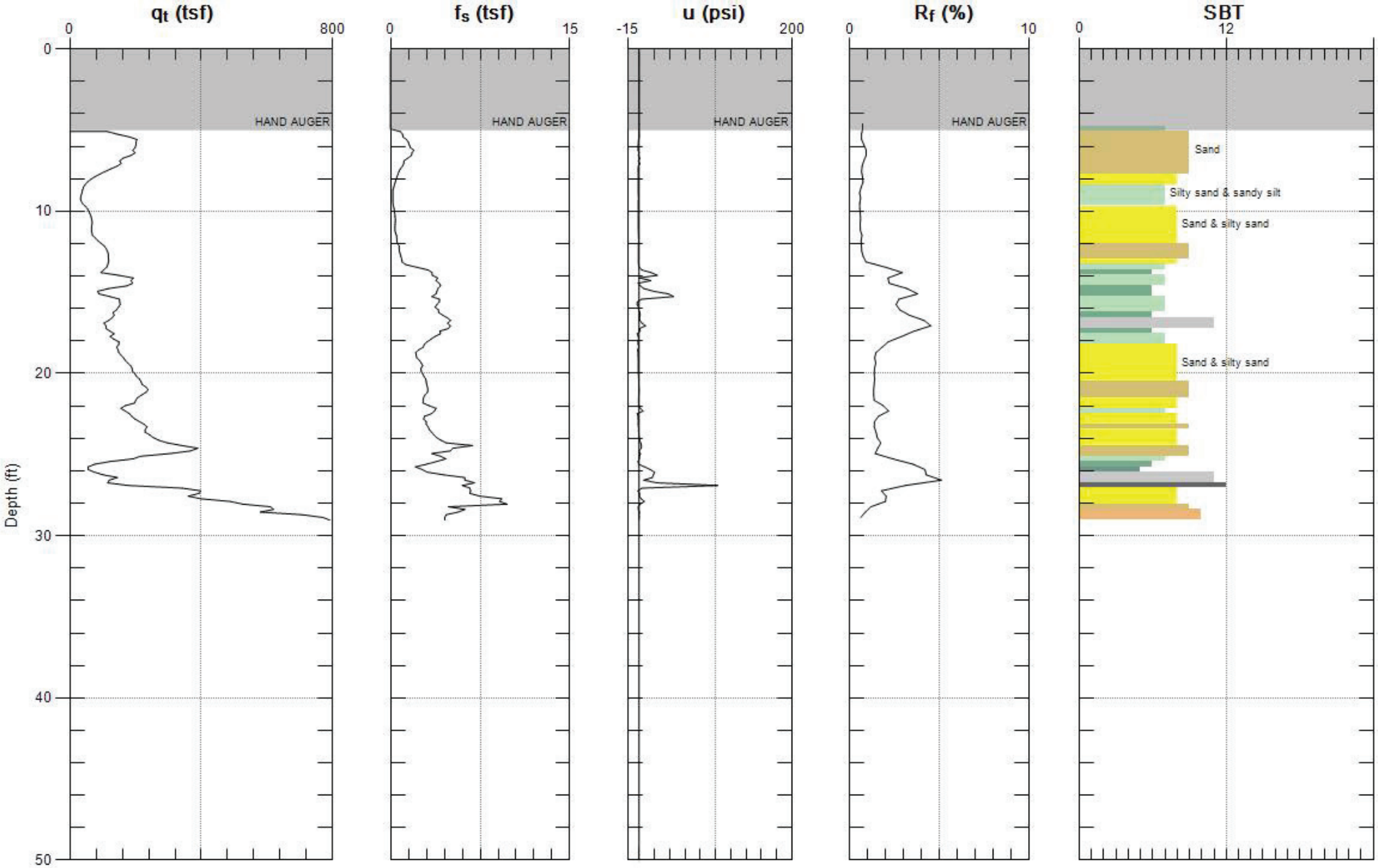
Max. Depth: 29.035 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT01 Date: 4/24/2015 08:12



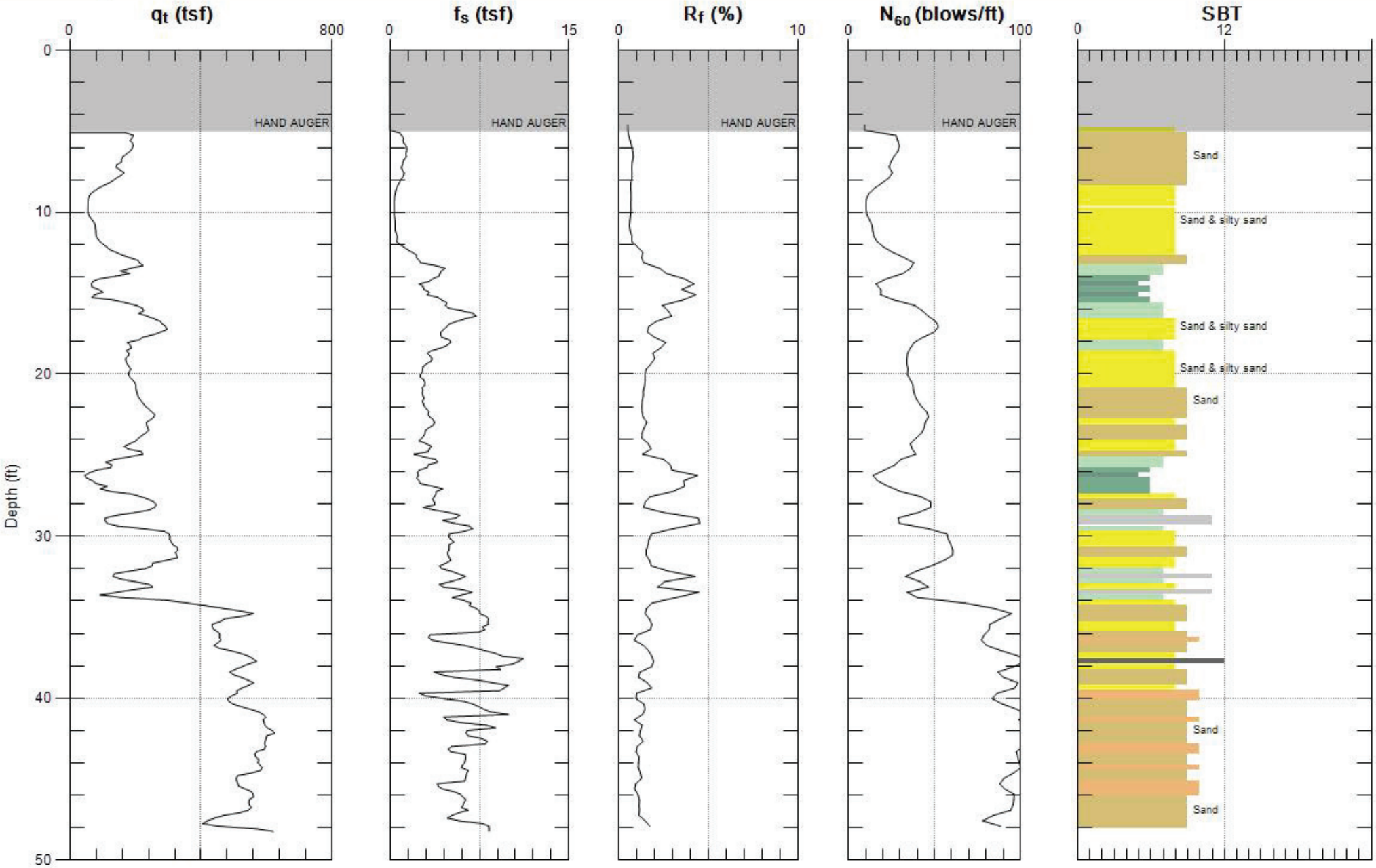
Max. Depth: 29.035 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT02 Date: 4/24/2015 09:25



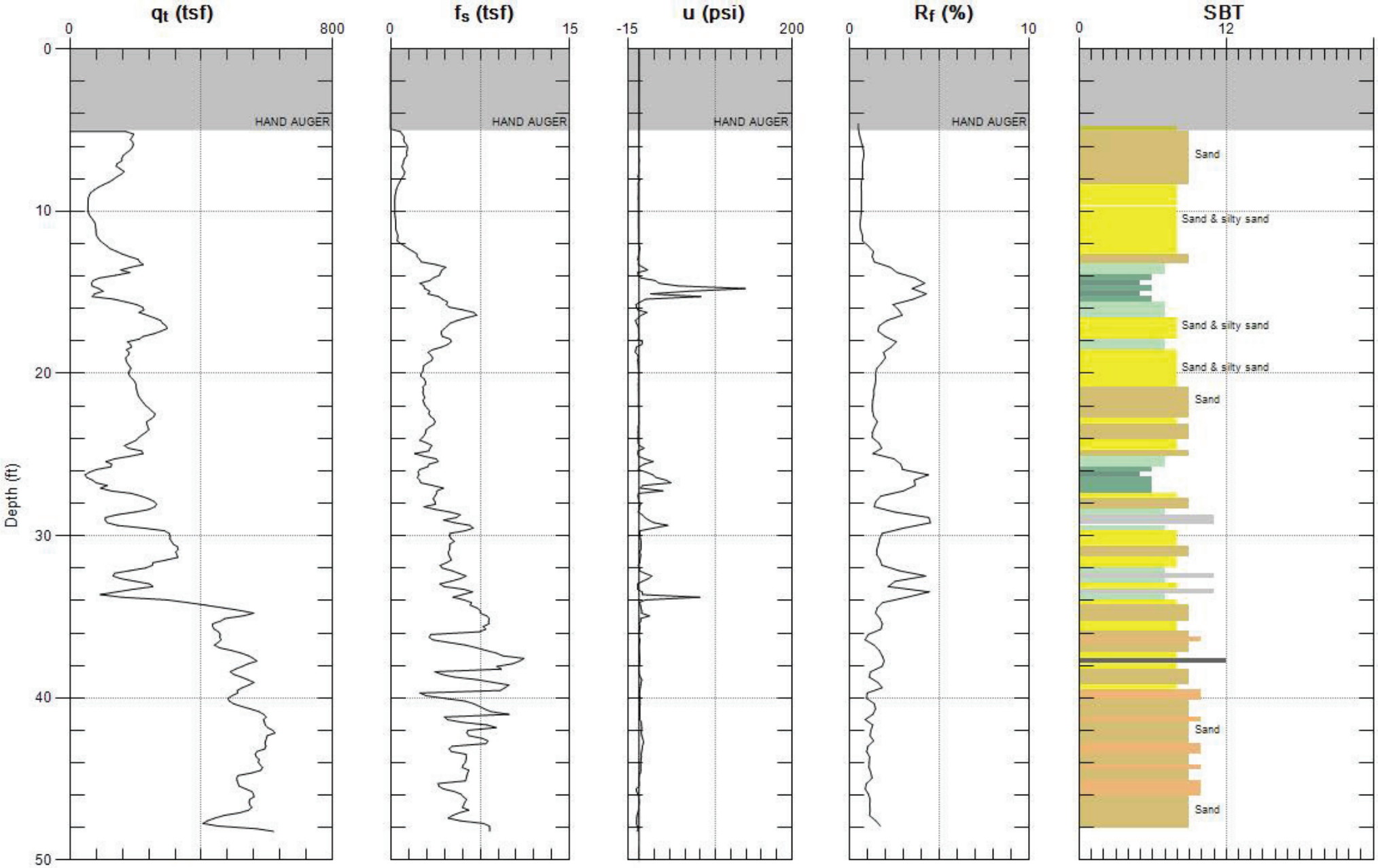
Max. Depth: 48.228 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT02 Date: 4/24/2015 09:25



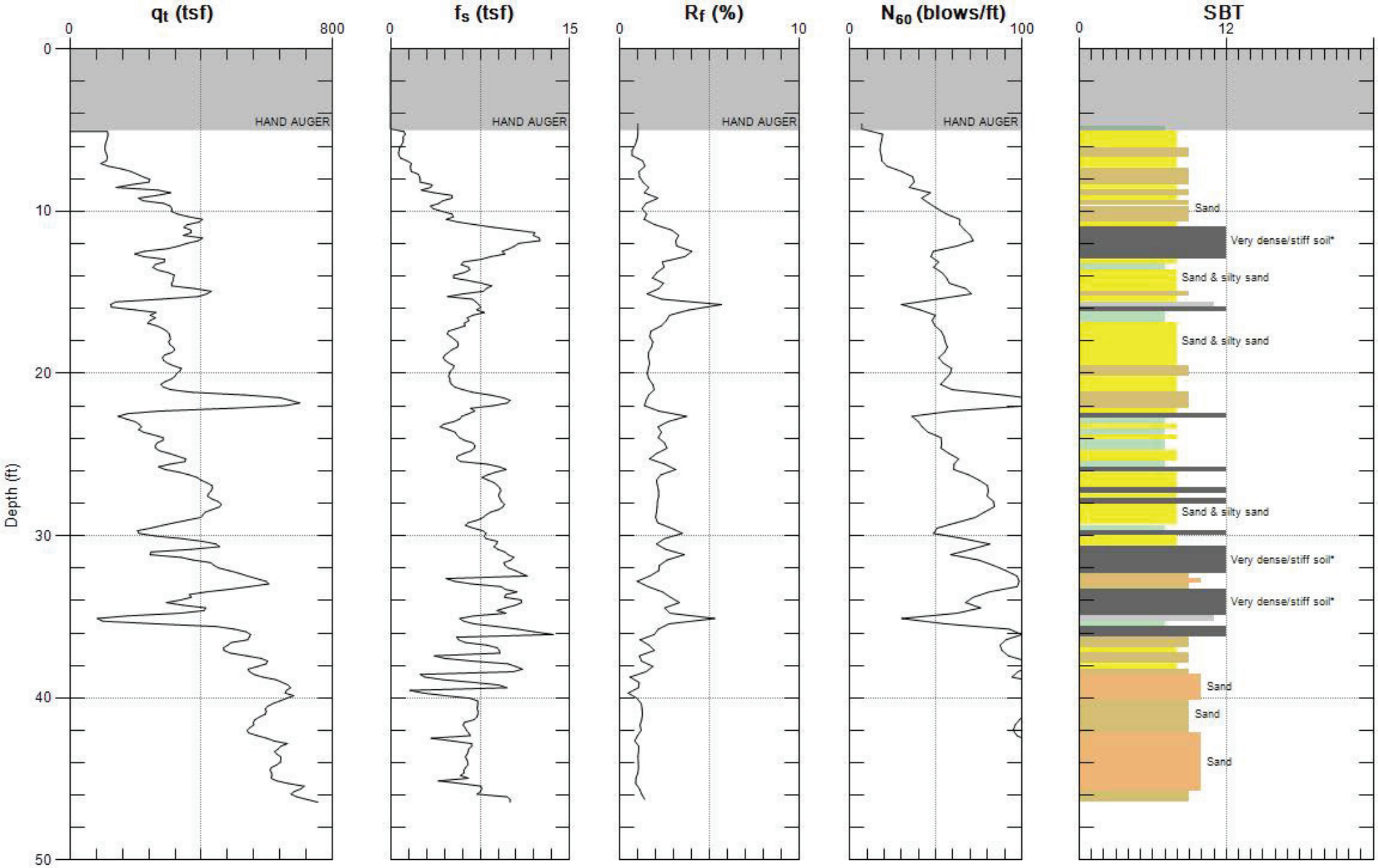
Max. Depth: 48.228 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT03 Date: 4/24/2015 01:23



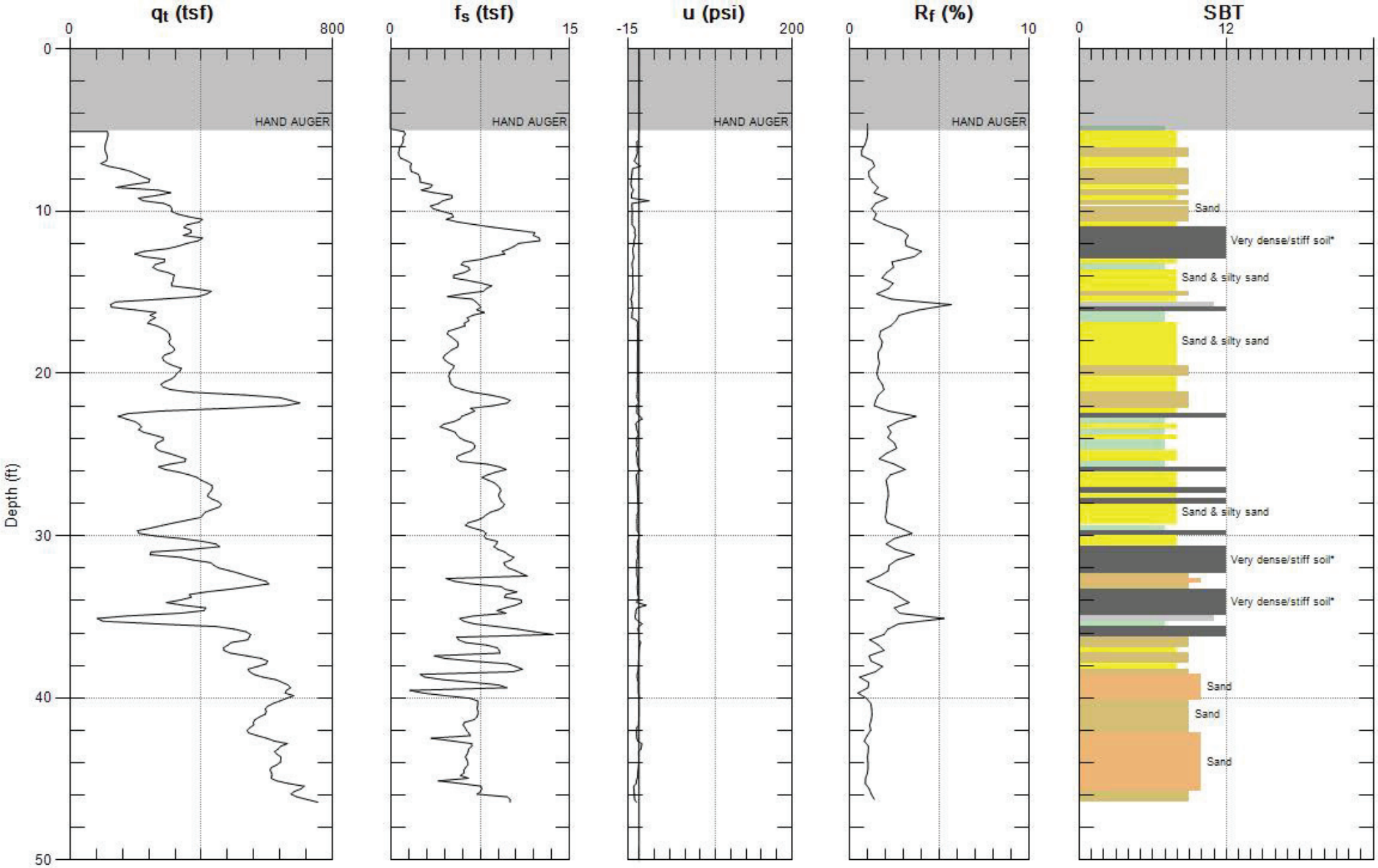
Max. Depth: 46.424 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT03 Date: 4/24/2015 01:23



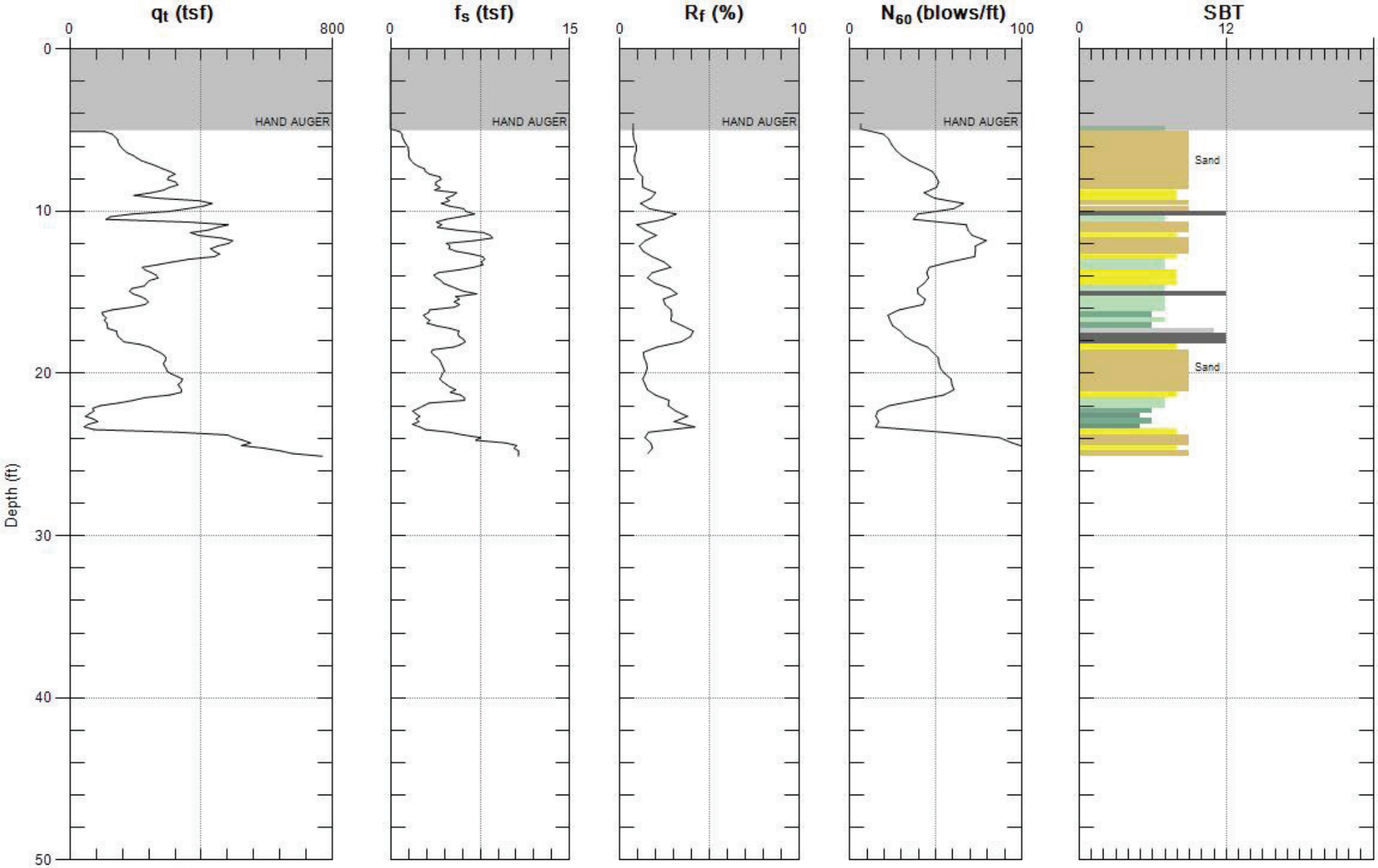
Max. Depth: 46.424 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT04 Date: 4/24/2015 11:59



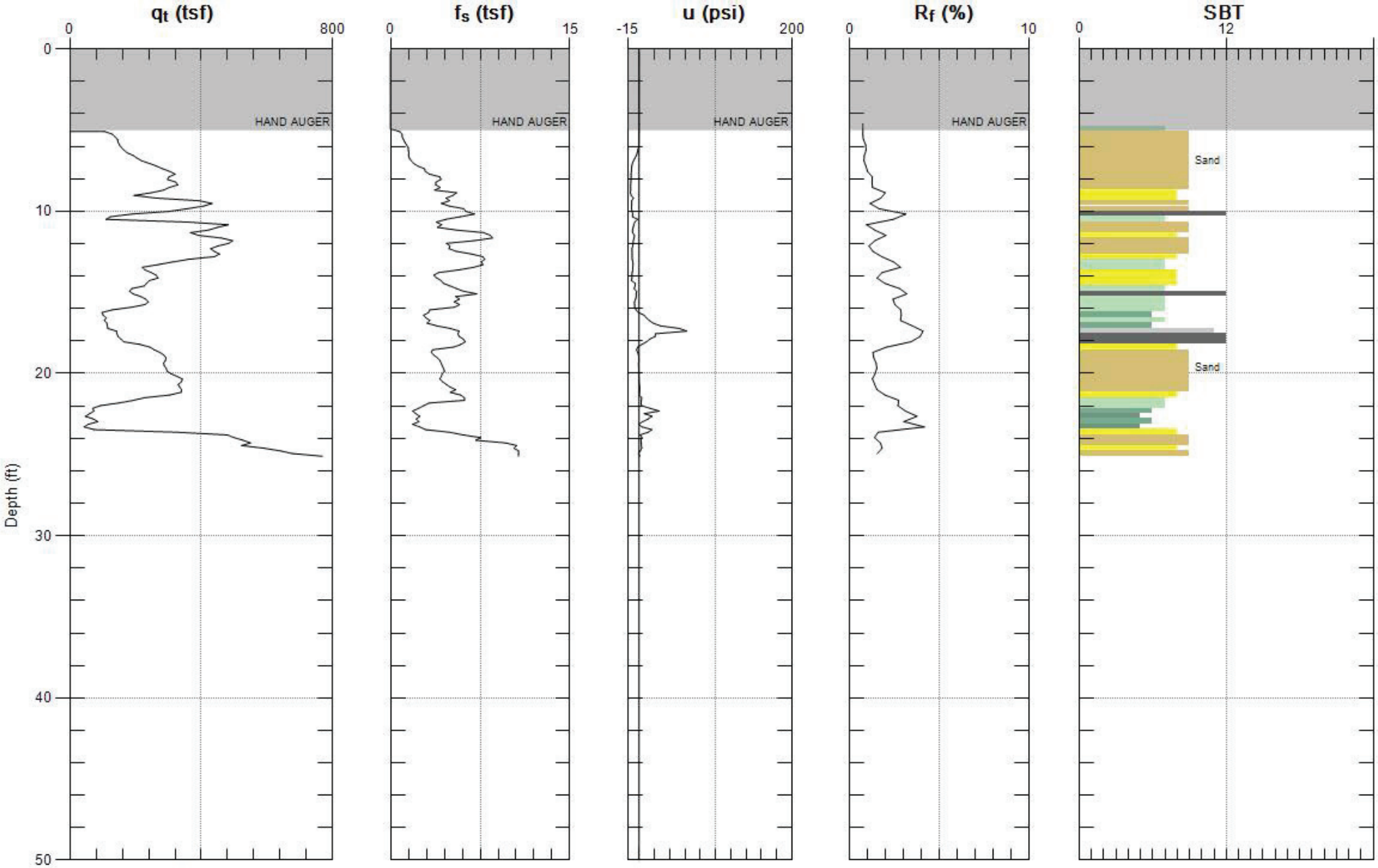
Max. Depth: 25.098 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT04 Date: 4/24/2015 11:59



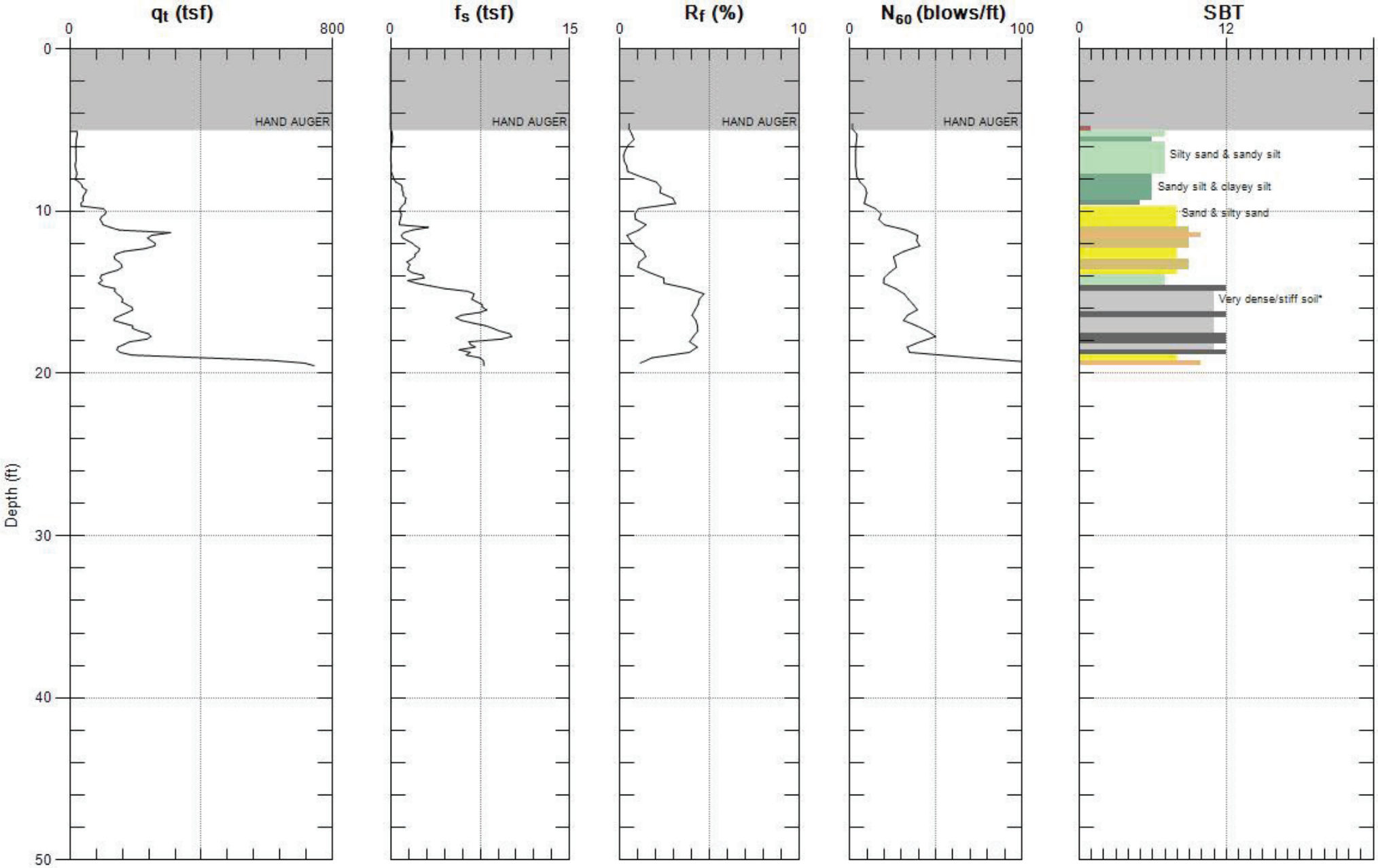
Max. Depth: 25.098 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT05 Date: 4/24/2015 11:11



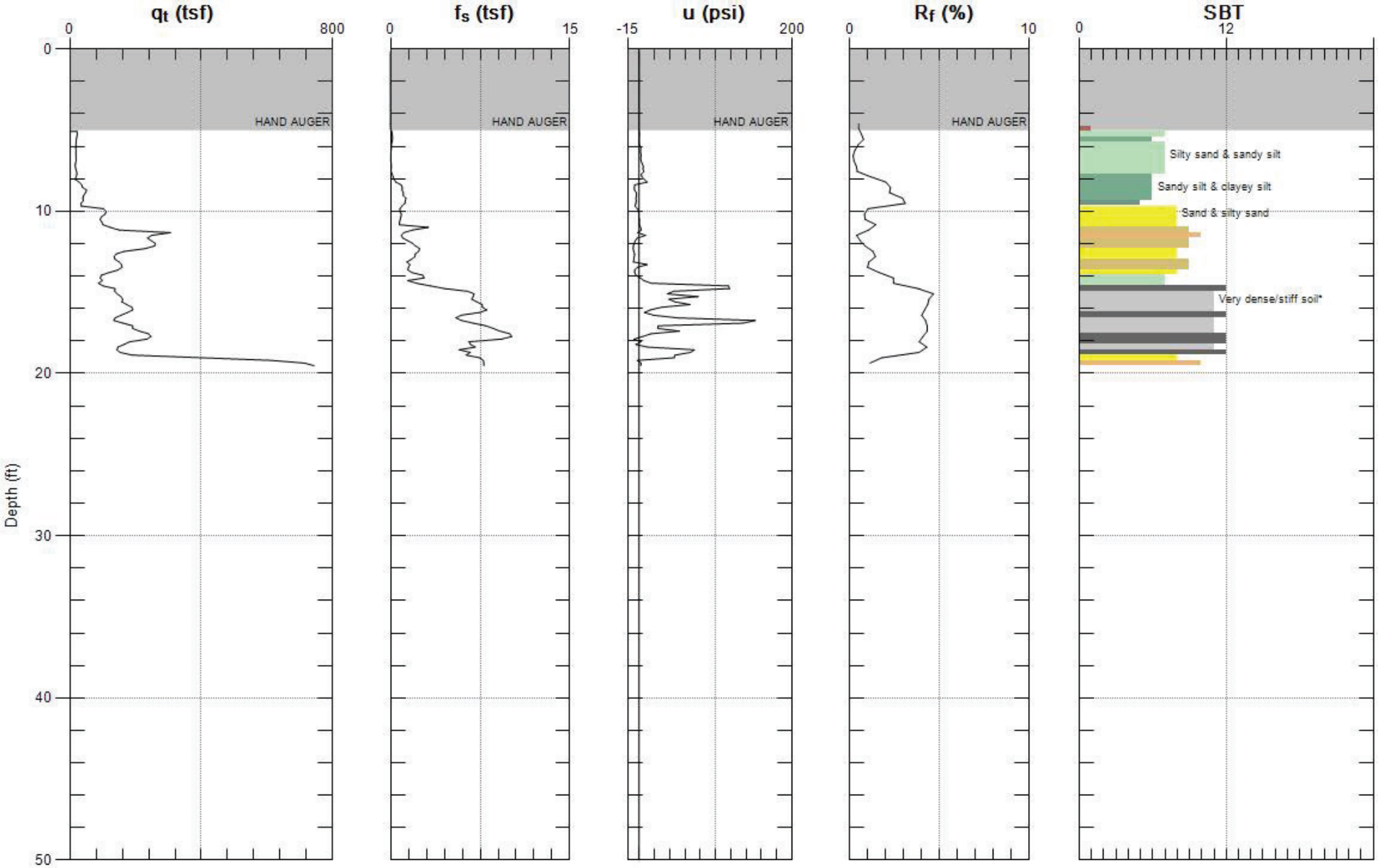
Max. Depth: 19.521 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GREGG ENGEO

Site: 445 SARRAMONTE BLVD. Engineer: F.PILCHER

Sounding: 1-CPT05 Date: 4/24/2015 11:11



Max. Depth: 19.521 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX D

Liquefaction Analysis Report

APPENDIX D

ENGEO Incorporated
2010 Crow Canyon Place, Suite 250
San Ramon, California
www.engeo.com

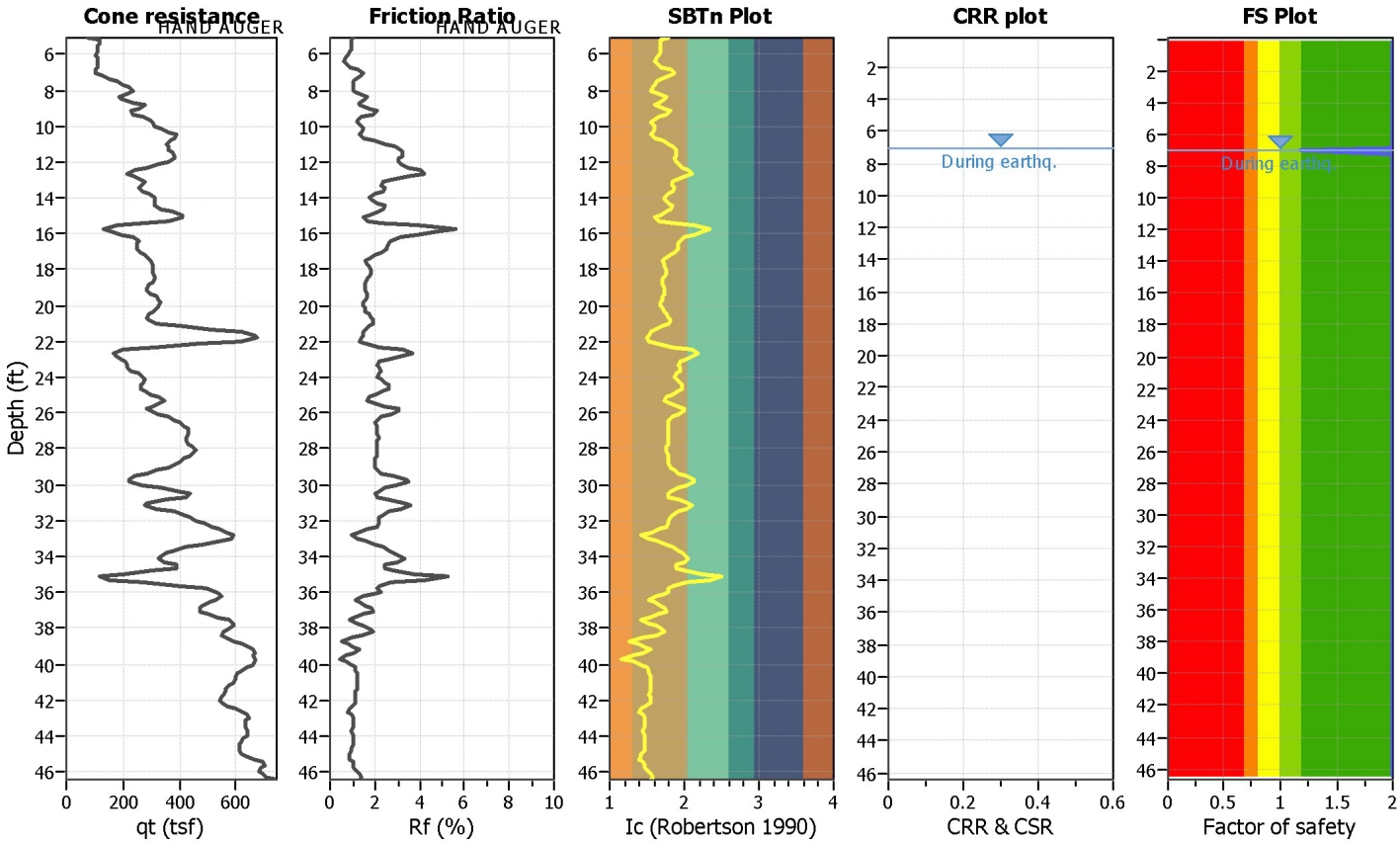
LIQUEFACTION ANALYSIS REPORT

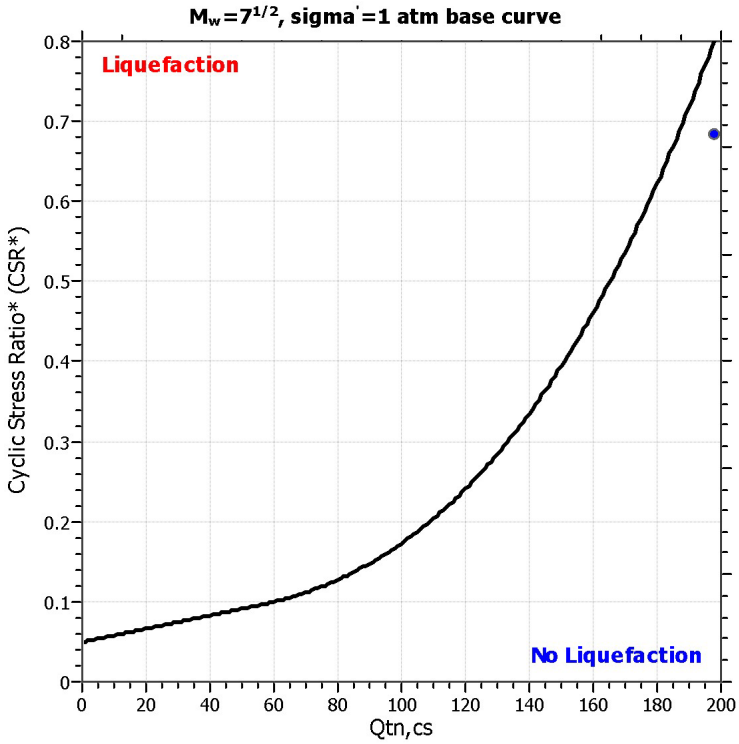
Project title : CarMax Automotive Dealership **Location : Colma, California**

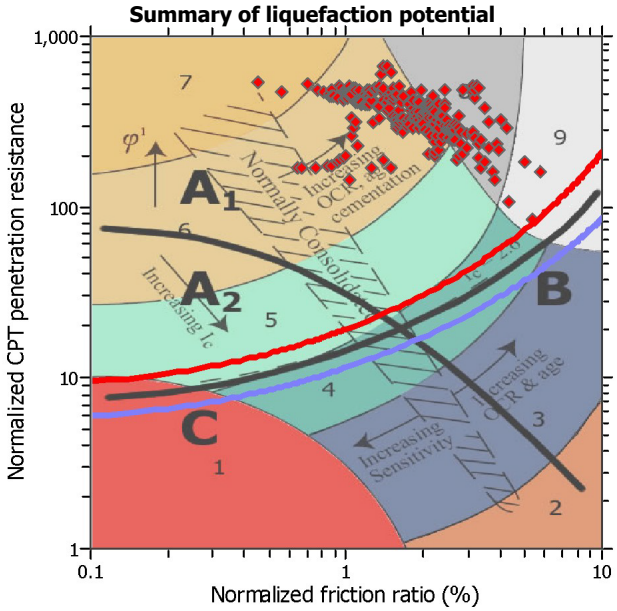
CPT file : 1-CPT03

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	7.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	7.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	8.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.90	Unit weight calculation:	Based on SBT	K_σ applied:	No		

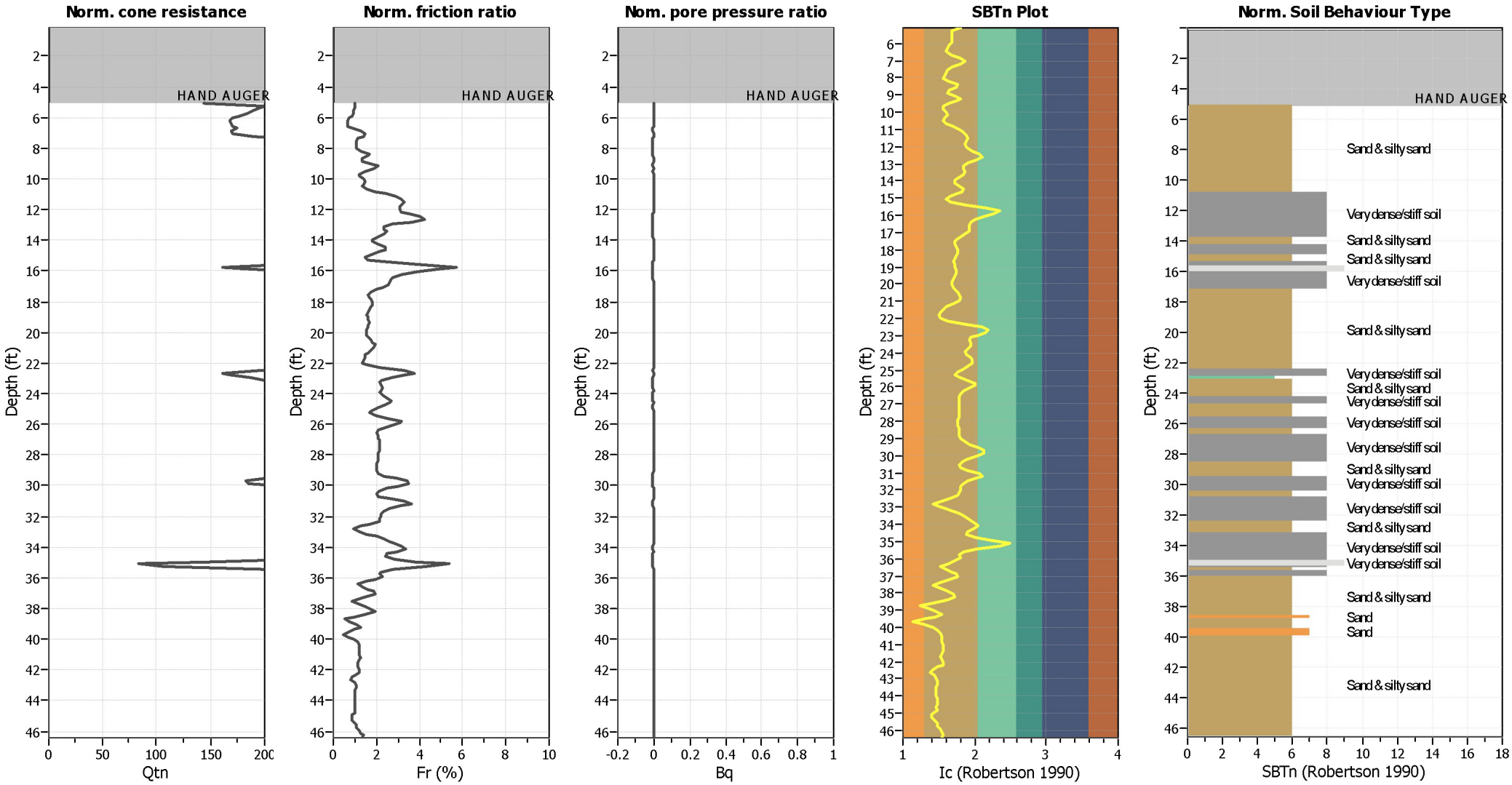






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



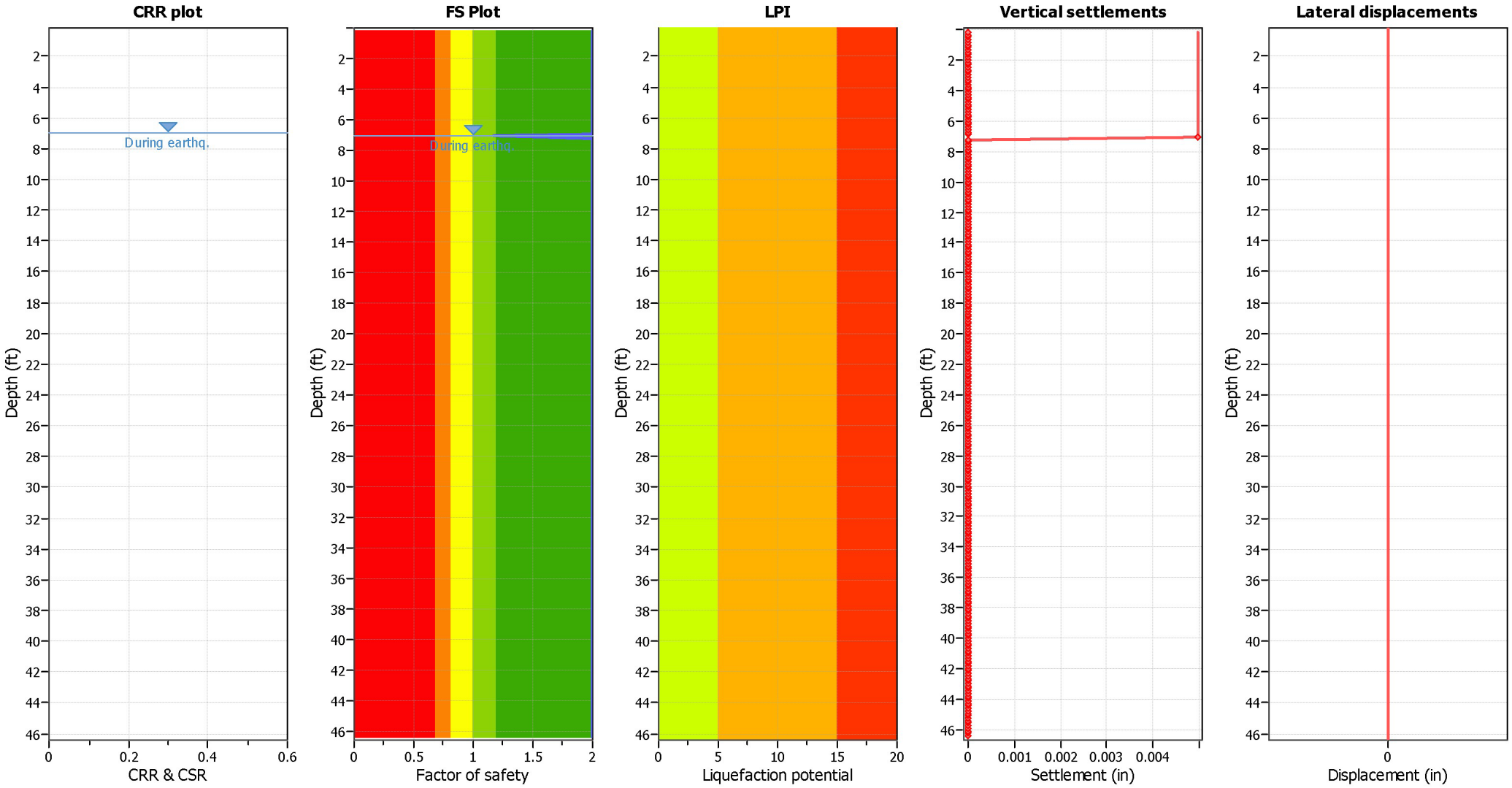
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	7.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	8.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.90	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	7.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	7.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	8.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.90	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	7.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

ENGEO Incorporated
2010 Crow Canyon Place, Suite 250
San Ramon, California
www.engeo.com

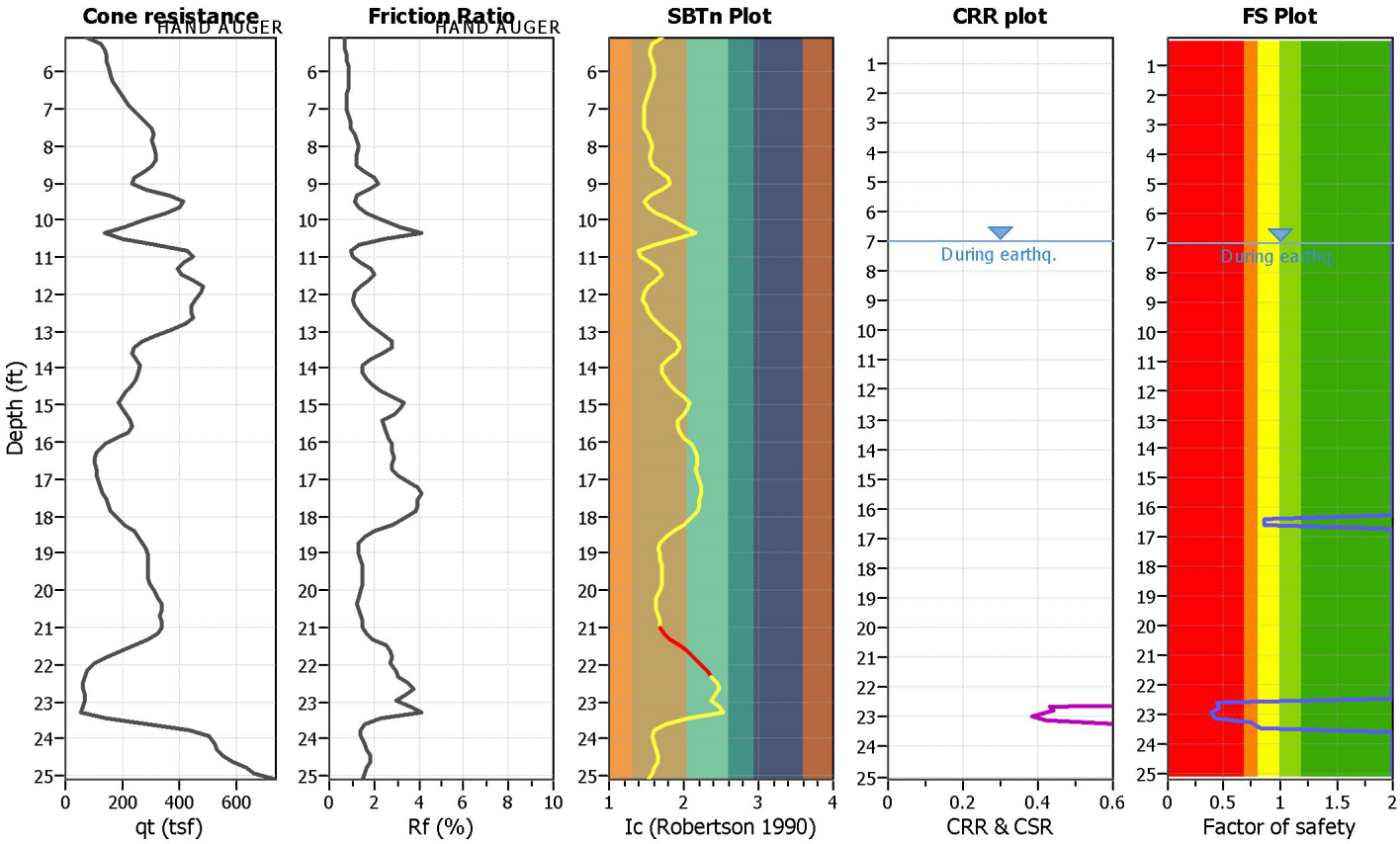
LIQUEFACTION ANALYSIS REPORT

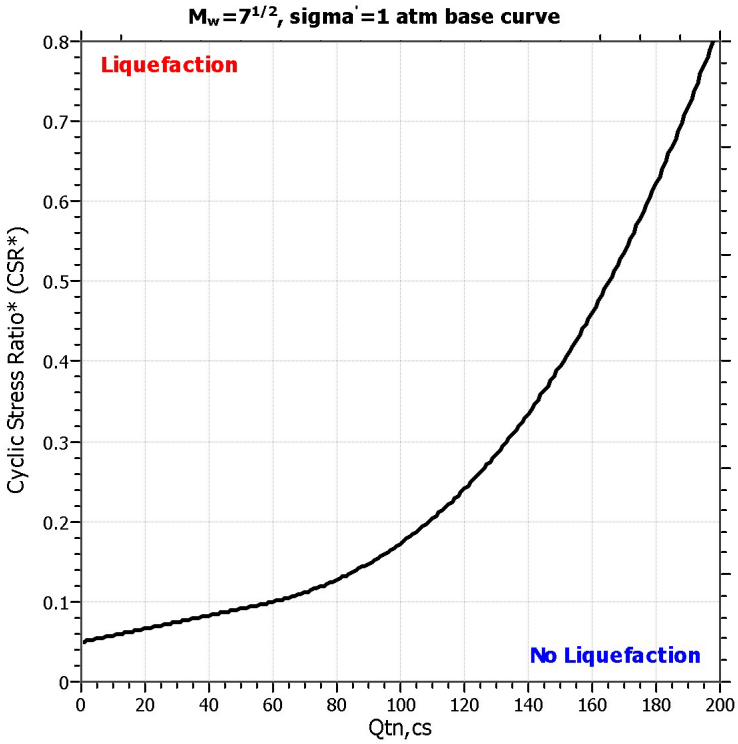
Project title : CarMax Automotive Dealership **Location : Colma, California**

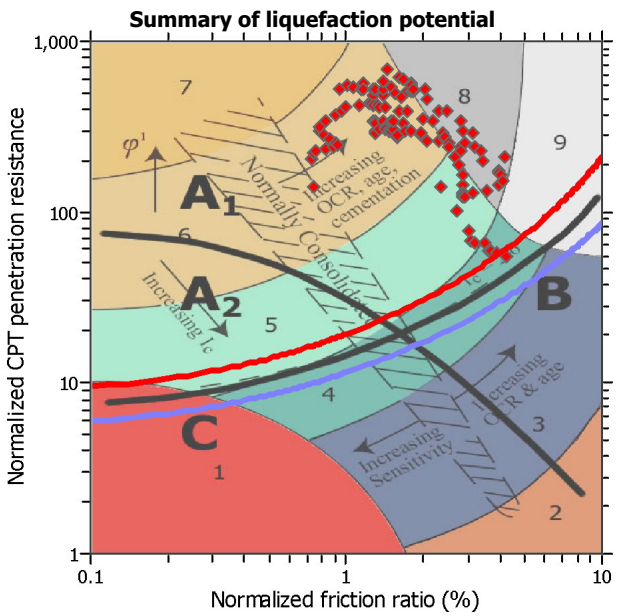
CPT file : 1-CPT04

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	7.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	7.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	8.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.90	Unit weight calculation:	Based on SBT	K_σ applied:	No		

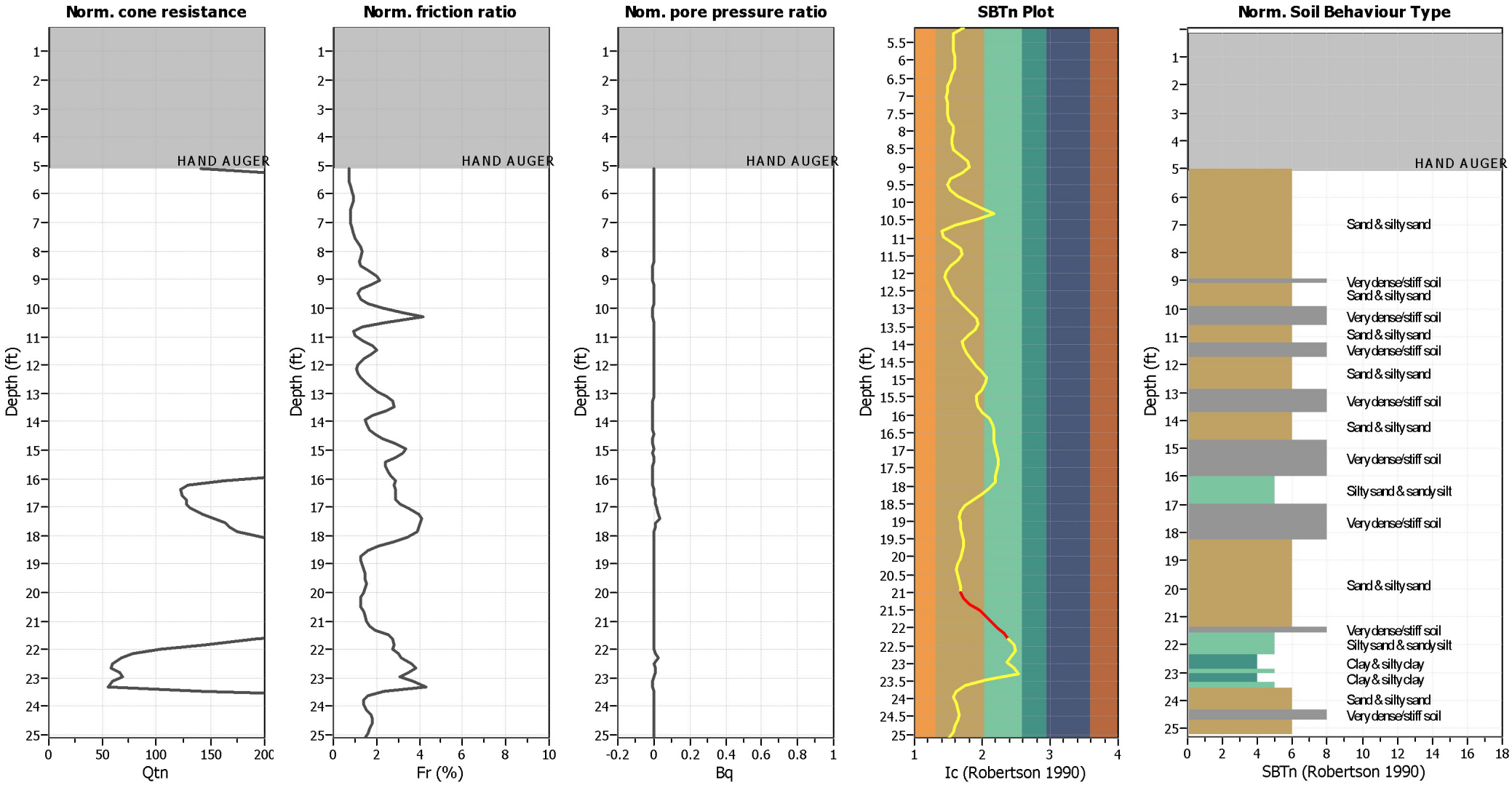






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



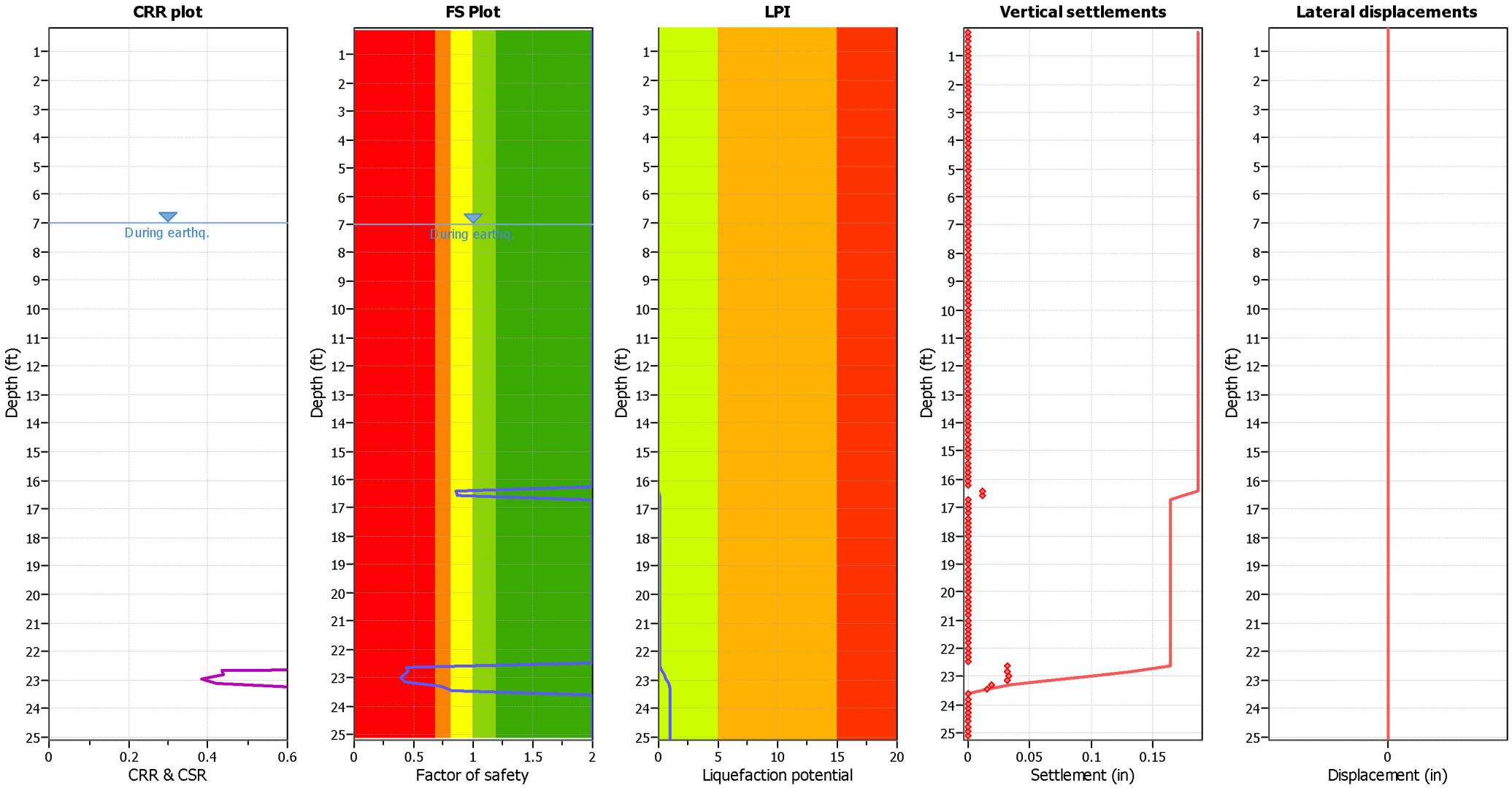
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	7.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	8.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.90	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	7.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	7.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	8.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.90	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	7.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

ENGEO Incorporated
2010 Crow Canyon Place, Suite 250
San Ramon, California
www.engeo.com

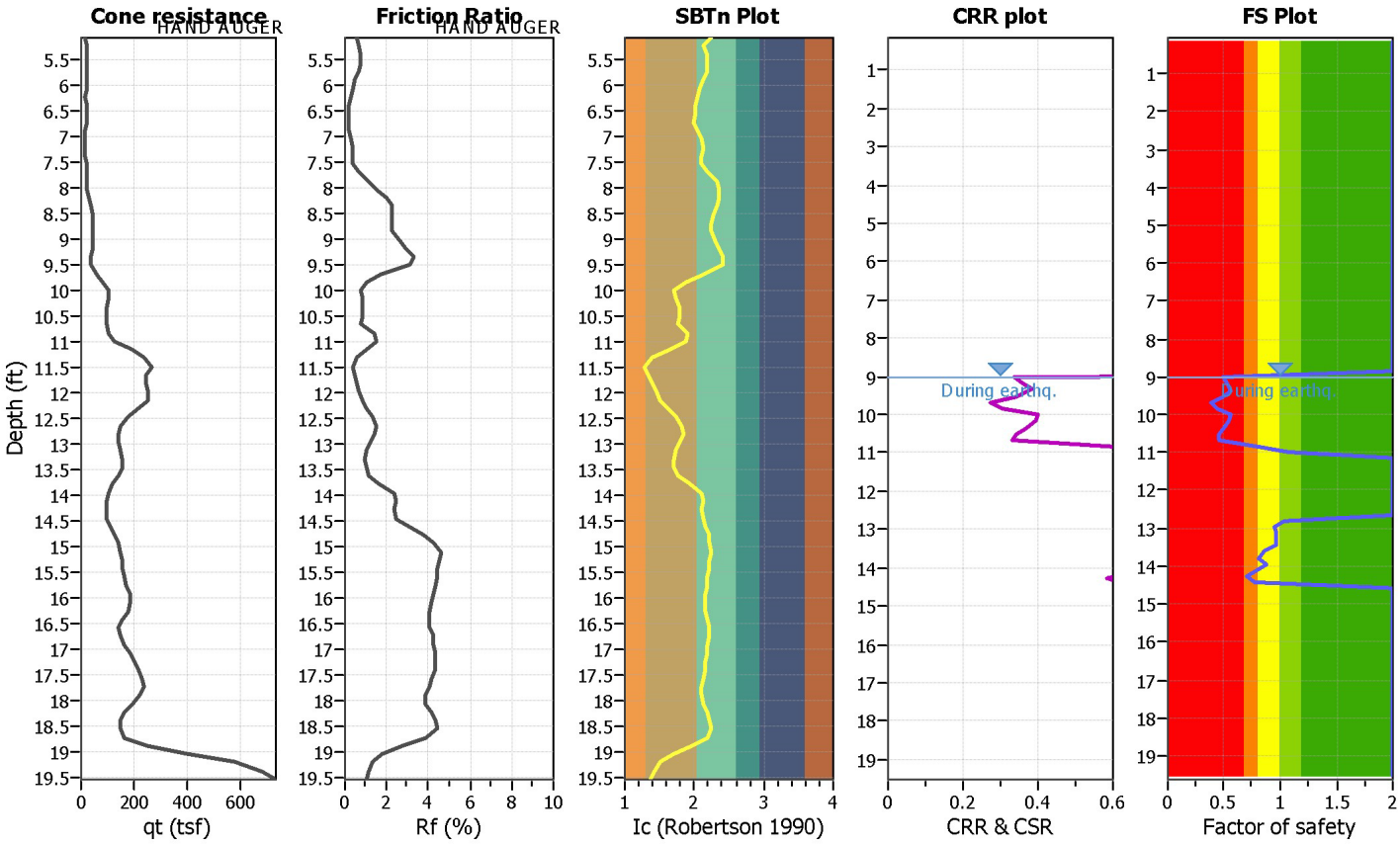
LIQUEFACTION ANALYSIS REPORT

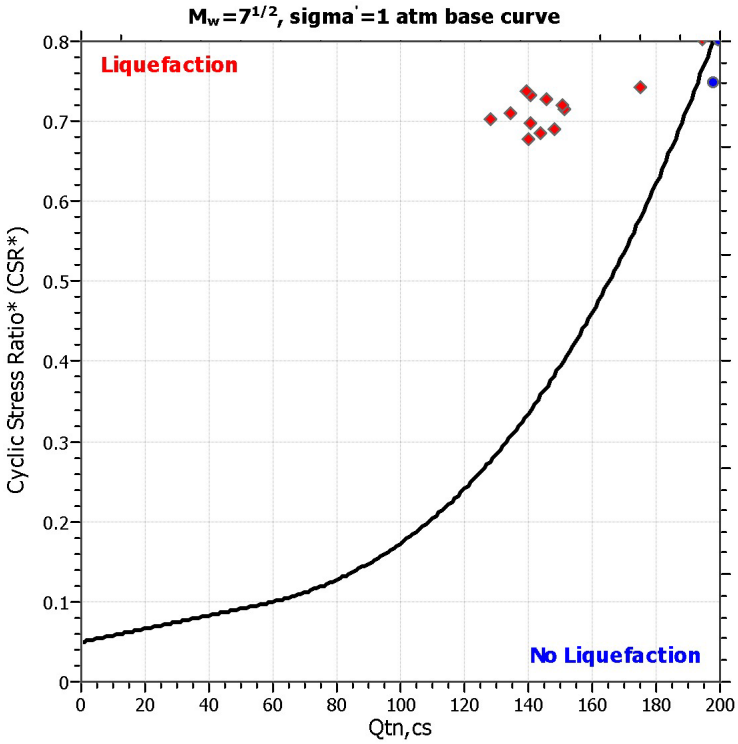
Project title : CarMax Automotive Dealership **Location : Colma, California**

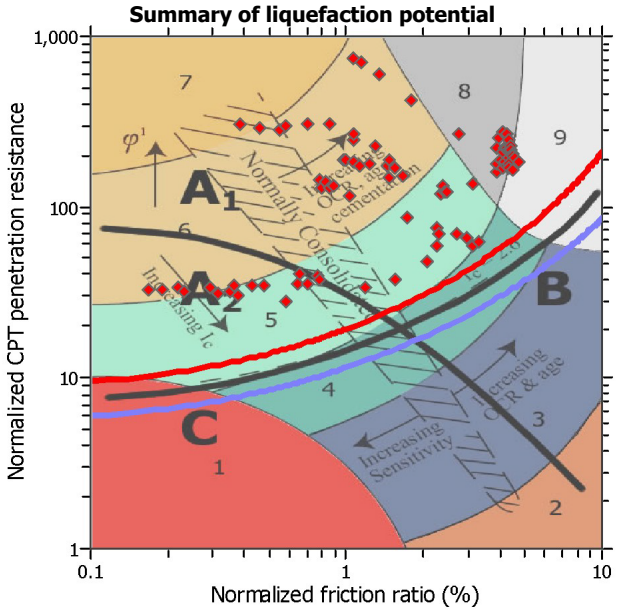
CPT file : 1-CPT05

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	9.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	8.00	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.90	Unit weight calculation:	Based on SBT	K_σ applied:	No		

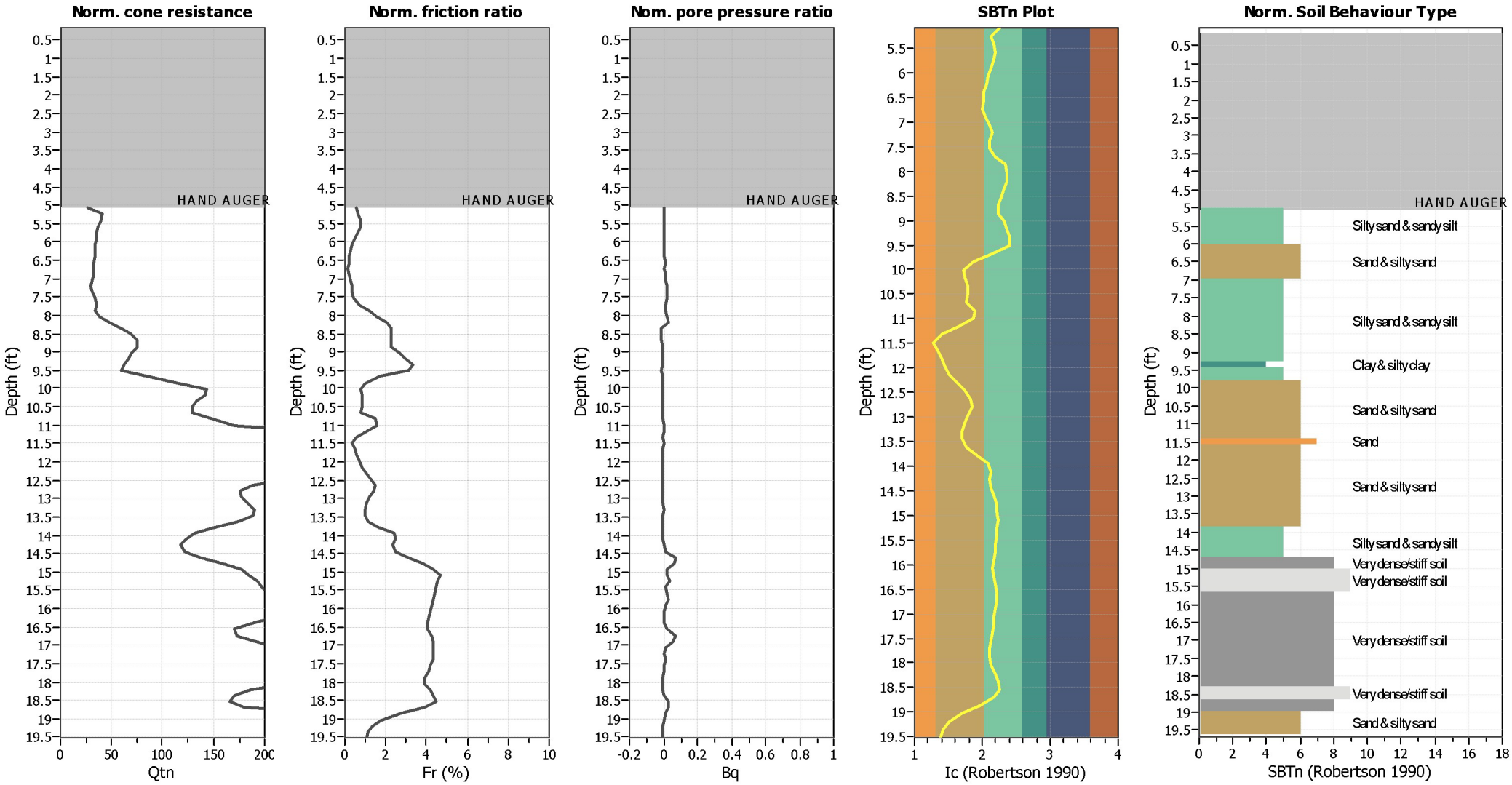






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots (normalized)



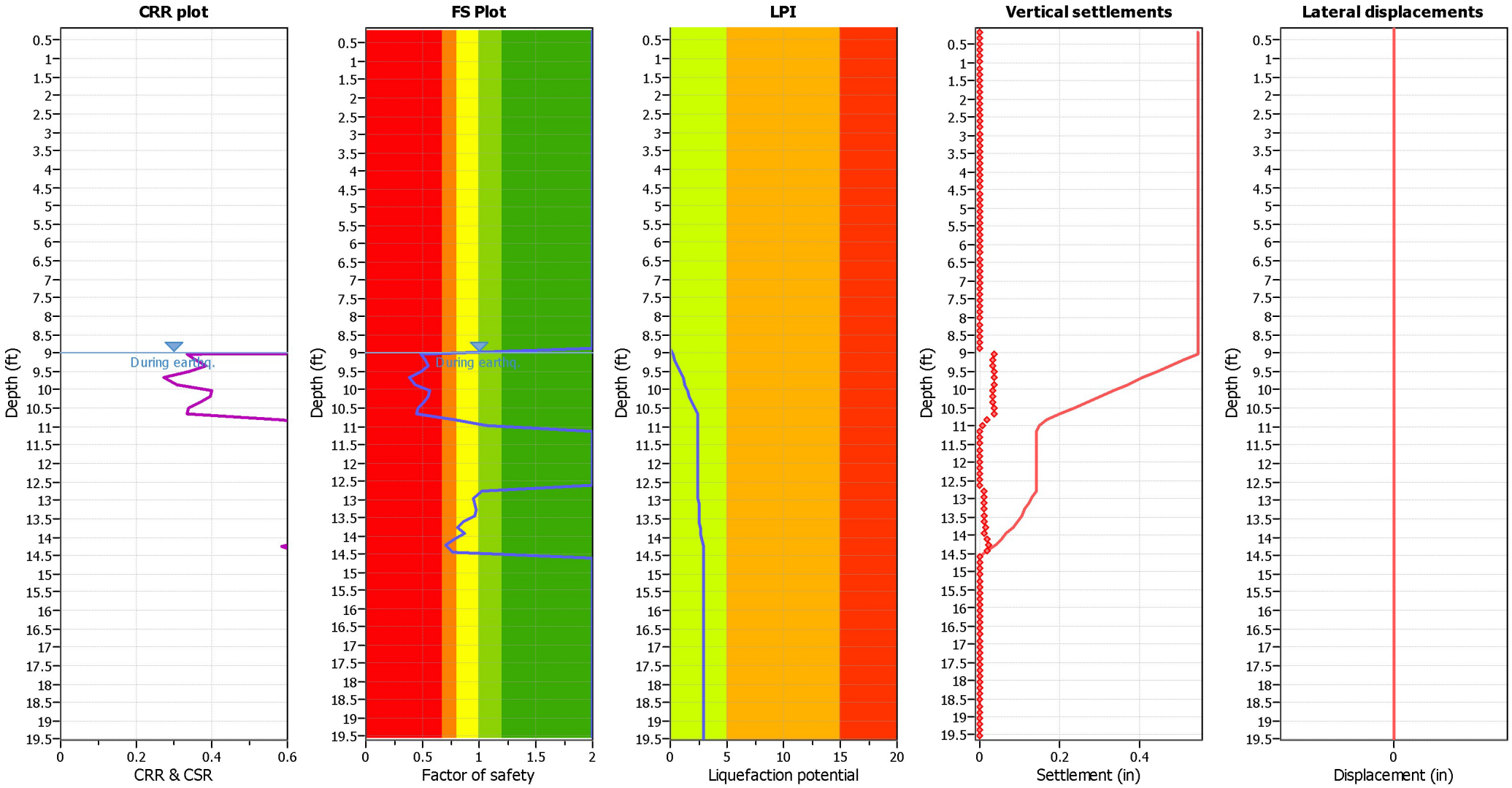
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	8.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.90	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	9.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	8.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.90	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

APPENDIX E

Pavement Calculations

APPENDIX E

AASHTO Pavement Design Method - Requires Excel SOLVER Add-in

= Do Not Change

Design Life, years	20
Estimated ADT	
Number of Lanes	
Heavy Trucks, %	
Other Vehicles, %	
Truck ESAL Factor	
Other Vec ESAL Factor	
Resulting ESAL's	7.50E+03
Reliability, R %	80
Traf Freq Stan Dev, So	0.45
ΔPSI	2.2
Zr	-0.841
Layer Modulus Mr, psi	14,400

Mr (soil), psi	14400
Mr (AB), psi	43500

Reliability R, %	Stan Norm deviate, Zr
50	0.000
60	-0.253
70	-0.524
75	-0.674
80	-0.841
85	-1.037
90	-1.282
91	-1.340
92	-1.405
93	-1.476
94	-1.555
95	-1.645
96	-1.751
97	-1.881
98	-2.054
99	-2.327
99.9	-3.090
99.99	-3.750

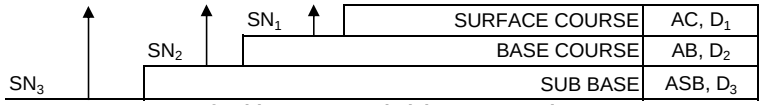
Excel SOLVER Calculation, Solve for Goal Cell = Zero				
AASHTO EQ LEFT	AASHTO EQ RIGHT			**GOAL**
3.875061263	2.300826	-0.003165049	1.577401	**-6.7083E-07**

Structural No, SN	1.03

Structural No, SN_1	0.54
Structural No, SN_2	1.03
Structural No, SN_3	

Layer Coefficient, a_1	0.44
Layer Coefficient, a_2	0.12
Layer Coefficient, a_3	

Drainage Coefficient, m_2	1
Drainage Coefficient, m_3	1



Note: If subbase not used, delete SUB 3 values

	Calculated	Recommended	Check SN
AC, in	1.23	1.5	0.66
AB, in	4.08	4.0	0.48
ASB, in	#DIV/0!		0
			1.14

>= total SN is acceptable

AASHTO Pavement Design Method - Requires Excel SOLVER Add-in

= Do Not Change

Design Life, years	20
Estimated ADT	
Number of Lanes	
Heavy Trucks, %	
Other Vehicles, %	
Truck ESAL Factor	
Other Vec ESAL Factor	
ESAL's	7.50E+04
Reliability, R %	80
Traf Freq Stan Dev, So	0.45
ΔPSI	2.2
Zr	-0.841
Layer Modulus Mr, psi	14,400

Mr (soil), psi	14400
Mr (AB), psi	43500

Reliability R, %	Stan Norm deviate, Zr
50	0.000
60	-0.253
70	-0.524
75	-0.674
80	-0.841
85	-1.037
90	-1.282
91	-1.340
92	-1.405
93	-1.476
94	-1.555
95	-1.645
96	-1.751
97	-1.881
98	-2.054
99	-2.327
99.9	-3.090
99.99	-3.750

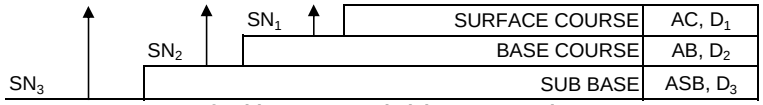
Excel SOLVER Calculation, Solve for Goal Cell = Zero				
AASHTO EQ LEFT	AASHTO EQ RIGHT			**GOAL**
4.875061263	3.30871	-0.011049177	1.577401	**-7.36257E-07**

Structural No, SN	1.60

Structural No, SN_1	0.97
Structural No, SN_2	1.60
Structural No, SN_3	

Layer Coefficient, a_1	0.44
Layer Coefficient, a_2	0.12
Layer Coefficient, a_3	

Drainage Coefficient, m_2	1
Drainage Coefficient, m_3	1



Note: If subbase not used, delete SUB 3 values

	Calculated	Recommended	Check SN
AC, in	2.20	2.5	1.1
AB, in	5.25	5.5	0.66
ASB, in	#DIV/0!		0
			1.76

>= total SN is acceptable

ENGEO Expect Excellence

APPENDIX F

Site Corrosivity Evaluation Report

APPENDIX F

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

19 May, 2015

Job No. 1505079
Cust. No.10169

Ms. Annamarie Usher
ENGEO Inc.
2010 Crow Canyon Place, Suite 250
San Ramon, CA 94583

Subject: Project No.: 12054.000.000
Project Name: Automotive Dealership
Corrosivity Analysis – ASTM Test Methods

Dear Ms. Usher:

Pursuant to your request, CERCO Analytical has analyzed the soil sample submitted on May 12, 2015. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, both samples are classified as "moderately corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations range from none detected to 18 mg/kg. Because the chloride ion concentrations are less than 300 mg/kg, they are determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentrations range from 32 to 47 mg/kg and are determined to be insufficient to damage reinforced concrete structures and cement mortar-coated steel at these locations.

The pH of the soils range from 7.13 to 7.80, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials range from 360 to 370-mV which is indicative of potentially "slightly corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

Cheryl McNiel for

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: ENGEO Incorporated
Client's Project No.: 12054.000.000
Client's Project Name: Automotive Dealership
Date Sampled: 6-May-15
Date Received: 12-May-15
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 19-May-2015

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1505079-001	1-B14 @ 1'-2'	370	7.13	-	2,600	-	18	47
1505079-002	1-B22 @ 1'-2'	360	7.80	-	4,300	-	N.D.	32

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
Date Analyzed:	18-May-2015	18-May-2015	-	14-May-2015	-	19-May-2015	19-May-2015

* Results Reported on "As Received" Basis

N.D. - None Detected

Cheryl McMillen
Laboratory Director

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

1505079 10169

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: **12054.000.000**

PROJECT NAME: **Automotive Dealership**

SAMPLED BY: (SIGNATURE/PRINT) **Annamarie Usher**

PROJECT MANAGER: **Annamarie Usher ausher@engeo.com**

ROUTING: E-MAIL ausher@engeo.com

	SAMPLE NUMBER	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE	PRESERVATIVE	ASTM Soil Corrosivity Package with Brief Evaluation	REMARKS REQUIRED DETECTION LIMITS
001	1-B14 at 1-2 feet	05/06/15		soil	1	1 gallon bag	N/A	X	with brief evaluation
002	1-B22 at 1-2 feet	05/06/15		soil	1	1 gallon bag	N/A	X	with brief evaluation

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Annamarie Usher	5-12-15 9:30	Jackie Schuyler	Jackie Schuyler	5-12-15 2:40	Michael Ethell
Michael Ethell	5/12/15 1515	Michael Ethell			
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE/TIME	REMARKS: Standard 10-day turn-around time	

ENGEO INCORPORATED
2010 CROW CANYON PLACE, SUITE 250
SAN RAMON, CALIFORNIA 94583
(925) 837-2973 FAX (888) 279-2698
WWW.ENGEO.COM

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO PROJECT FIELD FILES

APPENDIX F:
LEAD AND ASBESTOS REPORTS FOR:

- **435 SERRAMONTE BOULEVARD;**
- **445 SERRAMONTE BOULEVARD; AND**
- **455 SERRAMONTE BOULEVARD**

.....

Project No.
12054.000.000

June 8, 2015

Ms. Amanda Steinle
CenterPoint Integrated Solutions
1240 Bergen Parkway, Suite A-250
Evergreen, CO 80439

Subject: CarMax Automotive Dealership
Colma, California

PROPOSAL FOR NESHAP COMPLIANT PRE-DEMOLITION ASBESTOS AND LEAD INSPECTION SERVICES

Dear Ms. Steinle:

Thank you for requesting this proposal for NESHAP compliant pre-demolition asbestos and lead inspection services for the subject project located in Colma, California. We previously provided an asbestos visual inspection survey assessment in May 2015. The scope of the previous assessment included 1. a visual assessment of asbestos and lead containing building material by a Cal OSHA Certified Asbestos Consultant (CAC)/CDPH Certified Lead Inspector on three commercial/auto-service buildings and, 2. a summary report of findings including a list of potential hazardous materials observed during visual inspection and photographs.

SCOPE OF SERVICES

Based on our knowledge of the project and the provided request for proposal, we propose to retain KELLCO Services to conduct a NESHAP compliant pre-demolition asbestos and lead inspection. We propose to provide the following scope of services:

- Perform an asbestos and lead survey by a Cal OSHA Certified Asbestos Consultant/CDPH Certified Lead Inspector for the commercial buildings.

- Collect suspected materials for asbestos and lead analysis by a National Voluntary Laboratory Accreditation Program (NVLAP) laboratory and preparation of analytical reports.

- Prepare a final inspection report with laboratory analytical reports, photos of materials, and sample locations on a floor plan.

The proposed number of samples for each of the three buildings onsite is presented in Table 1.

TABLE 1
Asbestos and Lead Samples by Address

Colma, CA	Estimated Bulk Sample Analysis	
Address	**Asbestos Samples**	**Lead Samples**
435 Serramonte Boulevard	150	12
445 Serramonte Boulevard	100	10
455 Serramonte Boulevard	100	10
TOTAL	**350**	**32**

Due to the intrusive and destructive nature of the sampling process, we anticipate the interior and exterior architectural finishes associated with each of the three buildings will endure some damage during sampling. Our scope of work does not include the patchwork associated with the sample gathering. We recommend recovering a licensed contractor to repair the resulting damage to the buildings, including roofs, which may arise from the pre-demolition sampling process. If you wish, we can arrange for a licensed contractor(s) to make requested repairs. These services would be proposed under separate cover. Neither ENGEO nor KELLCO Services, Inc. will assume liability for the damage and/or subsequent repair resulting from sampling.

If you have any questions regarding this proposal, please contact us.

Sincerely,

ENGEO Incorporated

Kelsey Gerhart

Kelsey Gerhart
Staff Engineer

Shawn Munger
Principal

kg/sm/bvv

Attachment: Addendum to Professional Services Agreement

PRE-DEMOLITION REPORT

.....

Project No.
12054.000.000

July 17, 2015

Ms. Amanda Steinle
CenterPoint Integrated Solutions, LLC
1240 Bergen Parkway, Suite A-250
Evergreen, CO 80439

Subject: CarMax Automotive Dealership
Colma, California

PRE-DEMOLITION ASBESTOS AND LEAD INSPECTION REPORTS

Dear Ms. Steinle:

We are pleased to submit this document summarizing the asbestos and lead inspections of the subject property (Property), located in Colma, California. The reports include a description of the inspected areas, along with KELLCO's findings regarding the Property, and the regulatory requirements pertaining to the handling and disposal of impacted material.

The findings of the pre-demolition asbestos and lead paint inspection reports completed for each of the three structures located on the Property are summarized below.

435 Serramonte Boulevard

A visual assessment for possible asbestos-containing building material performed by KELLCO on April 30, 2015, found that the following materials were suspected of containing asbestos:

- Roof
- Drywall tape joint compound
- Floor tile and mastic
- Drop-in ceiling tile
- Sealant between concrete outer walls

On June 27, 2015, samples were taken from the above-referenced suspect materials located on the interior and exterior of the building.

Review of KELLCO's final Pre-Demolition Asbestos and Lead Paint Inspection Report[1] and laboratory test results indicates that asbestos was identified in the black/gray roofing shingle/mastic. The results indicated that only portions of the roofing material contained asbestos; several samples collected from the roofing material did not exhibit detectable concentrations of asbestos. None of the other sampled material reportedly contains asbestos.

[1] KELLCO Services, Inc., Pre-Demolition Asbestos and Lead Paint Inspection Report, 435 Serramonte Blvd., Colma, California, July 17, 2015.

The visual assessment for lead-based paint performed by KELLCO did not identify materials suspected of containing lead. However, after sampling building 435 Serramonte Boulevard, lead-based paint was found in the following tested materials:

- Interior wall/white/cream paint
- Brown/white paint on pole
- Gray paint on floor
- Blue paint on lobby door and door frames
- Exterior grey/cream/green paint on walls

As referenced in KELLCO's report, paint of the same color should be considered to contain lead, unless proven otherwise by direct sampling.

445 Serramonte Boulevard

A visual assessment for possible asbestos-containing building material performed by KELLCO on April 30, 2015, found that the following materials were suspected of containing asbestos:

- Roof total metal sealant
- Drywall tape joint compound
- Floor tile and mastic
- Drop-in ceiling tile

On June 24, 2015, samples were taken from the above-referenced suspect materials located on the interior and exterior of the building.

Review of KELLCO's final Pre-Demolition Asbestos and Lead Paint Inspection Report[2] and laboratory test results indicates that asbestos was identified in the roofing tar. None of the other sampled material reportedly contains asbestos.

A visual assessment for possible use of lead-based paint performed by KELLCO found that approximately 50,000 square feet of paint-coated steel material throughout the structure was suspected of containing lead; however, sampling of this material did not identify detectable concentrations of lead.

455 Serramonte Boulevard

A visual assessment for possible asbestos-containing building material performed by KELLCO on April 30, 2015, found that the following materials were suspected of containing asbestos:

[2] KELLCO Services, Inc., Pre-Demolition Asbestos and Lead Paint Inspection Report, 445 Serramonte Blvd., Colma, California, July 17, 2015.

- Roof total metal sealant
- Drywall tape joint compound
- Floor tile and mastic
- Drop-in ceiling tile

On June 25, 2015, samples were taken from the above-referenced suspect materials located on the interior and exterior of the building.

Review of KELLCO's final Pre-Demolition Asbestos and Lead Paint Inspection Report[3] and laboratory test results indicated that no asbestos was detected in any of the sampled material.

A visual assessment for possible use of lead-based paint performed by KELLCO found that approximately 50,000 square feet of paint-coated steel material throughout the structure was suspected of containing lead; however, sampling of this material did not identify detectable concentrations of lead.

CONCLUSION

Based on the findings of the KELLCO reports, it is assumed that the confirmed amount of asbestos-containing material is a relatively small percentage of the suspected amount reported in the visual assessment report dated May 5, 2015.[4] As a result, it is reasonably expected that related abatement costs will be lower than those originally proposed in the referenced visual report. We recommend that the findings of the sampling reports be shared with an abatement contract, so that an abatement fee estimate may be prepared.

Please refer to the referenced reports for regulatory guidelines regarding the abatement of asbestos- and lead-containing materials. Additionally, it should be noted that fluorescent lights, fluorescent fixture ballasts and thermostats may contain PCBs and mercury.

Sincerely,

ENGEO Incorporated

Kelsey Gerhart

Kelsey Gerhart,EIT

Jeffrey A. Adams, PhD, PE

REGISTERED PROFESSIONAL ENGINEER
JEFFREY A. ADAMS
No. 69633
CIVIL
STATE OF CALIFORNIA

kg/jaa/pe/jf

[3] KELLCO Services, Inc., Pre-Demolition Asbestos and Lead Paint Inspection Report, 455 Serramonte Blvd., Colma, California, July 17, 2015.
[4] KELLCO, Inc., Visual Assessment for Possible Asbestos Containing Building Material, 435, 445 and 455 Serramonte Boulevard, Colma, California, May 5, 2015.

VISUAL ASSESSMENT

.....

May 5, 2015

Ms. Annamarie Usher
ENGEO Inc.
2010 Crow Canyon Road
Suite #250
San Ramon, CA 94583

Subject: **Visual Assessment for Possible Asbestos Containing Building Materials and Lead Paint Located at:**
435 Serramonte Boulevard, Colma, CA 94014
445 Serramonte Boulevard, Colma, CA 94014
455 Serramonte Boulevard, Colma, CA 94014
KELLCO JOB #1504-16

Dear Ms. Usher,

On April 30, 2015, KELLCO conducted a walkthrough of the above subject properties located in Colma, CA. The purpose of this walkthrough was to visually identify suspect asbestos containing building materials and lead paint. All of the properties viewed were built in a time when asbestos and lead was used.

KELLCO concentrated on the suspect asbestos containing building materials which you will find in the underlying tables along with estimated square footages per address and projected abatement costs if 100% of the materials contained asbestos which is very unlikely.

The more realistic estimate was based on if a half the materials in 435 Serramonte Boulevard and a quarter of the materials at 445 & 455 Serramonte Boulevard contained asbestos, which in the opinion of KELLCO Services this estimate would still be considered on the high side because of the age of the buildings. That estimate for abatement would be around **$157,766.00.**

Please find the attached table giving a break down per address. This does not constitute a National Emission Standards for Hazardous Air Pollutants (NESHAP) Compliant asbestos survey.

The estimated costs associated with **435 Serramonte Boulevard, Colma, CA 94014 are:**

Item	Description	Estimated Quantity	Multiplier	Amount
Estimated Asbestos Abatement Costs	Roof	23,500 sq./ft.	$3.00 per sq./ft.	$70,500.00
Estimated Asbestos Abatement Costs	Drywall Tape Joint Compound	25,000 sq./ft.	$3.00 per sq./ft.	$75,000.00

3137 Diablo Avenue • Hayward, CA 94545-2701• (510) 786-9751 • fax (510) 786-9625
http://www.kellco.com email: mailbox3137@kellco.co

Item	Description	Estimated Quantity	Multiplier	Amount
Estimated Asbestos Abatement Costs	12”x12” Floor Tile & Mastic	3,000 sq./ft.	$4.00 per sq./ft.	$12,000.00
Estimated Asbestos Abatement Costs	2’x4’ Drop in Ceiling Tile	2,000 sq./ft.	$2.50 per sq./ft.	$5,000.00
Estimated Asbestos & Polychlorinated Biphenyls (PCBs) Abatement Costs	Sealant Between Concrete Outer Walls	N/A	**N/A**	$15,000.00
			Total =	**$177,500.00**
			(1/2) ACM/PB Estimate	**$88,750.00**

The estimated costs associated with **445 Serramonte Boulevard, Colma, CA 94014 are:**

Item	Description	Estimated Quantity	Multiplier	Amount
Estimated Asbestos & Poly Chlorinated Biphenyls (PCBs) Abatement Costs	Roof Total Metal Sealant	1,600 sq./ft.	$5.00 per sq./ft.	$8,000.00
Estimated Asbestos Abatement Costs	Drywall Tape Joint Compound	34,000 sq./ft.	$3.00 per sq./ft.	$102,000.00
Estimated Asbestos Abatement Costs	12”x12” Floor Tile & Mastic	5,000 sq./ft.	$4.00 per sq./ft.	$20,000.00
Estimated Asbestos Abatement Costs	2’x4’ Drop in Ceiling Tile	5,000 sq./ft.	$2.50 per sq./ft.	$12,500.00
Estimated Lead Paint on Steel Throughout	Lead Paint on Steel	50,000 sq./ft.	N/A	N/A
			Total =	**$142,500.00**
			(1/4) ACM/PB Estimate	**$35,625.00**

The estimated costs associated with **455 Serramonte Boulevard, Colma, CA 94014 are**:

Item	Description	Estimated Quantity	Multiplier	Amount
Estimated Asbestos & Poly Chlorinated Biphenyls (PCBs) Abatement Costs	Roof Total Metal Sealant	1,600 sq./ft.	$5.00 per sq./ft.	$8,000.00
Estimated Asbestos Abatement Costs	Drywall Tape Joint Compound	34,000 sq./ft.	$3.00 per sq./ft.	$102,000.00
Estimated Asbestos Abatement Costs	12”x12” Floor Tile & Mastic	4,016 sq./ft.	$4.00 per sq./ft.	$16,064.000
Estimated Asbestos Abatement Costs	2’x4’ Drop in Ceiling Tile	3,000 sq./ft.	$2.50 per sq./ft.	$7,500.00
Estimated Lead Paint on Steel Throughout	Lead Paint on Steel	50,000 sq./ft.	N/A	N/A
			Total =	**$133,564.00**
			(1/4) ACM/PB Estimate	**$33,391.00**

If you have any questions or concerns regarding this estimate, please do not hesitate to contact me at (510) 786-9751.

Sincerely,

KELLCO Services, Inc.

Tim Cannard
Vice President

3137 Diablo Avenue • Hayward, CA 94545-2701• (510) 786-9751 • fax (510) 786-9625
http://www.kellco.com email: mailbox3137@kellco.co

435 Serramonte Boulevard, Colma, CA

AW Collision
OF SERRAMONTE
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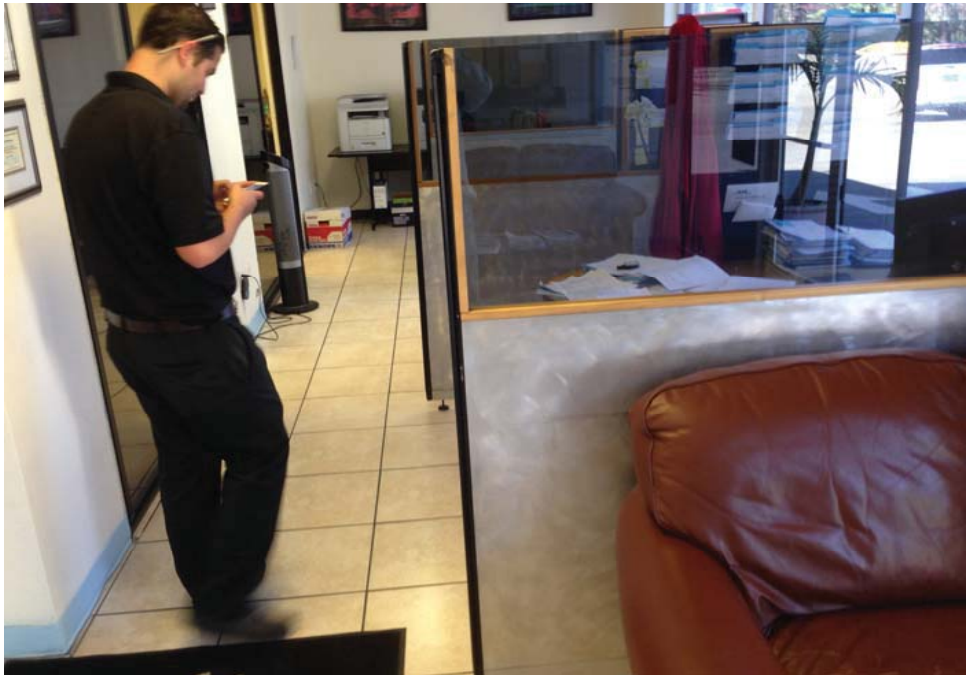

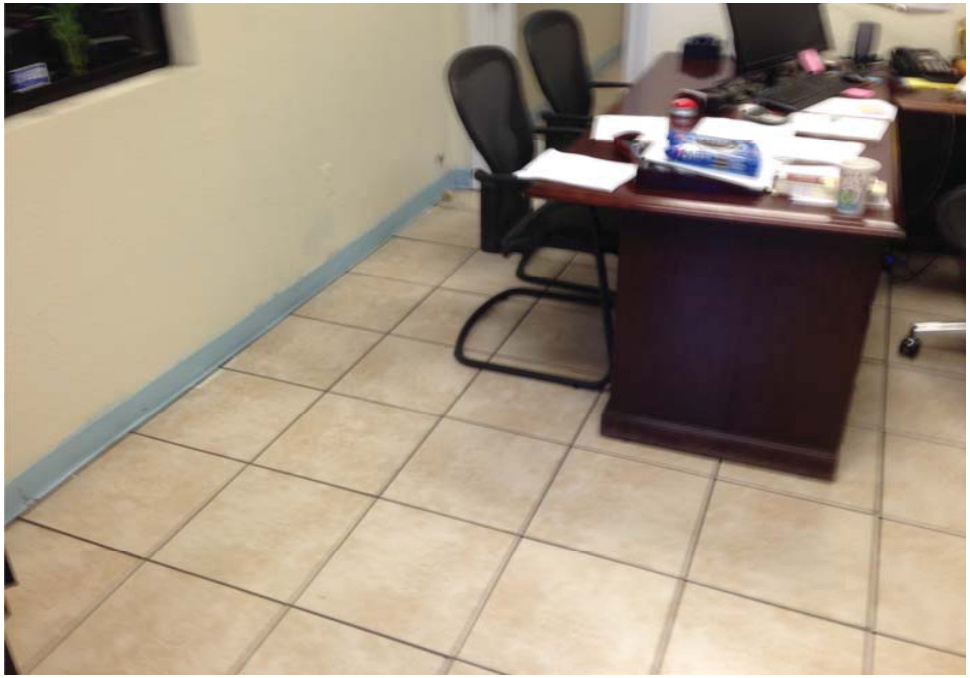

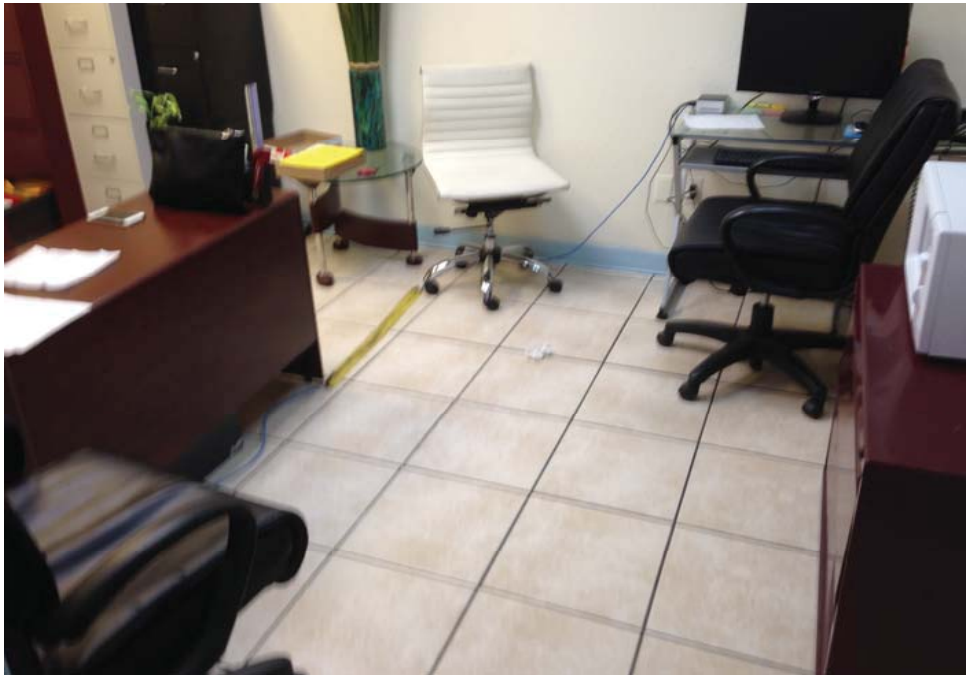

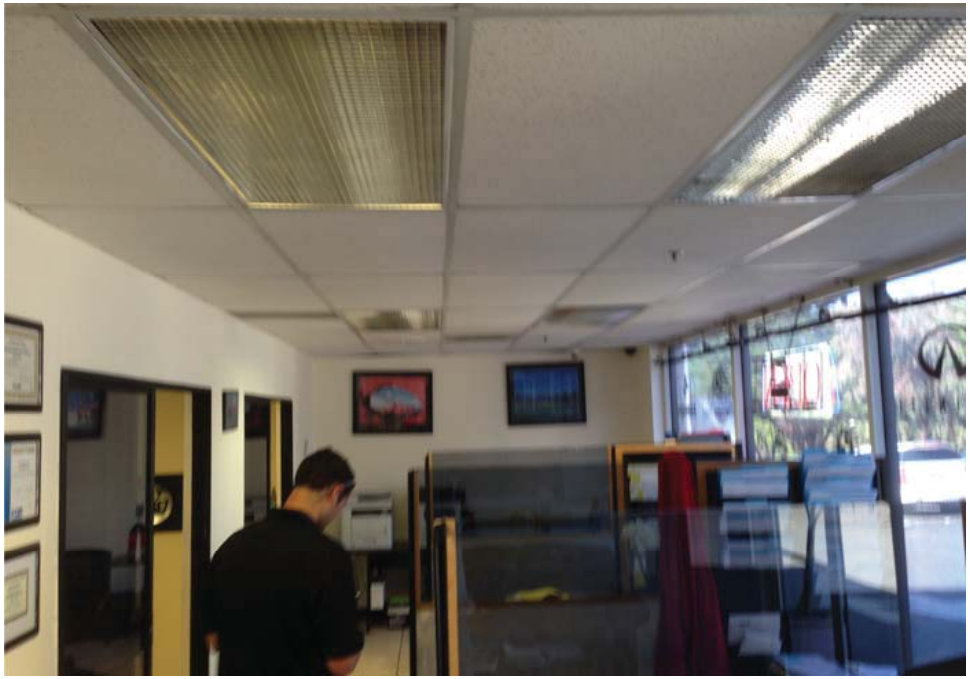

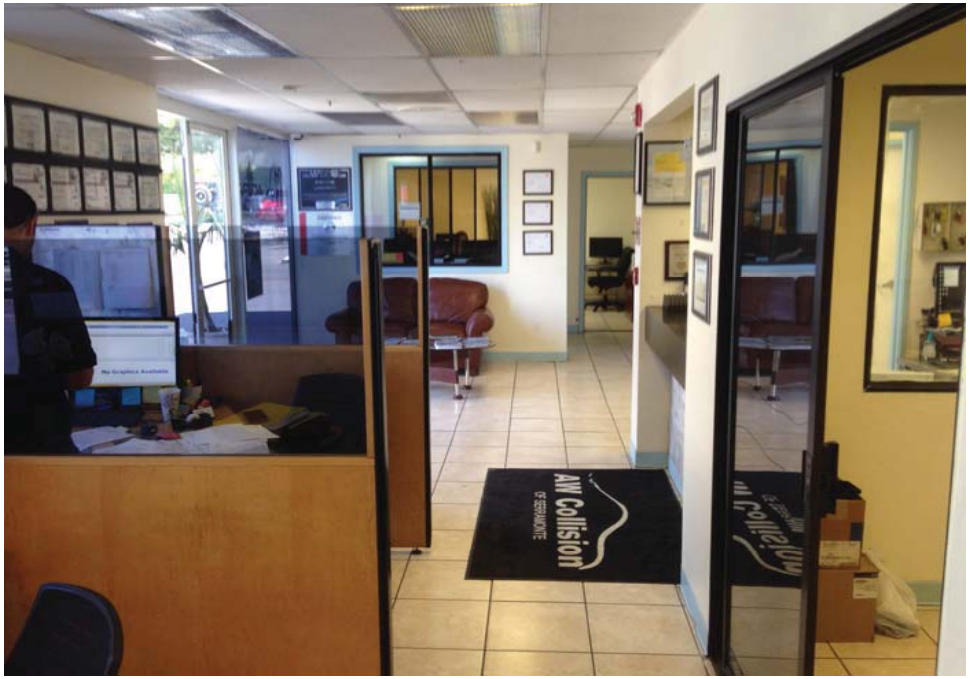
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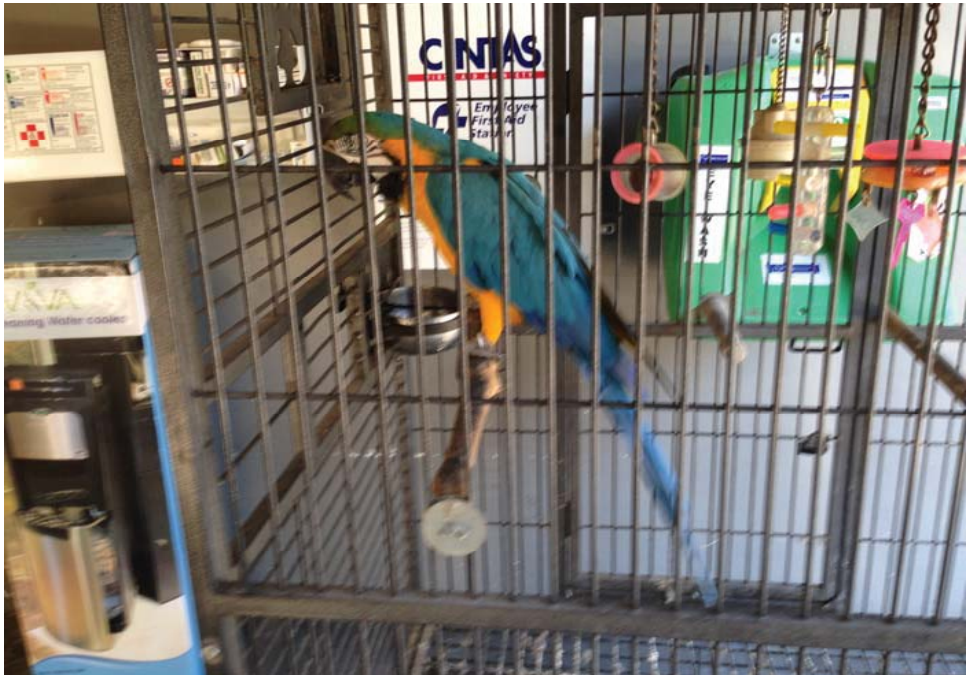
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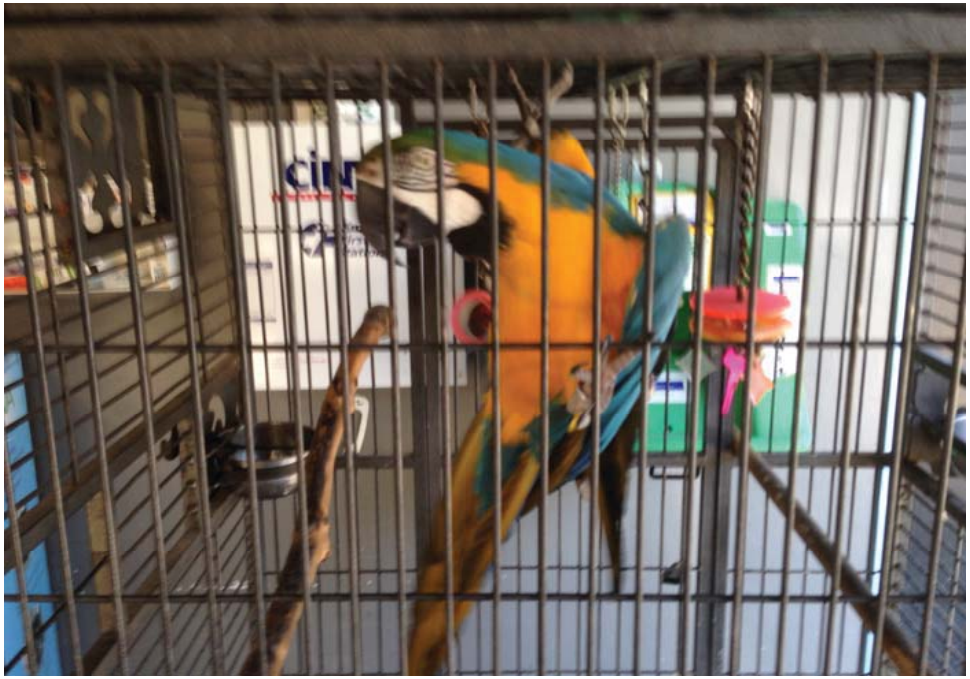

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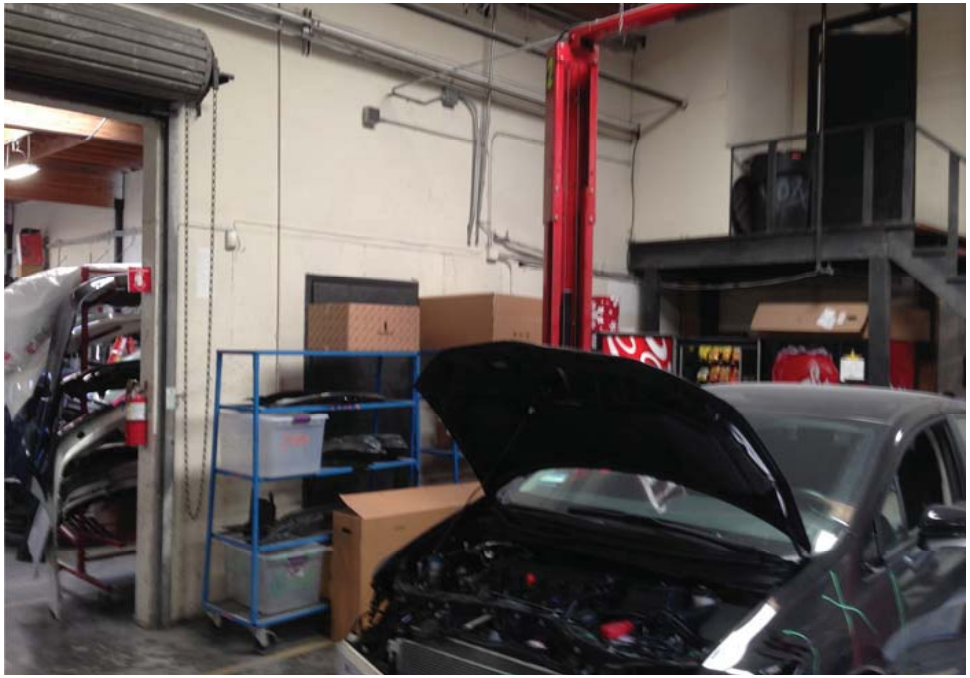

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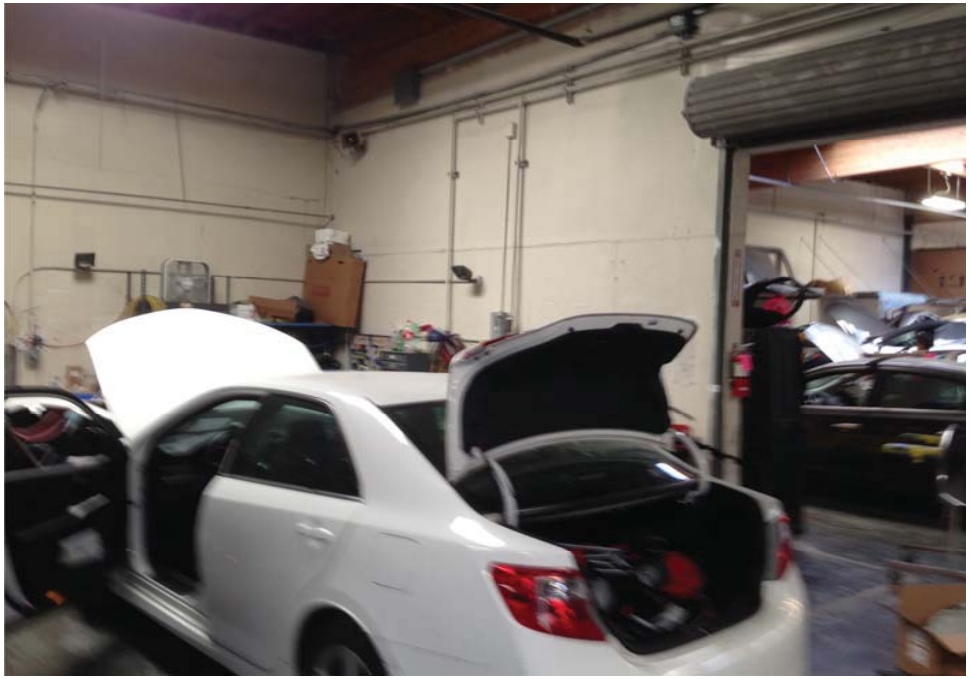

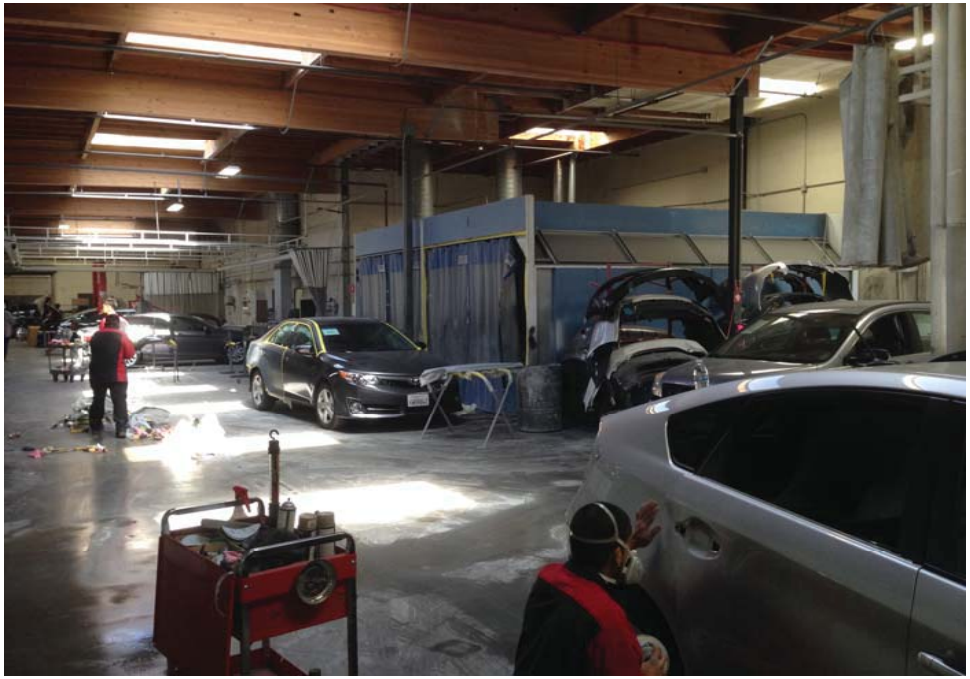

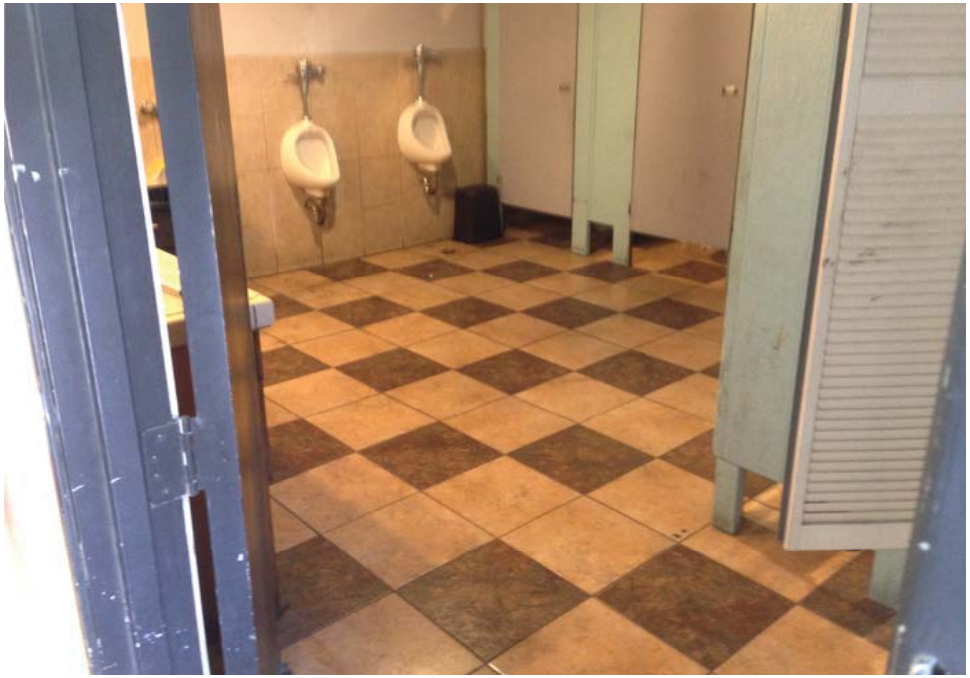

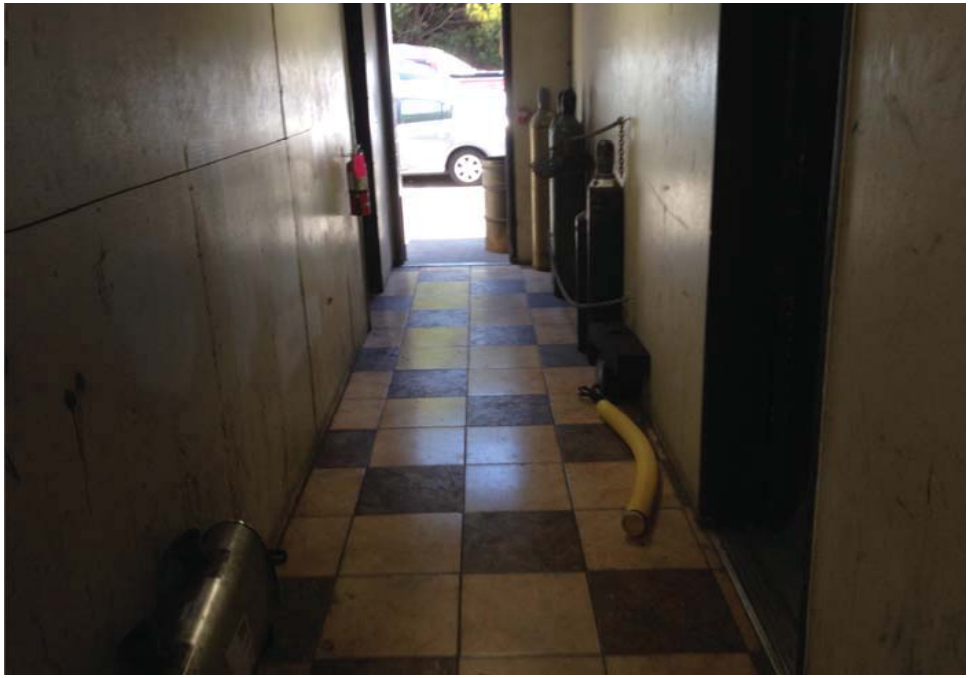

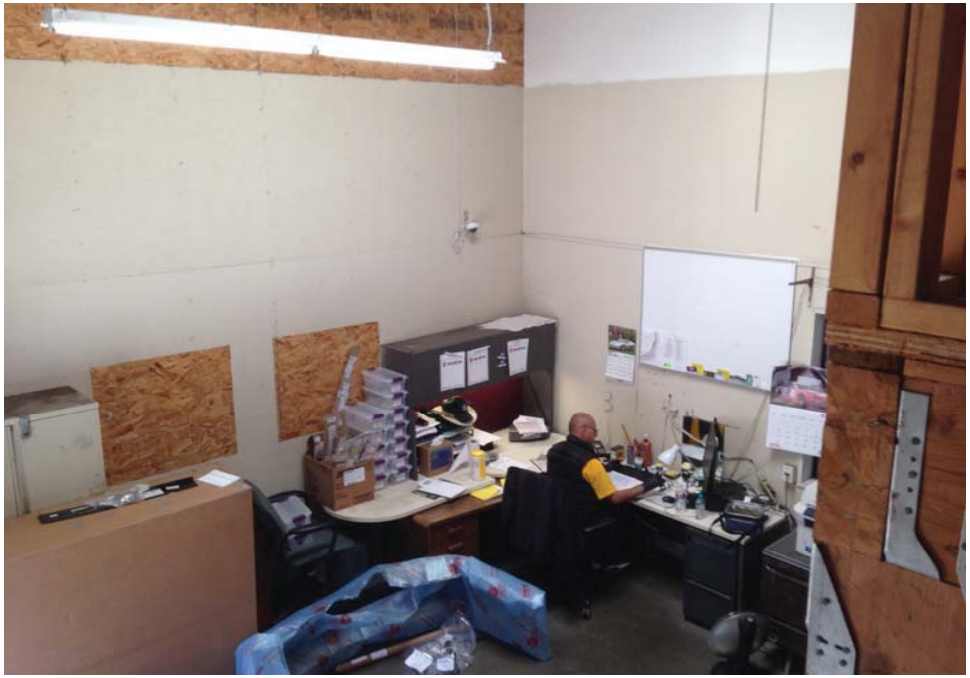

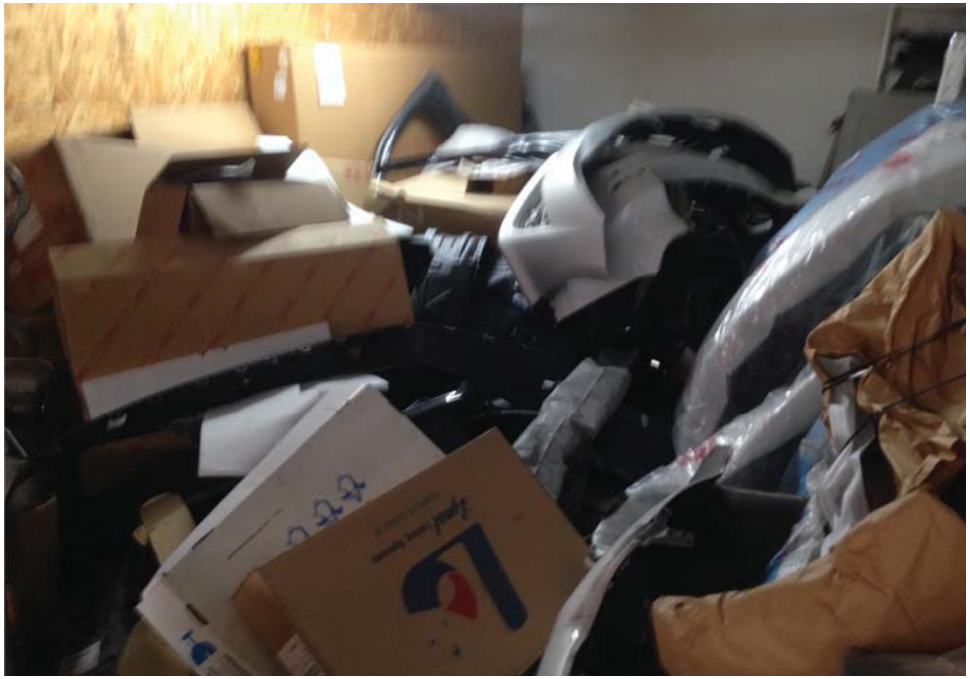

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OF SERRAMONTE
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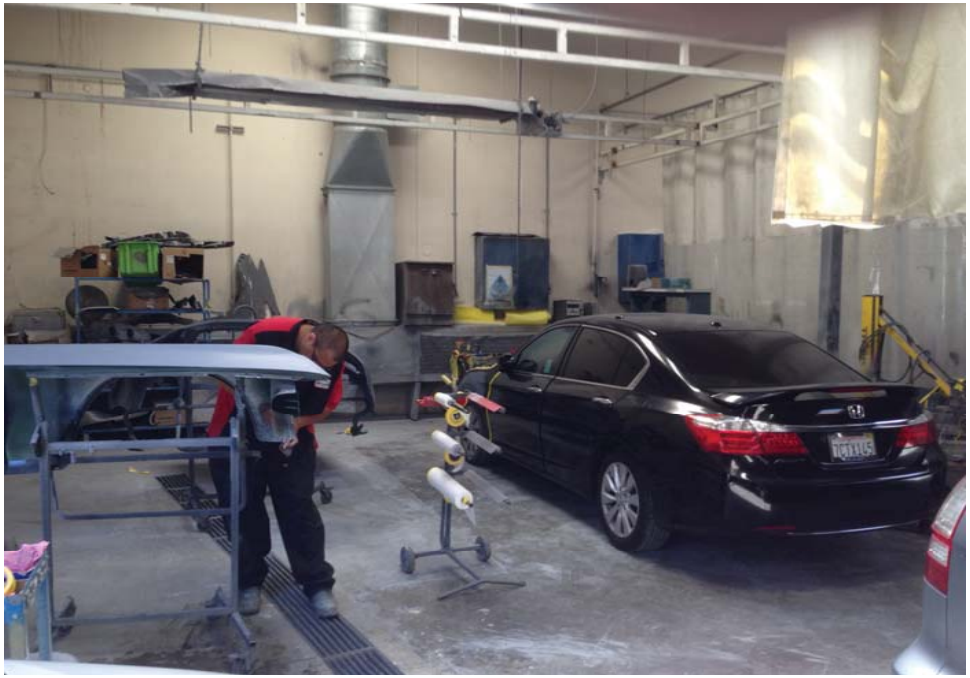

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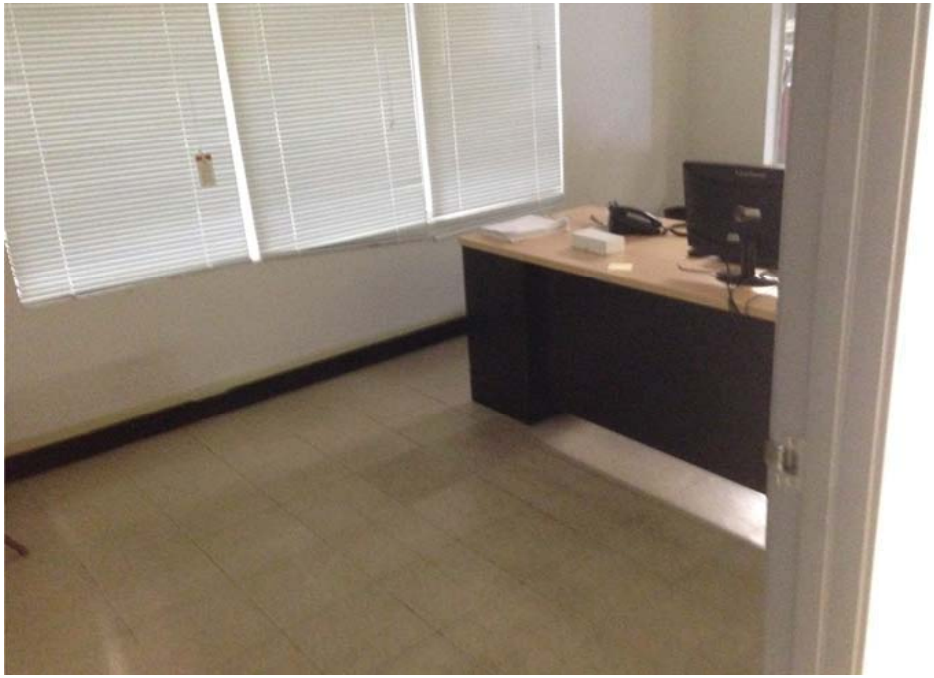
445 Serramonte Boulevard, Colma, CA



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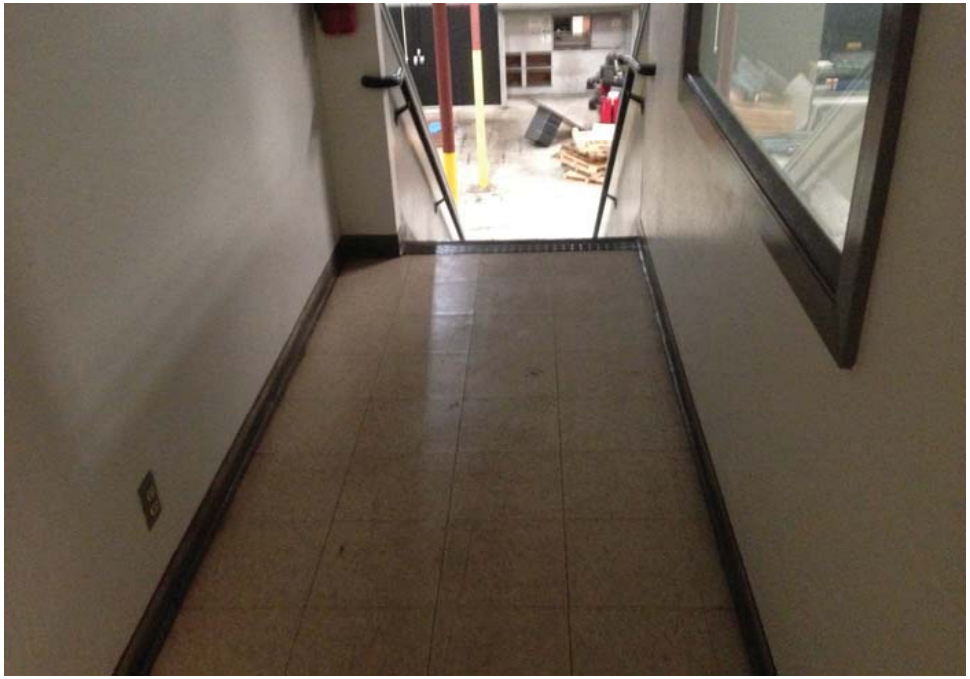

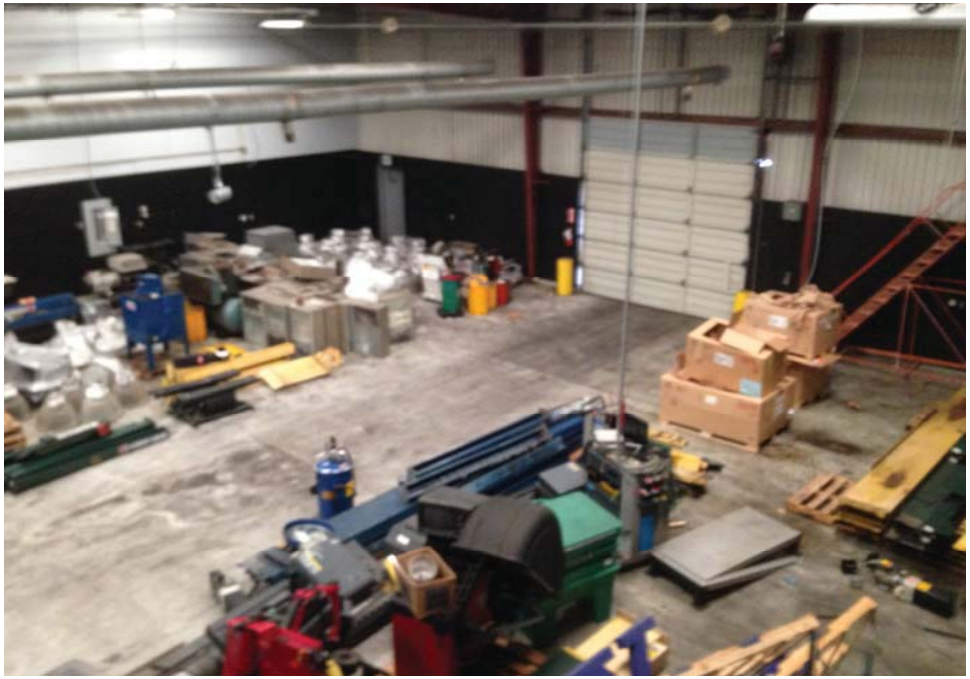

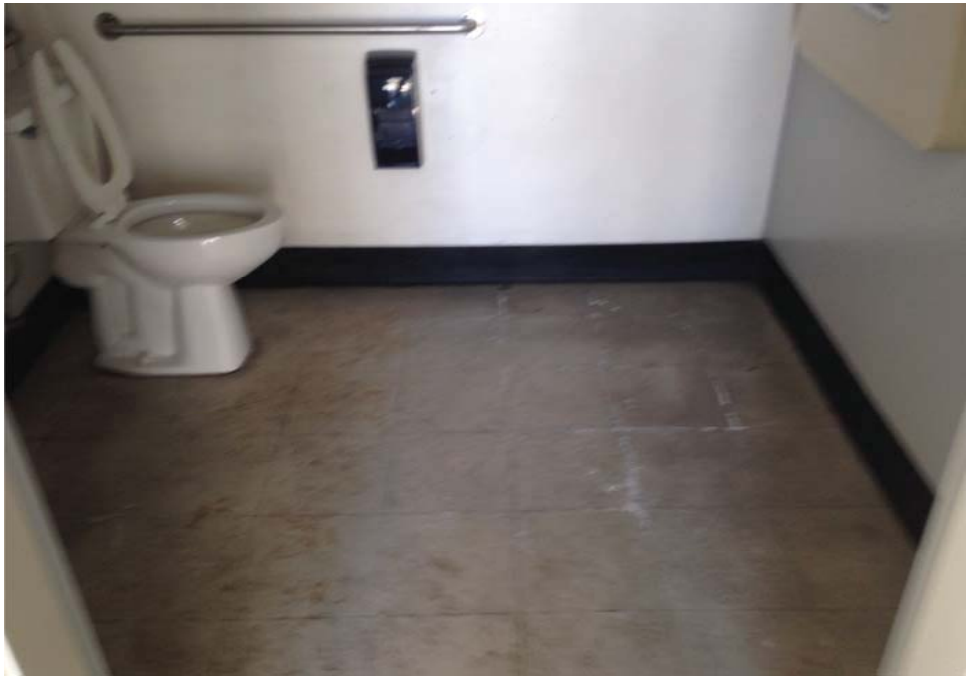

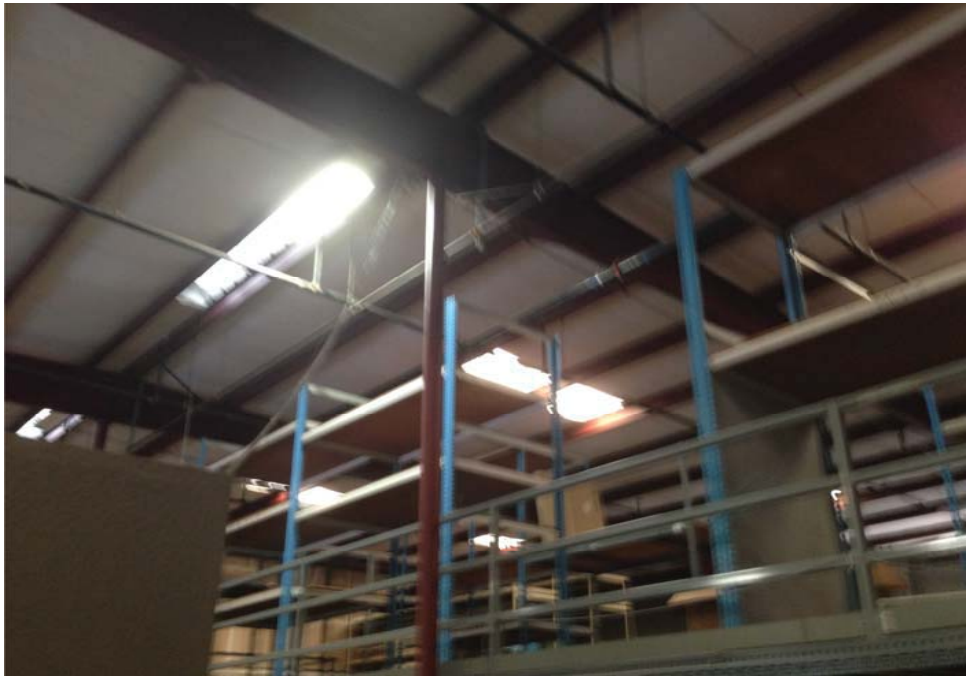

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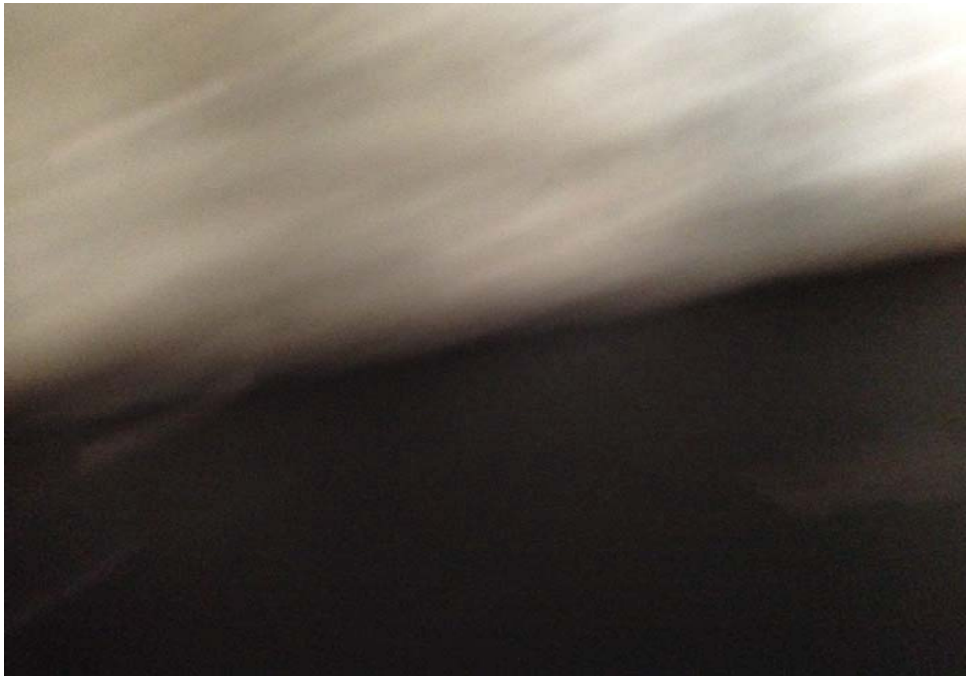

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445

445

445
HYUNDAI
Hyundai Serramonte
Parts
&
Receiving

445
WARNING
THIS AREA CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

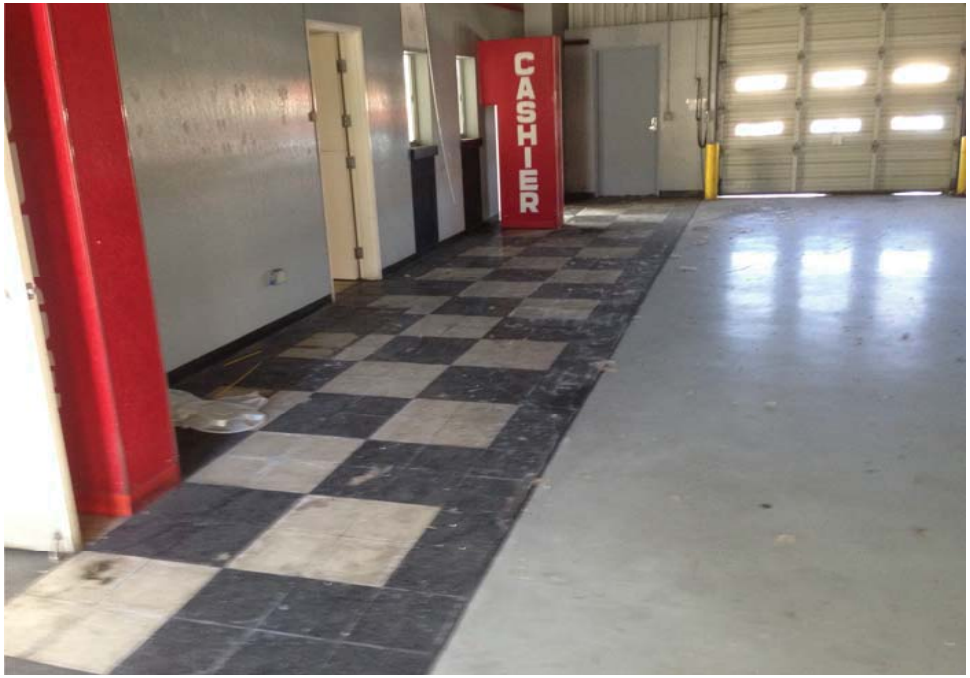
445

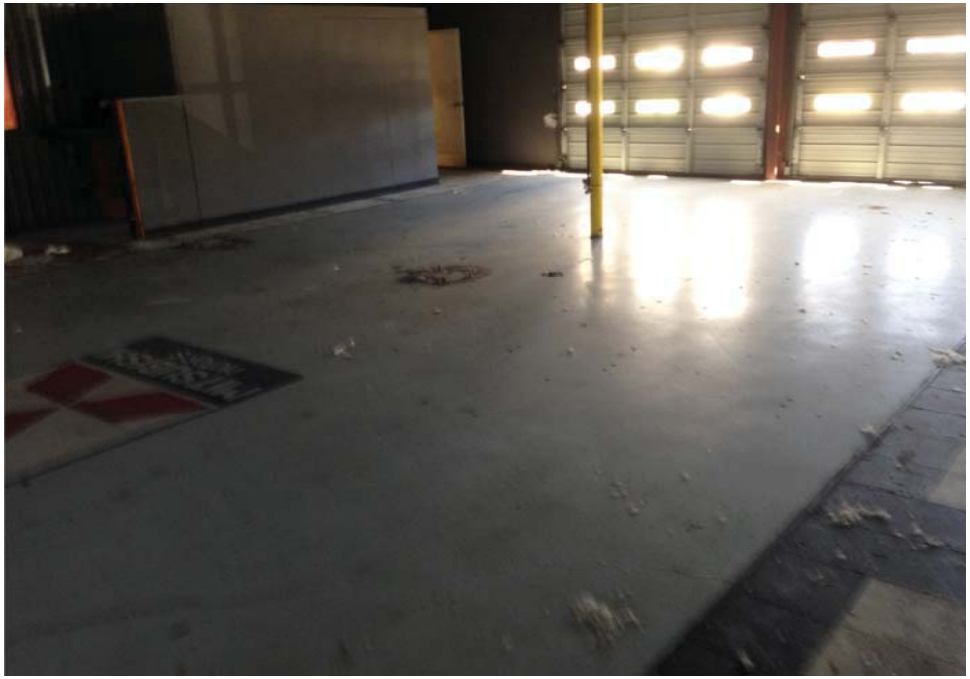
445
WE SELL TIRES
PULL
Service
Key Drop Box

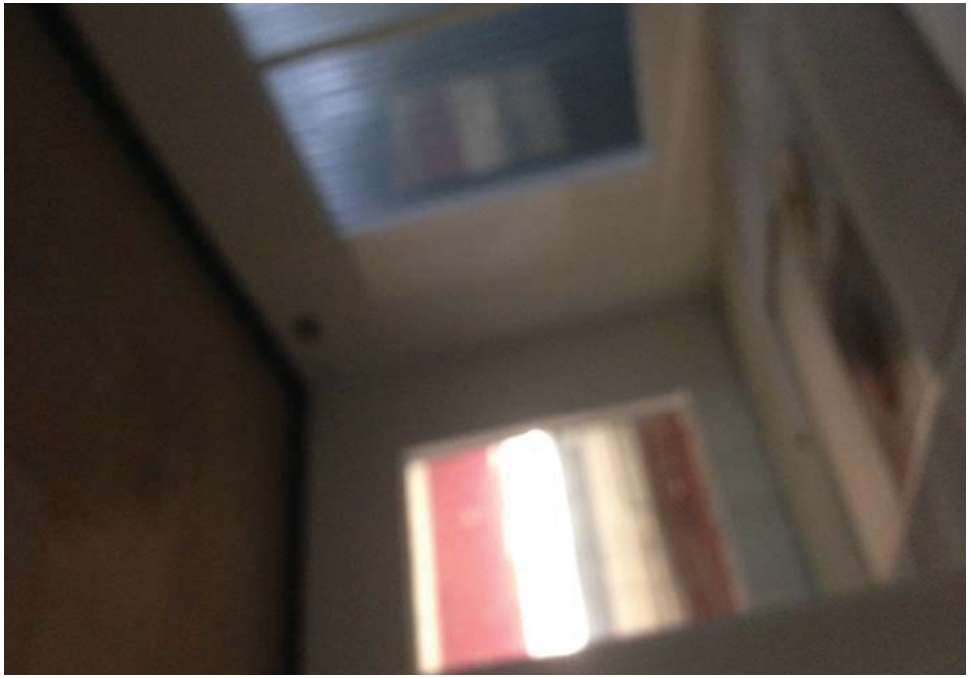
EXIT ONLY
445

445

455 Serramonte Boulevard, Colma, CA

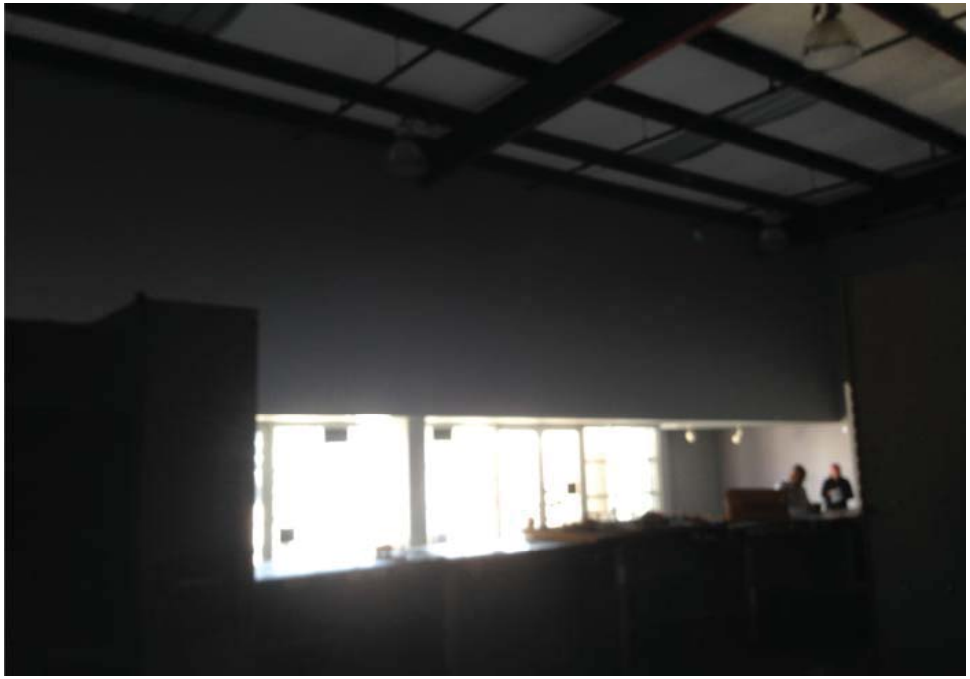


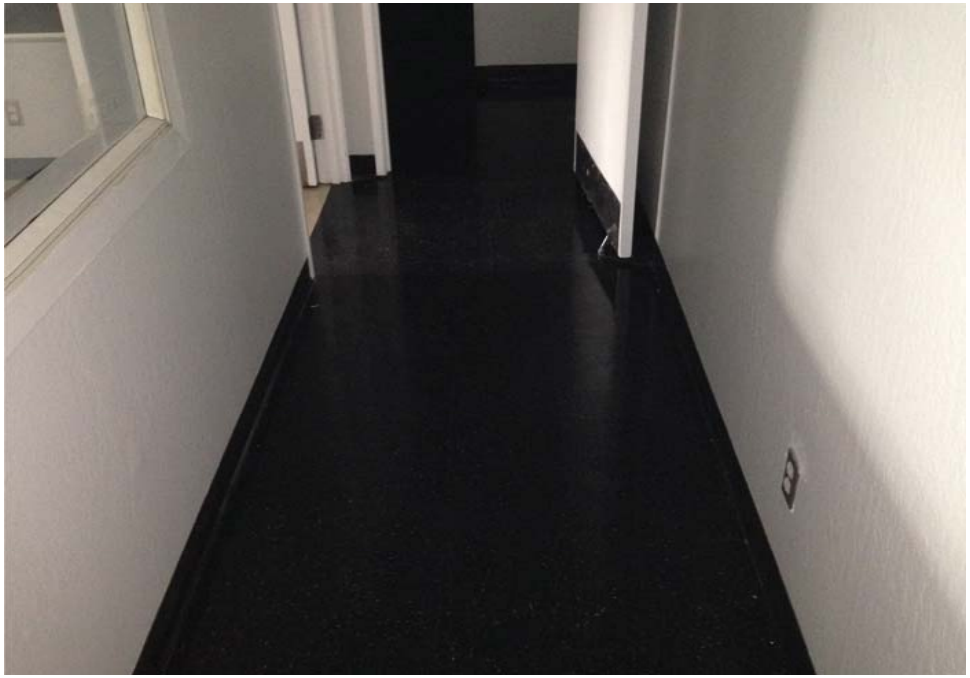


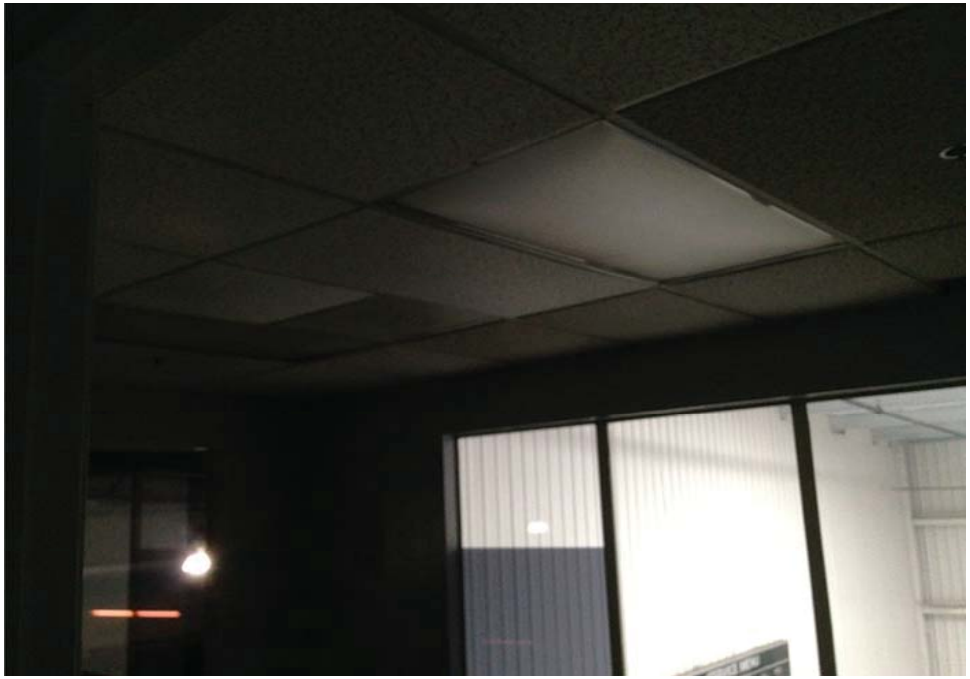


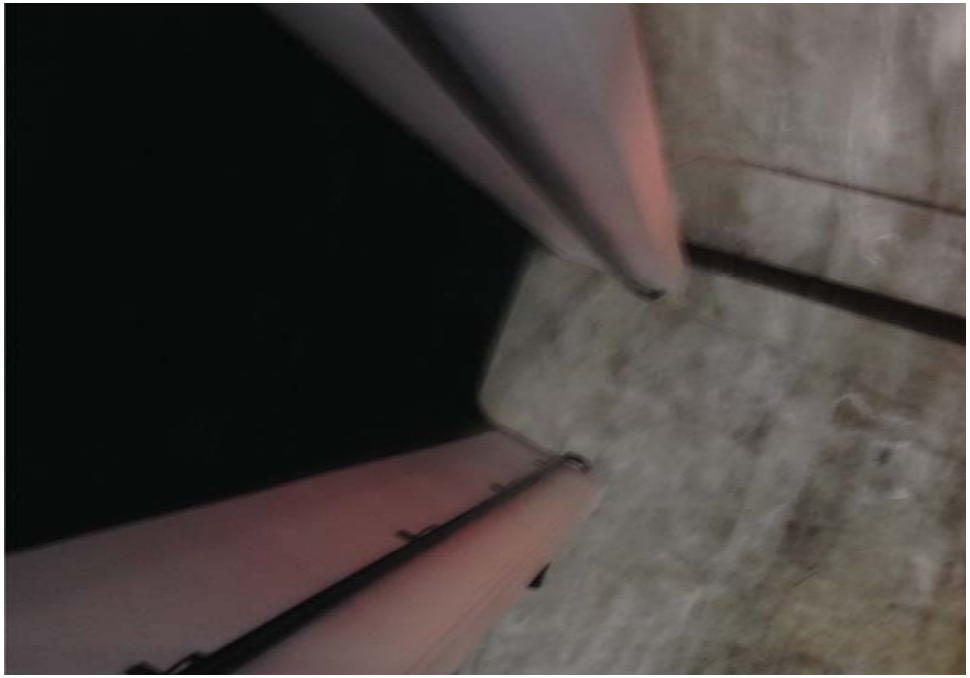
TOOL
SALE!

First Aid









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455
SMOKING
ASE

435 SERRAMONTE BOULEVARD

435 Serramonte Boulevard
Colma, CA 94014

KELLCO Job #1506-10

Pre-Demolition
Asbestos and Lead Inspection Report

for

ENGEO Inc.
2010 Crow Canyon Place
Suite #250
San Ramon, CA 94583

July 17, 2015 - Revised

3137 Diablo Avenue • Hayward, CA 94545-2701• (510) 786-9751 • fax (510) 786-9625
http://www.kellco.com •: mailbox3137@kellco.co

Pre-Demolition
Asbestos and Lead Paint Inspection Report

Date:	July 17, 2015 - Revised
KELLCO Job #:	1506-10
Client:	ENGEO Inc. 2010 Crow Canyon Place Suite #250 San Ramon, CA 94583
Location:	435 Serramonte Boulevard Colma, CA 94014
Date of Inspection:	June 27, 2015 & June 28, 2015
Inspectors:	Derrik Quach CSST #02-3214 Tim Cannard CAC #94-1395, CDPH Lead #764
Lab Reports:	134083, 134079
Description Of The Inspected Area:	The inspection was conducted on the interior and exterior of a single story commercial building that is approximately ~23,500 sq./ft. This building was occupied by a vehicle body shop at the time of the inspection. The interior has gypsum wallboard, tape, joint compound and texture on the walls. The flooring is various types of floor tile and concrete. The ceiling is 2'x4' drop in ceiling tile and plywood. The exterior walls are concrete with a rolled shingle, hot mop, gravel and tar roofing system.

Background

This is a pre-demolition asbestos and lead inspection located in Colma, California.

Synopsis

Asbestos was found in the following materials;

- Roof - Black/Gray Roofing/Shingle Mastic

Lead paint was found in the following tested materials;

- Interior Wall White/Cream Paint
- Brown/White Paint on Pole
- Gray Paint on Floor
- Blue Paint on Lobby Door and Door Frames
- Exterior Grey/Cream/Green Paint on Walls

Fluorescent lights, fluorescent fixture ballasts and thermostats may contain PCB's and mercury.

- 153 Fluorescent Light Fixtures
- 153 Fluorescent Light Ballasts
- 524 Fluorescent Light Tubes

About the Inspection

The inspection performed was both visual and tactile. Samples were taken of suspect materials located at the interior and exterior of the survey area.

The inspection was a reasonable attempt to find suspect materials that were hidden within walls, behind structures, in vertical shafts or in areas not normally accessible. If any non-sampled materials are uncovered, these should be submitted for asbestos and/or lead paint analysis.

- ***Asbestos Findings***

Asbestos samples were analyzed in Schneider Laboratories Global by Polarized Light Microscopy, the EPA's recommended method. Copies of the full laboratory reports are attached. These valuable reports can be utilized as future reference to determine if a particular material was tested.

Photographs of sampled materials are included. Sample locations are noted on the attached not-to-scale drawing.

The determination of a material to be Asbestos Containing Material (ACM) was made either by direct sampling or by homogeneity with at least one positive sample of the same material.

Materials that tested **positive** for asbestos are:

LAB #	FIELD #	LOCATION	LAYER #	LAYER NAME	ASBESTOS %
134083-040	4355B-ML-40	Roof Mastic Black Penetration Mastic at SW Exhaust	1	Sealant/Mastic	4% Chrysotile
134083-042	4355B-N-42	Roof Parapet Wall SW Wall Grey/Black Rolled Shingle & Mastic	1	Shingle/Mastic	6% Chrysotile

LAB #	FIELD #	LOCATION	LAYER #	LAYER NAME	ASBESTOS %
134083-043	4355B-N-43	Roof Parapet Wall E Wall Grey Black Rolled Shingle & Mastic	1	Shingle/Mastic	8% Chrysotile
134083-047	4355B-N-47	Roof Parapet Wall NE Roof Black/Grey Rolled Shingle & Mastic	1	Shingle/Mastic	8% Chrysotile
134083-048	4355B-L-48	Roof Mastic Grey Penetration Mastic NE Roof	1	Mastic	6% Chrysotile
134083-049	4355B-L-49	Roof Mastic Grey NW Roof	1	Mastic	5% Chrysotile
134083-051	4355B-N-51	Roof Parapet Wall Black/Grey Rolled Shingle & Mastic NW Roof	1	Shingle/Mastic	6% Chrysotile
134083-053	4355B-N-53	Roof Parapet Wall Black/Grey Rolled Shingle & Mastic SE Roof	1	Shingle/Mastic	6% Chrysotile

Samples that have less than 10% asbestos can be submitted for further analysis by the Point Count method as described elsewhere in this document. If the Point Count method determines that the material contains less than 1% asbestos, these materials can be disposed of as non-hazardous asbestos containing construction waste.

Tested materials that were **none detected** for asbestos are:

LAB #	FIELD #	LOCATION	LAYER #	LAYER NAME
134083-001	4355B-B-01	NW Wall Entrance	1	Textured Material
134083-002	4355B-C-02	NW Floor Entrance	1	Vinyl Floor Tile
134083-002	4355B-C-02	NW Floor Entrance	2	Mastic
134083-003	4355B-D-03	NW Floor Entrance	1	Cove Base
134083-003	4355B-D-03	NW Floor Entrance	2	Cove Base Mastic
134083-004	4355B-C-04	South Floor	1	Vinyl Floor Tile
134083-004	4355B-C-04	South Floor	2	Mastic
134083-005	4355B-C-05	E Floor C 500 SF	1	Vinyl Floor Tile
134083-005	4355B-C-05	E Floor C 500 SF	2	Mastic
134083-006	4355B-A-06	E Wall	1	Wallboard
134083-006	4355B-A-06	E Wall	2	Tape
134083-006	4355B-A-06	E Wall	2	Tape
134083-006	4355B-A-06	E Wall	3	Joint Compound

LAB #	FIELD #	LOCATION	LAYER #	LAYER NAME
134083-007	4355B-I-07	W Ceiling	1	Insulation
134083-007	4355B-I-07	W Ceiling	2	Insulation Cover
134083-008	4355B-A-08	NW Wall Entrance	1	Wallboard
134083-008	4355B-A-08	NW Wall Entrance	2	Tape
134083-008	4355B-A-08	NW Wall Entrance	2	Tape
134083-008	4355B-A-08	NW Wall Entrance	3	Joint Compound
134083-009	4355B-F-09	NW Wall Entrance	1	Vinyl Floor Tile
134083-009	4355B-F-09	NW Wall Entrance	2	Mastic
134083-010	4355B-D-10	NW Wall Entrance	1	Cove Base
134083-010	4355B-D-10	NW Wall Entrance	2	Cove Base Mastic
134083-011	4355B-B-11	E Wall	1	Textured Material
134083-012	4355B-F-12	E Floor	1	Vinyl Floor Tile
134083-012	4355B-F-12	E Floor	2	Mastic
134083-013	4355B-F-13	W Floor	1	Vinyl Floor Tile
134083-013	4355B-F-13	W Floor	2	Mastic
134083-014	4355B-A-14	N Ceiling	1	Wallboard
134083-014	4355B-A-14	N Ceiling	2	Tape
134083-014	4355B-A-14	N Ceiling	3	Joint Compound
134083-015	4355B-G-15	SE Floor	1	Ceramic Tile
134083-015	4355B-G-15	SE Floor	2	Grout
134083-016	4355B-I-16	E Wall	1	Concrete
134083-017	4355B-B-17	W Wall	1	Textured Material
134083-018	4355B-I-18	W Wall	1	Concrete
134083-019	4355B-B-19	E Wall	1	Textured Material
134083-020	4355B-B-20	W Wall	1	Textured Material
134083-021	4355B-A-21	NW Wall	1	Wallboard
134083-021	4355B-A-21	NW Wall	2	Tape
134083-021	4355B-A-21	NW Wall	3	Joint Compound
134083-022	4355B-A-22	NE Wall	1	Wallboard
134083-022	4355B-A-22	NE Wall	2	Tape
134083-022	4355B-A-22	NE Wall	3	Joint Compound
134083-023	4355B-D-23	NE Wall	1	Cove Base
134083-023	4355B-D-23	NE Wall	2	Cove Base Mastic
134083-024	4355B-B-24	NE Wall	1	Textured Material
134083-025	4355B-G-25	E Floor	1	Ceramic Tile
134083-025	4355B-G-25	E Floor	2	Grout
134083-026	4355B-A-26	SE Wall	1	Wallboard
134083-026	4355B-A-26	SE Wall	2	Tape
134083-026	4355B-A-26	SE Wall	3	Joint Compound
134083-027	4355B-B-27	SE Wall	1	Textured Material
134083-028	4355B-G-28	S Floor	1	Ceramic Tile
134083-028	4355B-G-28	S Floor	2	Grout
134083-029	4355B-E-29	E Ceiling	1	Ceiling Tile

LAB #	FIELD #	LOCATION	LAYER #	LAYER NAME
134083-030	4355B-E-30	E Ceiling	1	Ceiling Tile
134083-031	4355B-E-31	NW Ceiling	1	Ceiling Tile
134083-032	4355B-J-32	NW Wall	1	Mastic
134083-033	4355B-J-33	NW Wall	1	Mastic
134083-034	4355B-K-34	W Wall	1	Sealant
134083-035	4355B-I-35	N Ceiling	1	Insulation
134083-035	4355B-I-35	N Ceiling	2	Insulation Cover
134083-036	4355B-K-36	N Wall	1	Sealant
134083-037	4355B-K-37	E Wall	1	Sealant
134083-038	4355B-L-38	SE Exhaust	1	Mastic
134083-039	4355B-I-39	E Ceiling	1	Insulation
134083-039	4355B-I-39	E Ceiling	2	Insulation Cover
134083-041	4355B-M-41	SW Roof	1	Roof Shingle
134083-041	4355B-M-41	SW Roof	2	Mastic
134083-044	4355B-L-44	E Roof Entrance	1	Mastic
134083-044	4355B-L-44	E Roof Entrance	1	Mastic
134083-045	4355B-M-45	E Roof	1	Shingle/Mastic
134083-046	4355B-M-46	NE Roof	1	Shingle/Mastic
134083-050	4355B-M-50	NW Roof	1	Shingle/Mastic
134083-052	4355B-M-52	SE Roof	1	Shingle/Mastic
134083-054	4355B-I-54	W Wall	1	Concrete

- ***Paint Findings***

Lead samples were analyzed by Atomic Absorption in Schneider Laboratories Global. OSHA requires protection of workers from exposure to any lead. Paint should be considered as containing lead if it is the same color as any positive tested material, unless it has specifically been tested and shown to be **none detected** for lead.

The following materials tested **positive** for lead:

LAB #	FIELD #	LOCATION	LEAD CONCENTRATION	UNITS
134079-001	435-Pb-01	Warehouse Interior Wall White / Cream Paint on Concrete	74.8	mg/kg
134079-002	435-Pb-02	Warehouse Pole/Column Brown / Black & White Paint on Steel	3,540	mg/kg
134079-00	435-Pb-03	Warehouse Floor Gray Paint on Concrete	66.8	mg/kg
134079-00	435-Pb-05	Lobby door Frames Blue Paint on Wood	57.1	mg/kg
134079-00	435-Pb-06	Exterior Wall Grey/Cream/Green Paint on Concrete	86.8	mg/kg

Paint of the same color as the above samples should be considered positive unless proven otherwise by direct sampling with results of "None Detected."

The following are materials for which the lead was **none detected**:

LAB #	FIELD #	LOCATION	LEAD CONCENTRATION	UNITS
134079-004	435-Pb-04	Lobby Floor Beige	< 18.3	mg/kg
134079-007	435-Pb-07	Ext Wall Gray	< 18.2	mg/kg

Although there are some materials that are negative for lead paint, for the purposes of demolition it is recommended that all painted materials be considered as lead containing unless otherwise tested.

- ***Other Hazardous Materials***

The building contains light fixtures with fluorescent bulbs and ballasts that may contain PCB's. These should be handled in accordance with regulations.

It is also anticipated that the fluorescent light tubes may contain mercury. If they are to be removed, they should be recycled properly

Regulatory Requirements

The Environmental Protection Agency (EPA) defines Asbestos Containing Material as any material that contains greater than 1% asbestos. Materials containing greater than 1% asbestos must be removed prior to demolition or renovation if they will be disturbed.

Friable asbestos containing material is any material that can be crushed or pulverized by hand pressure when dry, or materials that can be rendered to a crumbled, pulverized, or powdered state when dry by crushing, sanding, sawing, shot blasting, or through demolition or renovation activities.

As stated by NESHAP regulations, any material that contains less than 10% asbestos using the visual estimation method can be point counted with gravimetric reduction. The Point Counting method is a much more accurate analytical method for determining the percent of asbestos in a particular material. If the Point Count method determines that the material contains less than 1% asbestos, the material being analyzed can be disposed of as non-hazardous asbestos containing construction waste.

Removal or disturbance of material with any detectable amount of asbestos must be handled in accordance with OSHA regulations. Cal-OSHA registration is required if the material contains more than .1% asbestos (1/10th of a percent). If there is more than 100 feet (linear or square) of an asbestos containing material that will be abated or disturbed, a California State registered and licensed asbestos abatement contractor must perform the work. If there is less than 100 feet, the work does not require a licensed asbestos abatement contractor, but must still conform to Cal-OSHA regulations.

Removal or disturbance of any amount of lead paint requires adherence to the Cal-OSHA and CDPH regulations, including proper training and certification for workers and supervisors

The OSHA lead (1532) regulations require that a Negative Initial Determination for lead exposure be made with paint that contains greater than 0.06% (600 ppm) of lead. Paint with less than 0.06% lead should still be treated within the OSHA guidelines, but with reasonable work practices should not generate OSHA action levels of lead exposure.

Building components with intact lead paint and no other hazardous materials can be disposed of as non-hazardous construction waste. Paint chips and debris must be disposed of as lead containing hazardous waste.

Comment Regarding All Asbestos Containing Materials:

Asbestos containing materials in good condition do not necessarily need to be removed unless they will be disturbed; they should however be respected.

Employees, contract workers and others should be advised not to drill, saw, scrape or otherwise disturb this material without taking precautionary measures appropriate to asbestos containing material.

Asbestos containing material should be removed prior to the renovation and must be removed prior to demolition.

Comment Regarding All Lead Containing Materials:

Lead is a known health hazard. Lead containing materials in good condition do not necessarily need to be removed if they are not disturbed; they should however be respected.

Painted surfaces that contain lead should be made known to contractors who may disturb them during their work. OSHA guidelines for workers in contact with lead paint apply if ANY detectable lead is found.

Anyone coming in contact with leaded paint should be advised not to disturb it without taking precautionary measures appropriate to avoid lead contamination or lead exposure.

Areas Needing Immediate Corrective Action

Asbestos (in any condition) and chipping and peeling lead paint should be removed prior to renovation and must be removed prior to demolition of the survey site.

Analytical Procedures

- ***POLARIZED LIGHT MICROSCOPY (PLM)***
  Bulk samples were analyzed in accordance with U.S. EPA "Test Method for Determination of Asbestos in Bulk Building Materials, 1993," with inclusion of area percent estimates of the sample components. The use of the McCrone Color Dispersion Staining Technique

supplements the analysis when considered useful by the analyst. The samples are prepared with refractive immersion oil and are examined under Polarized Light Microscopy (PLM). The accuracy of the visual estimate method is 1%.

As per the standard "...The accuracy in the determination of the presence or absence of asbestos of greater than 1 area percent asbestos is greater than 99%." ASTM Committee D22.05, 1/18/88, Standard *Method of Testing for Asbestos Containing Materials by Polarized Light Microscopy*. If the sample matrix is reduced to minimize non-asbestos components, the detection limit can be mathematically enhanced, based on the amount of material remaining after matrix reduction. This method is called gravimetric reduction. This method involves ashing and chemical dissolution of the sample.

- ***POINT COUNTING***

  The Point Counting method is a much more accurate analytical method for determining the percent of asbestos in a particular material. The laboratory uses a muffle furnace to ash the sample and remove organic compounds. Hydrochloric acid is used to dissolve some of the non-asbestos minerals. Under this method a minimum of 125 points are counted from each of 8 different slide preparations of the same sample (total of 1000 points min.) If the **Point Count Method** determines that the material contains less than 1% asbestos, the material being analyzed can be treated as non-hazardous asbestos containing construction waste**. Note: ONLY the Point Count Method can be used for this determination.**

- ***ATOMIC ABSORPTION FOR LEAD***

  Paint samples were collected for atomic absorption (AA) analysis. The detection limit for each sample depends upon many factors including the sensitivity of the instrument and the sample size. In the laboratory utilizing flame AA, the detection limit is normally .01% or 100 parts per million (ppm).

KELLCO Qualifications

The KELLCO asbestos inspector is licensed with the State of California Department of Occupational Safety and Health (CAL-OSHA).

The KELLCO lead inspector is licensed by the California Department of Public Health (CDPH)

The following supporting documents are attached to this report:

- Laboratory analytical reports
- Photographs of sample locations
- Floor plan or sketch showing sample locations

Please call KELLCO if there are any questions and/or clarifications regarding this report. We look forward to working with you in the future.

Sincerely,

KELLCO Services, Inc.

Tim C. Cannard CAC #94-1395, CDPH Lead #764
Senior Project Manager

Asbestos Definitions and Classifications

ACM	(Asbestos Containing Material) – **Commercial asbestos product** containing more than 1% asbestos. ACM must be disposed as hazardous waste. Note: Federal OSHA and Cal-OSHA control materials containing any amount of asbestos.
ACBM	(Asbestos Containing Building Material) – AHERA/ASHARA term for material containing more than 1% asbestos in or on interior structural members or other structural components. Includes covered walkways, porticos and exterior HVAC TSI.
ACCM	(Asbestos Containing Construction Material) – California term for a manufactured construction material containing greater than .1% (one tenth of one percent) asbestos.
PACM	(Presumed Asbestos Containing Material) OSHA considers all **TSI and surfacing** materials installed prior to1980 to be ACM unless proven otherwise.
Friable	Asbestos Containing Material that can be crumbled pulverized or reduced to powder by hand pressure when dry.
NOA	Naturally Occurring Asbestos. CARB defines as having >.25% by point counting.
Acm	CARB term for naturally occurring asbestos >.25% by point counting
DACM	Designated Asbestos Containing Material: Floortile installed before 1981

Categories of Asbestos Used BY EPA AHERA/ASHARA and OSHA/Cal-OSHA

TSI	(Thermal System Insulation) - "Thermal system insulation (TSI)" means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain. "Thermal system insulation ACM" is thermal system insulation which contains more than 1% asbestos.
SURFACING (usually mixed on site at time of application)	"Surfacing material" means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes). "Surfacing ACM" means surfacing material which contains more than 1% asbestos. NOTE: OSHA/Cal-OSHA do not classify skim coat, taping mud, floor tile mastic, stucco, leveling compound, and hard wall plasters or wall texturing as surfacing.
MISC.	All other ACM, including classify taping mud, floor tile mastic, stucco, leveling compound, and hard wall plasters or wall texturing as surfacing.

NESHAPS Categories for Asbestos (used by Air Quality Management Districts for Renovation and Demolition)

Category I	Cat I Non-friable Asbestos Containing Material(ACM) refers to asbestos containing packing, gaskets, resilient floor covering, Galbestos, and asphalt roofing products containing more than 1% asbestos.
Category II	Cat II Non-friable Asbestos-Containing Material (ACM) is any material that is not Cat I that contains greater than 1% asbestos.
RACM	"Regulated Asbestos-Containing Material." – Friable manufactured asbestos material (ACM) or a Category I non-friable ACM that has become friable OR a Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading OR Category II non-friable 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. RACM should be removed prior to renovation or demolition.

Characterization of Asbestos Containing Materials

Material	Estimated Quantity	TSI	Surfacing	Misc	RACM	Cat I	Cat II
Black/Gray Roofing/Shingle Mastic – Estimate Includes Entire Roof & Parapet Wall	~25,000 sq./ft.			X		X	

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Attn:

Project: Commercial Building
Location: 435 Serramonte Boulevard
Number: 1506-10

Order #: 134083

Received 07/01/15
Analyzed 07/01/15
Reported 07/01/15

PO Number:

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-001	06/27/15	4355B-B-01	NW Wall Entrance		
Layer 1: Textured Material White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-002	06/27/15	4355B-C-02	NW Floor Entrance		
Layer 1: Vinyl Floor Tile Green, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134083-003	06/27/15	4355B-D-03	NW Floor Entrance		
Layer 1: Cove Base Green, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Cove Base Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-004	06/27/15	4355B-C-04	South Floor		
Layer 1: Vinyl Floor Tile Green, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134083-005	06/27/15	4355B-C-05	E Floor C 500 SF		
Layer 1: Vinyl Floor Tile Green, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-006	06/27/15	4355B-A-06	E Wall		
Layer 1: Wallboard White, Powdery				None Detected	20% CELLULOSE FIBER 80% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	95% CELLULOSE FIBER 5% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-007	06/27/15	4355B-I-07	W Ceiling		
Layer 1: Insulation Pink, Fibrous				None Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
Layer 2: Insulation Cover Beige/Silver, Fibrous				None Detected	60% CELLULOSE FIBER 10% METAL FOIL 25% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
134083-008	06/27/15	4355B-A-08	NW Wall Entrance		
Layer 1: Wallboard White, Powdery				None Detected	12% CELLULOSE FIBER 88% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	98% CELLULOSE FIBER 2% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-009	06/27/15	4355B-F-09	NW Wall Entrance		
Layer 1: Vinyl Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-010	06/27/15	4355B-D-10	NW Wall Entrance		
Layer 1: Cove Base White, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Cove Base Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-011	06/27/15	4355B-B-11	E Wall		
Layer 1: Textured Material White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-012	06/27/15	4355B-F-12	E Floor		
Layer 1: Vinyl Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-013	06/27/15	4355B-F-13	W Floor		
Layer 1: Vinyl Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-014	06/27/15	4355B-A-14	N Ceiling		
Layer 1: Wallboard White, Powdery				None Detected	20% CELLULOSE FIBER 80% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	95% CELLULOSE FIBER 5% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-015	06/27/15	4355B-G-15	SE Floor		
Layer 1: Ceramic Tile Beige, Hard				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Grout Gray, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-016	06/27/15	4355B-I-16	E Wall		
Layer 1: Concrete Gray, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-017	06/27/15	4355B-B-17	W Wall		
Layer 1: Textured Material White, Granular				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-018	06/27/15	4355B-I-18	W Wall		
Layer 1: Concrete Gray, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-019	06/27/15	4355B-B-19	E Wall		
Layer 1: Textured Material White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-020	06/27/15	4355B-B-20	W Wall		
Layer 1: Textured Material White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-021	06/27/15	4355B-A-21	NW Wall		
Layer 1: Wallboard White, Powdery				None Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	90% CELLULOSE FIBER 10% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-022	06/27/15	4355B-A-22	NE Wall		
Layer 1: Wallboard White, Powdery				None Detected	10% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	95% CELLULOSE FIBER 5% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-023	06/27/15	4355B-D-23	NE Wall		
Layer 1: Cove Base Brown, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Cove Base Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-024	06/27/15	4355B-B-24	NE Wall		
Layer 1: Textured Material White, Granular				None Detected	100% NON FIBROUS MATERIAL

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Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-025	06/27/15	4355B-G-25	E Floor		
Layer 1: Ceramic Tile White, Hard				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Grout Brown, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-026	06/27/15	4355B-A-26	SE Wall		
Layer 1: Wallboard White, Powdery				None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	98% CELLULOSE FIBER 2% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-027	06/27/15	4355B-B-27	SE Wall		
Layer 1: Textured Material White, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-028	06/27/15	4355B-G-28	S Floor		
Layer 1: Ceramic Tile Beige, Hard				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Grout Brown, Granular				None Detected	100% NON FIBROUS MATERIAL
134083-029	06/27/15	4355B-E-29	E Ceiling		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	40% CELLULOSE FIBER 10% FOAMED GLASS 40% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134083-030	06/27/15	4355B-E-30	E Ceiling		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	45% CELLULOSE FIBER 15% FOAMED GLASS 35% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
134083-031	06/27/15	4355B-E-31	NW Ceiling		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	45% CELLULOSE FIBER 5% FOAMED GLASS 45% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-032	06/27/15	4355B-J-32	NW Wall		
Layer 1: Mastic Yellow, Brittle				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134083-033	06/27/15	4355B-J-33	NW Wall		
Layer 1: Mastic Yellow, Brittle				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134083-034	06/27/15	4355B-K-34	W Wall		
Layer 1: Sealant Gray, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-035	06/27/15	4355B-I-35	N Ceiling		
Layer 1: Insulation Pink, Fibrous				None Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
Layer 2: Insulation Cover White/Silver, Fibrous				None Detected	40% CELLULOSE FIBER 20% METAL FOIL 30% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134083-036	06/27/15	4355B-K-36	N Wall		
Layer 1: Sealant Gray, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-037	06/27/15	4355B-K-37	E Wall		
Layer 1: Sealant Gray, Soft				None Detected	100% NON FIBROUS MATERIAL
134083-038	06/27/15	4355B-L-38	SE Exhaust		
Layer 1: Mastic Black/Silver, Bituminous/Brittle				None Detected	8% CELLULOSE FIBER 92% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134083-039	06/27/15	4355B-I-39	E Ceiling		
Layer 1: Insulation Pink, Fibrous				None Detected	95% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
Layer 2: Insulation Cover White/Silver, Fibrous				None Detected	40% CELLULOSE FIBER 15% METAL FOIL 35% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-040	06/27/15	4355B-ML-40	SW Exhaust		
Layer 1: Sealant White/Gray/Black, Bituminous/Brittle				4% CHRYSOTILE	6% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134083-041	06/27/15	4355B-M-41	SW Roof		
Layer 1: Roof Shingle Black/Gray, Bituminous/Granular				None Detected	20% MINERAL/GLASS WOOL 80% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
Layer 2: Mastic Black, Bituminous				None Detected	100% NON FIBROUS MATERIAL
134083-042	06/27/15	4355B-N-42	SW Wall		
Layer 1: Shingle/Mastic Black/Gray, Bituminous/Granular				6% CHRYSOTILE	2% CELLULOSE FIBER 10% MINERAL/GLASS WOOL 82% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-043	06/27/15	4355B-N-43	E Wall		
Layer 1: Shingle/Mastic Black/Gray, Bituminous/Granular				8% CHRYSOTILE	2% CELLULOSE FIBER 15% MINERAL/GLASS WOOL 75% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-044	06/27/15	4355B-L-44	E Roof Entrance		
Layer 1: Mastic Black/Gray, Bituminous				None Detected	10% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134083-045	06/27/15	4355B-M-45	E Roof		
Layer 1: Shingle/Mastic Black, Bituminous/Granular				None Detected	10% MINERAL/GLASS WOOL 90% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-046	06/27/15	4355B-M-46	NE Roof		
Layer 1: Shingle/Mastic Black, Bituminous/Granular				None Detected	15% MINERAL/GLASS WOOL 85% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-047	06/27/15	4355B-N-47	NE Roof		
Layer 1: Shingle/Mastic Black/Gray, Bituminous/Granular				8% CHRYSOTILE	12% MINERAL/GLASS WOOL 80% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134083-048	06/27/15	4355B-L-48	NE Roof		
Layer 1: Mastic Black/Gray, Bituminous/Granular				6% CHRYSOTILE	4% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134083-049	06/27/15	4355B-L-49	NW Roof		
Layer 1: Mastic Black/Gray, Bituminous/Granular				5% CHRYSOTILE	4% CELLULOSE FIBER 91% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134083-050	06/27/15	4355B-M-50	NW Roof		
Layer 1: Shingle/Mastic Black, Bituminous/Granular				None Detected	10% MINERAL/GLASS WOOL 90% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-051	06/27/15	4355B-N-51	NW Roof		
Layer 1: Shingle/Mastic Black/Gray, Bituminous/Granular				6% CHRYSOTILE	9% MINERAL/GLASS WOOL 85% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-052	06/27/15	4355B-M-52	SE Roof		
Layer 1: Shingle/Mastic Black, Bituminous/Granular				None Detected	12% MINERAL/GLASS WOOL 88% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-053	06/27/15	4355B-N-53	SE Roof		
Layer 1: Shingle/Mastic Black/Gray, Bituminous/Granular				6% CHRYSOTILE	12% MINERAL/GLASS WOOL 82% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134083-054	06/27/15	4355B-I-54	W Wall		
Layer 1: Concrete Gray, Granular				None Detected	100% NON FIBROUS MATERIAL

Analyst: Hashim, Reel
134083-07/01/15 06:21 PM

Reviewed By: **John Wilson**
Analyst

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	Commerical Building = 23,500 sq./ft 435 Serramonte Boulevard Colma CA. 94014

KELLCO Services JOB# **1506-10** LAB LOGIN #

COLLECTED BY: Derek

COLLECTED DATE 6.27.15

TURN AROUND TIME: Normal TAT 4 8 24 48 5-DAY

RESULTS NEEDED BY

134083

V:\134\134083

CIRCLE TYPE OF BULK ANALYSIS

PLM LEAD PAINT LEAD WIPE NON VIABLE MOLD VIABLE MOLD eCOLI OTHER

SAMPLES REC'D ANALYZE TO FIRST POSITIVE YES NO

REPORT RESUL
PROJECT MAN

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 1 OF

KELLCO Services JOB#: **1506-10**
Commerical Building = 23,500 sq./ft

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
4355B-B-01	Warehouse #2 - storage	wht	texture	NW-Wall at entrance
C-02		green/blk	12x12 VFT / mastic	NW floor at entrance
D-03			cove base mastic	" "
C-04		green/blk	12x12 VFT / mastic	South floor
C-05		"	" "	E. floor @ 500 sq/ft
A-06	" - Mezzanine	wht	wallboard / TJC	E. wall
I-07	" "	pink	insulation	W. ceiling
A-08	- Break room	wht	wallboard / TJC	NW wall at entrance
F-09	" - "	yell/beige	12x12 VFT / mastic	NW wall at entrance

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Dat Col	6.27.15		T. Wart	7-1-15	10:00

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 2 OF ____

KELLCO Services JOB#: **1506-10**
Commerical Building = 23,500 sq./ft

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
43558-D-10	warehouse #2 - break room	yell	cove base mastic	NW wall at entrance
B-11		wht	texture	E. wall
F-12		yell/beige	12x12 VFT / mastic	E. floor
F-13		"	" "	W. floor
A-14	- restroom/blockers	wht	Wallboard / TJC	N. ceiling
G-15		beige/grey	16"x16" ceramic tile/grout	SE floor
I-16		grey	concrete	E. wall
B-17	warehouse #2	wht	Texture	W. wall
I-18		grey	concrete	"
B-19	warehouse #1	wht	texture	E. wall
B-20			"	W. wall
A-21			wallboard / TJC	NW wall
A-22	office #1	wht	"	NE wall
D-23			cove base mastic	" "
B-24			Texture	" "
G-25	corridor	beige/brown	16"x16" ceramic tile/grout	E. floor
A-26	office #4	wht	wallboard / TJC	S.E. wall
B-27			texture	" "

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Dut Cole	6.27.15		T. Ware	7-1-15	

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 3 OF ____

KELLCO Services JOB#: **1506-10**
Commerical Building = 23,500 sq./ft

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
+35SB-G-28	Office #4	beige/brown	16"x16" ceramic tile/grout	S. floor
E-29	Corridor	wht	2x4 drop-in ceiling tile	E. ceiling
E-30	Office #5	"	" "	E. ceiling
E-31	Cubicles Area	"	" "	NW ceiling
J-32	Men's restroom	yell	Panel mastic	NW wall
J-33	Women's restroom	"	"	" "
K-34	~~Sealant~~ - Exterior Wall	grey	~~H~~ Sealant	West wall
I-35	Warehouse II - Megzanine	pink	insulation	N. ceiling
K-36	Exterior wall	grey	Sealant	N. wall
K-37	" "	"	"	E. wall
L-38	Roof - mastic	blk	penetration mastic	SE. Exhaust
I-39	Warehouse II - Megzanine	pink	insulation	E. ceiling
~~M~~-40	Roof - mastic	grey/blk	penetration mastic	SW. exhaust
M-41	Roof - field	" "	rolled shingle/mastic	" roof
N-42	Roof - parapet wall	" "	" "	SW wall
N-43	" "	" "	" "	E. wall
L-44	Roof - mastic	grey	penetration mastic	E. Roof (antenna)
M-45	Roof - field	grey/blk	rolled shingle/mastic	E. Roof

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6.27.15		To Waste	7-1-15	

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 4 OF ____

KELLCO Services JOB#: **1506-10**
Commerical Building = 23,500 sq./ft

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
43558-M-46	Roof - Field	blk/grey	rolled shingle / mastic	NE roof
N - 47	- parapet wall	" "	" "	" "
L - 48	- mastic	grey	penetration mastic	" "
L - 49	- mastic	grey	Mastic	NW roof
M - 50	- field	blk/grey	rolled shingle / mastic	NW roof
N - 51	- parapet wall	" "	" "	" "
M - 52	- field	"	" "	SE Roof
N - 53	- parapet wall	"	" "	" "
I - 54	Exterior wall	grey	concrete	W. wall
55				
56				
57				
58				
59				
60				
61				
62				
63				

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[signature]	6.27.15				

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Attn:

Project: 435 Serramonte Boulevard
Location: Colma, CA
Number: 1506-10

Order #: 134079

Matrix Bulk
Received 07/01/15
Analyzed 07/01/15
Reported 07/01/15

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Sample Date	Weight / Total µg	% / Wt.	Conc.	RL*
134079-004	435-Pb-04	Lobby Floor Beige	06/27/15	545 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00184 %	<18.4 mg/kg	18.3 mg/kg
134079-007	435-Pb-07	Ext Wall Gray	06/27/15	548 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00183 %	<18.3 mg/kg	18.2 mg/kg

Analyst: IH
134079-07/01/15 03:39 PM

Reviewed By: **Sultan Al-Johani**
Analyst

*Reporting Limit. All internal QC parameters were met. Concentration and Reporting Limit (RL) based on areas provided by client. Unusual sample conditions, if any, are described. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Attn:

Project: 435 Serramonte Boulevard
Location: Colma, CA
Number: 1506-10

Order #: 134079

Matrix Paint
Received 07/01/15
Analyzed 07/01/15
Reported 07/01/15

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Sample Date	Weight / Total µg	% / Wt.	Conc.	RL*
134079-001	435-Pb-01	Int Wall Wht/Cream	06/27/15	302 mg			
Lead		EPA 7000B / 3050B		22.6 µg	0.00748 %	74.8 mg/kg	33.1 mg/kg
134079-002	435-Pb-02	Pole Brown/Wht	06/27/15	344 mg			
Lead		EPA 7000B / 3050B		1220 µg	0.354 %	3540 mg/kg	145 mg/kg
134079-003	435-Pb-03	Floor Gray	06/27/15	338 mg			
Lead		EPA 7000B / 3050B		22.6 µg	0.00668 %	66.8 mg/kg	29.6 mg/kg
134079-005	435-Pb-05	Lobby Door Frames Blue	06/27/15	300 mg			
Lead		EPA 7000B / 3050B		17.1 µg	0.00571 %	57.1 mg/kg	33.3 mg/kg
134079-006	435-Pb-06	Ext Wall Grey/Cream/Grn	06/27/15	302 mg			
Lead		EPA 7000B / 3050B		26.2 µg	0.00868 %	86.8 mg/kg	33.1 mg/kg

Analyst: IH
134079-07/01/15 03:28 PM

Reviewed By: **Sultan Al-Johani**
Analyst

Minimum reporting limit: 10.0 µg. Lead Based Paint contains 0.5% lead by weight per Federal statute. The OSHA Lead in Construction Standard, 29 CFR 1926.62, is invoked if any lead is present in the sample. Concentration and *Reporting Limit (RL) based on weights provided by client. All internal QC parameters were met. Unusual sample conditions, if any, are described. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Attn:

Project: 435 Serramonte Boulevard
Location: Colma, CA
Number: 1506-10

Order #: 134079

Matrix Paint
Received 07/01/15
Analyzed 07/01/15
Reported 07/01/15

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Sample Date	Weight / Total µg	% / Wt.	Conc.	RL*
134079-001	435-Pb-01	Int Wall Wht/Cream	06/27/15	302 mg			
Lead		EPA 7000B / 3050B		22.6 µg	0.00748 %	74.8 mg/kg	33.1 mg/kg
134079-002	435-Pb-02	Pole Brown/Wht	06/27/15	344 mg			
Lead		EPA 7000B / 3050B		1220 µg	0.354 %	3540 mg/kg	145 mg/kg
134079-003	435-Pb-03	Floor Gray	06/27/15	338 mg			
Lead		EPA 7000B / 3050B		22.6 µg	0.00668 %	66.8 mg/kg	29.6 mg/kg
134079-005	435-Pb-05	Lobby Door Frames Blue	06/27/15	300 mg			
Lead		EPA 7000B / 3050B		17.1 µg	0.00571 %	57.1 mg/kg	33.3 mg/kg
134079-006	435-Pb-06	Ext Wall Grey/Cream/Grn	06/27/15	302 mg			
Lead		EPA 7000B / 3050B		26.2 µg	0.00868 %	86.8 mg/kg	33.1 mg/kg

Analyst: IH
134079-07/01/15 03:28 PM

Reviewed By: **Sultan Al-Johani**
Analyst

Minimum reporting limit: 10.0 µg. Lead Based Paint contains 0.5% lead by weight per Federal statute. The OSHA Lead in Construction Standard, 29 CFR 1926.62, is invoked if any lead is present in the sample. Concentration and *Reporting Limit (RL) based on weights provided by client. All internal QC parameters were met. Unusual sample conditions, if any, are described. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	Commerical Building = 23,500 sq./ft 435 Serramonte Boulevard Colma CA. 94014

KELLCO Services JOB# **1506-10** LAB LOGIN #_____

COLLECTED BY: Derrik

COLLECTED DATE 6.27.15

TURN AROUND TIME: Normal TAT 4 8 (24) 48 5-DAY

RESULTS NEEDED BY

CIRCLE TYPE OF BULK ANALYSIS

PLM (LEAD PAINT) LEAD WIPE NON VIABLE MOLD VIABLE MOLD eCOLI OTHER_____

SAMPLES REC'D _____ ANALYZE TO FIRST POSITIVE YES NO

REPORT RESULTS TO PROJECT MANAGER: Tim Cannard

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE_____ OF ____

KELLCO Services JOB#: **1506-10**
Commerical Building = 23,500 sq./ft

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.
+35 - Pb - 01	Warehouse - interior wall	wht/cream	paint on concrete	
Pb - 02	- poles	brown blk wht	paint on metal	
Pb - 03	- floor	gray	paint on concrete	
Pb - 04	Lobby - floor	beige	ceramic tile (16"x16")	
Pb - 05	" - door frames	blue	paint on wood	
Pb - 06	Exterior - wall	gray/cream green	paint on concrete	
Pb - 07	" "	gray	sealant	
08				
09				

134079
V:\134\134079

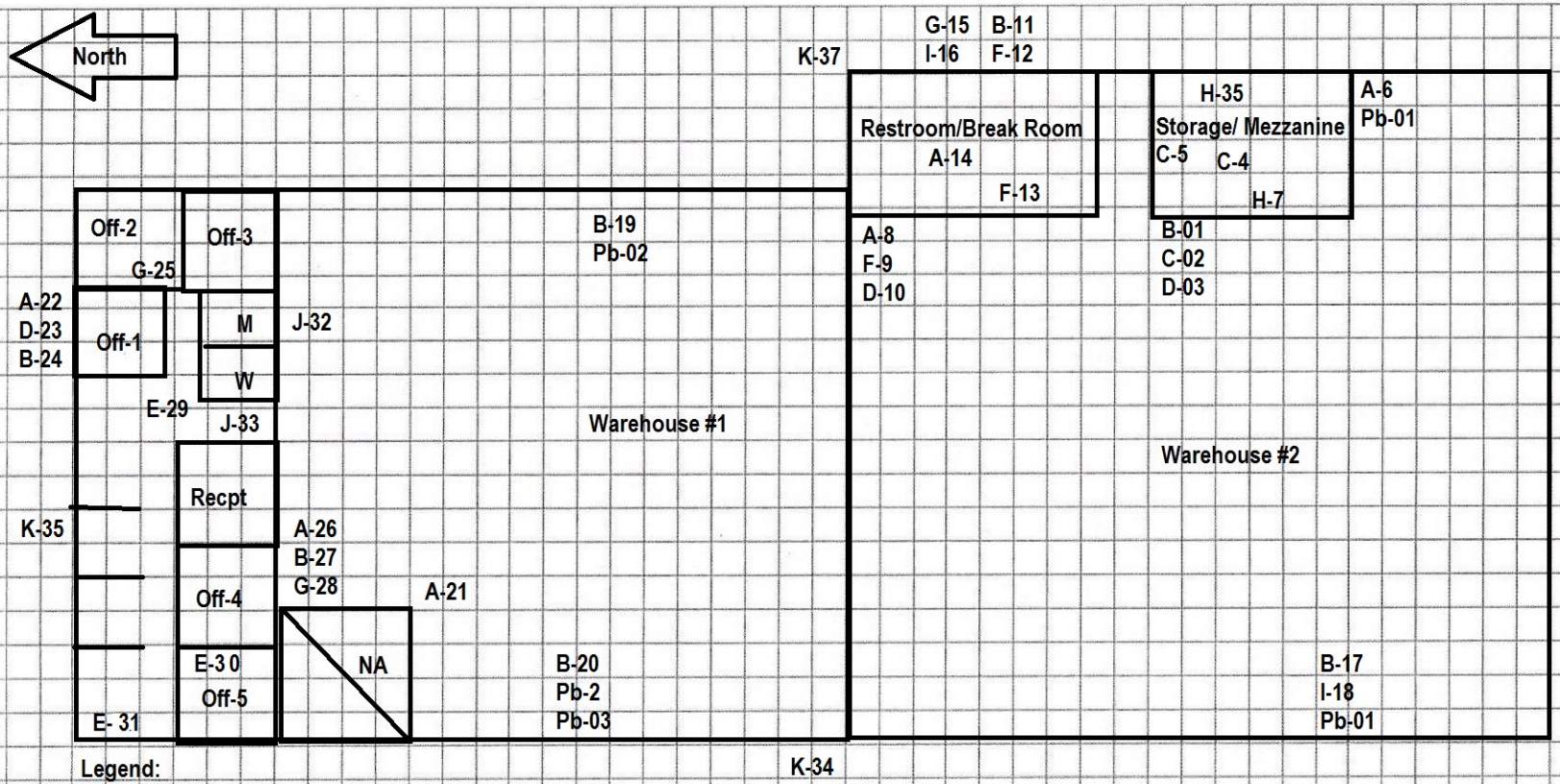
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6.27.15		T. Wart	7-1-15	1030

9306

KELLCO Job # 1506-10
Client: ENGEO Inc.

Jobsite: 435 Serramonte Blvd.

K E L L C O



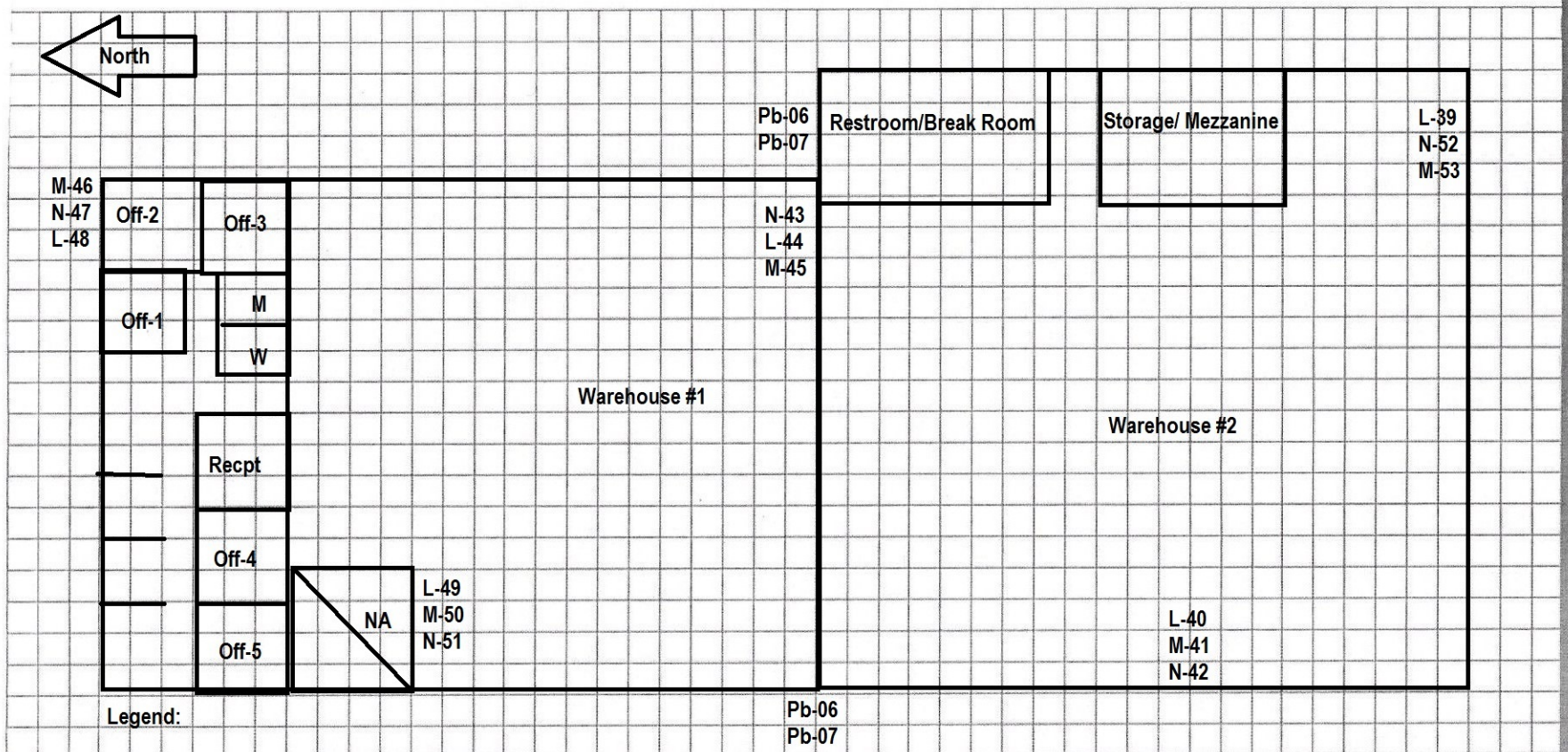
Legend:

A- Wallboard/ TJC	F- 12x12 VFT (beige) & Mastic	L- Penetration (mastic)
B- Texture	G- Ceramic Tile (16"x16")	M- Roof Field
C- 12x12 VFT & Mastic	H- Fiberglass Insulation	N- Parapet Wall
D- Cove Base Mastic	I- Concrete	
E- 2x4 Ceiling Tile	J- Panel Mastic	

KELLCO Job # 1506-10
Client: ENGEO Inc.

Jobsite: 435 Serramonte Blvd.

K E L L C O



Legend:

A- Wallboard/ TJC

B- Texture

C- 12x12 VFT & Mastic

D- Cove Base Mastic

E- 2x4 Ceiling Tile

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G- Ceramic Tile (16"x16")

H- Fiberglass Insulation

I- Concrete

J- Panel Mastic

L- Penetration (mastic)

M- Roof Field

N- Parapet Wall

35SB-C-2

435SB-C-5

435SB-B-1

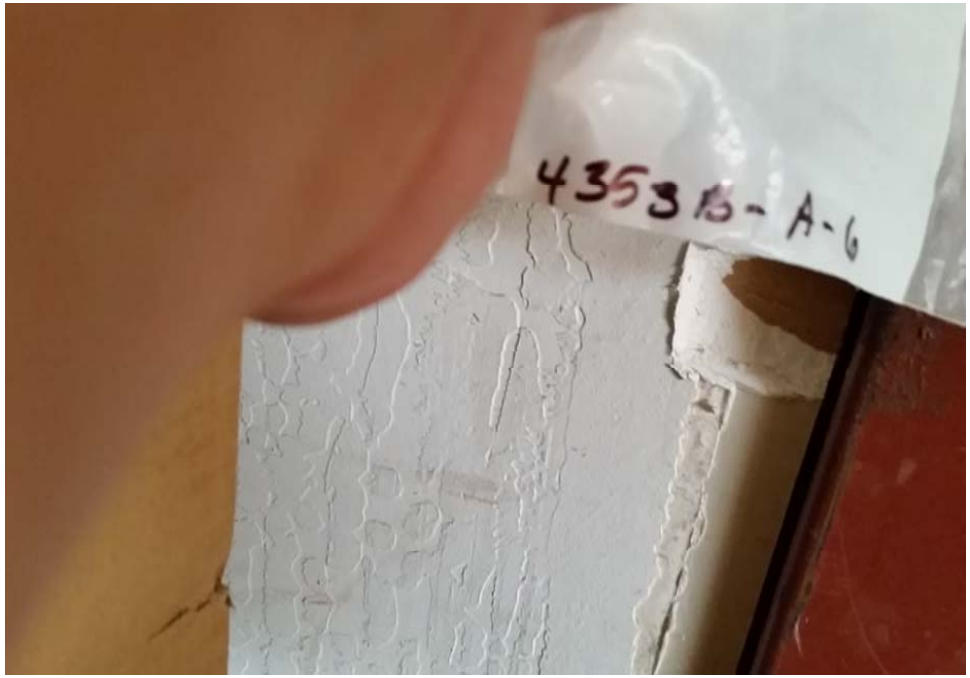
435SB-D-3

Tong Yang

435SB-C-4

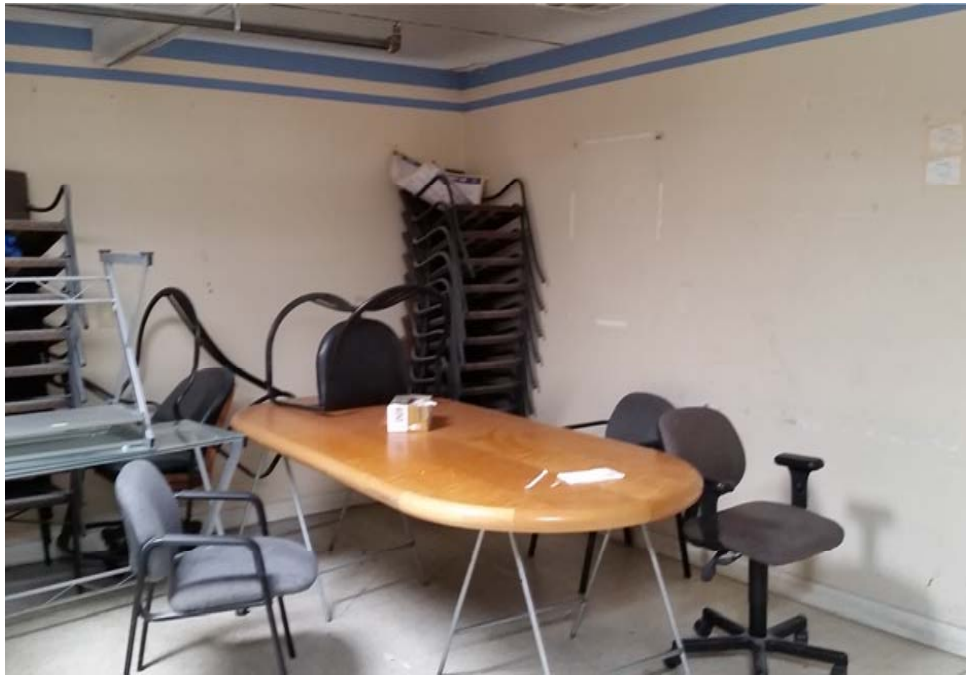
43558-I-7

43558-F-9

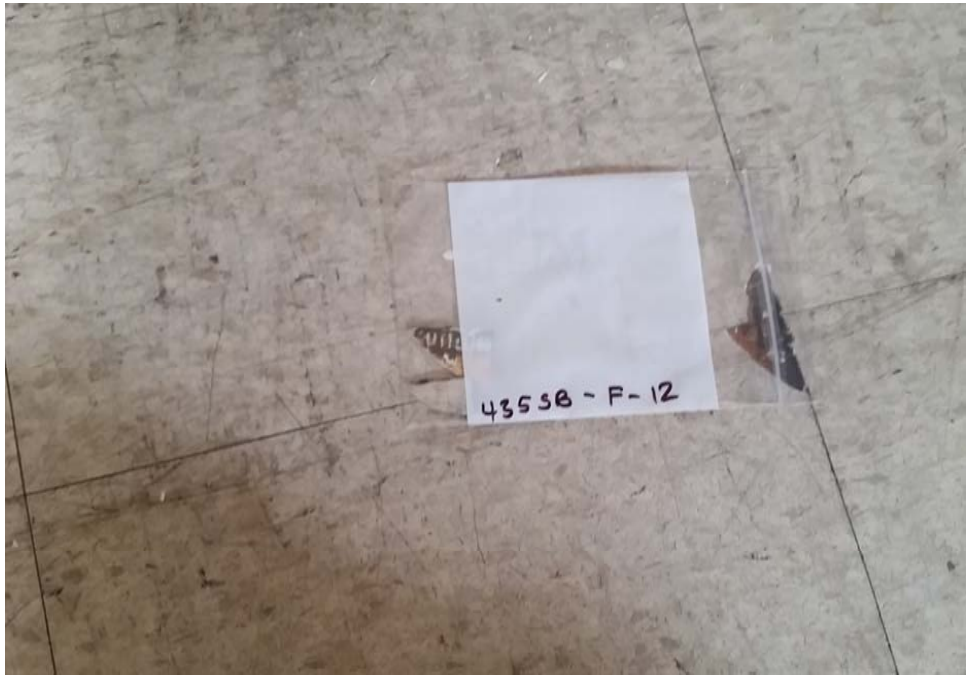

43558-A-6

43558-A-8

4355B - B - 11



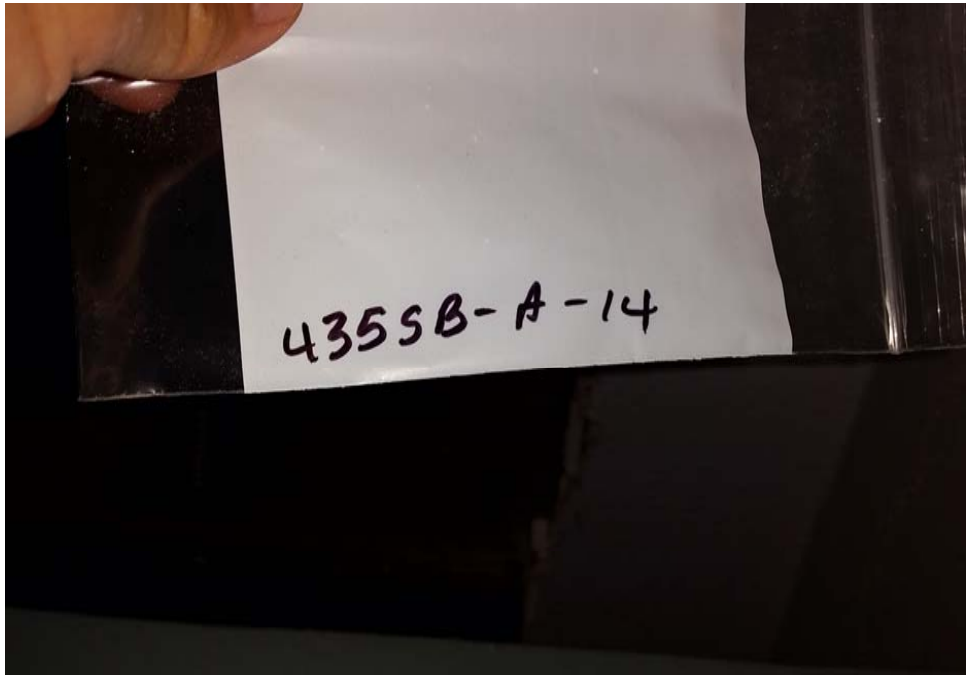
4355B - D - 10


4355B - F - 12

43558-F-13

435 SB- G-15

435 SB-B-17


435SB-A-14

435SB-I-16

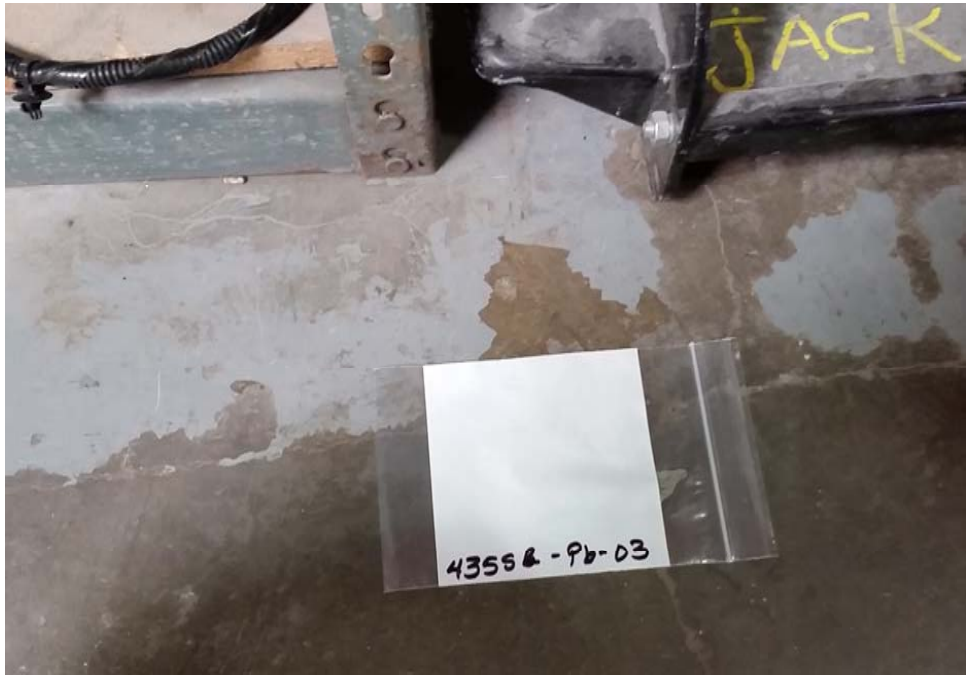
435SB-B-19

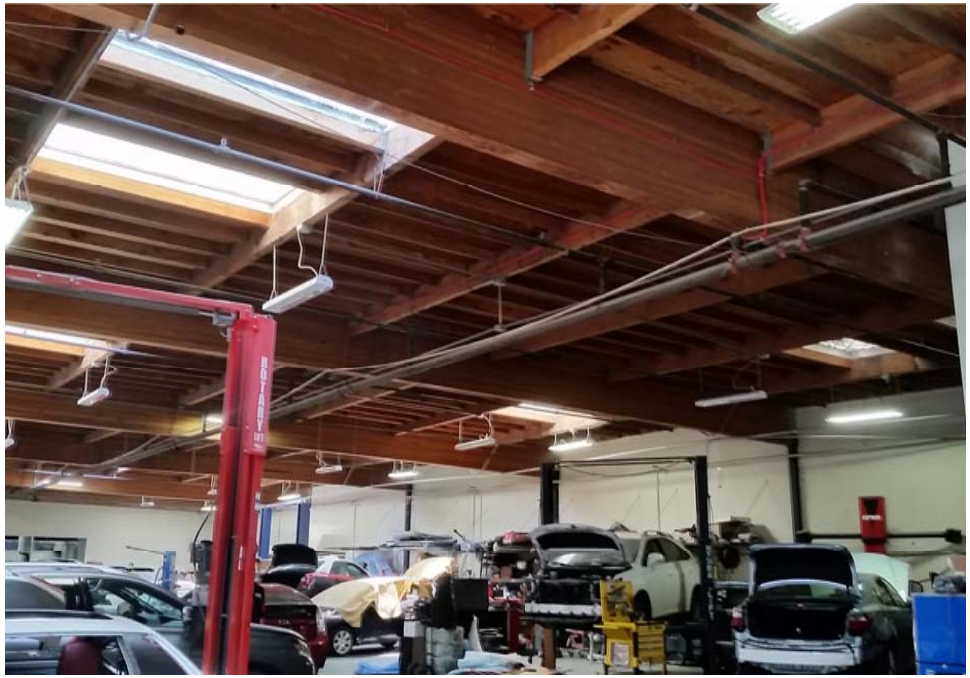
435SB-B-20

435SB-I-18

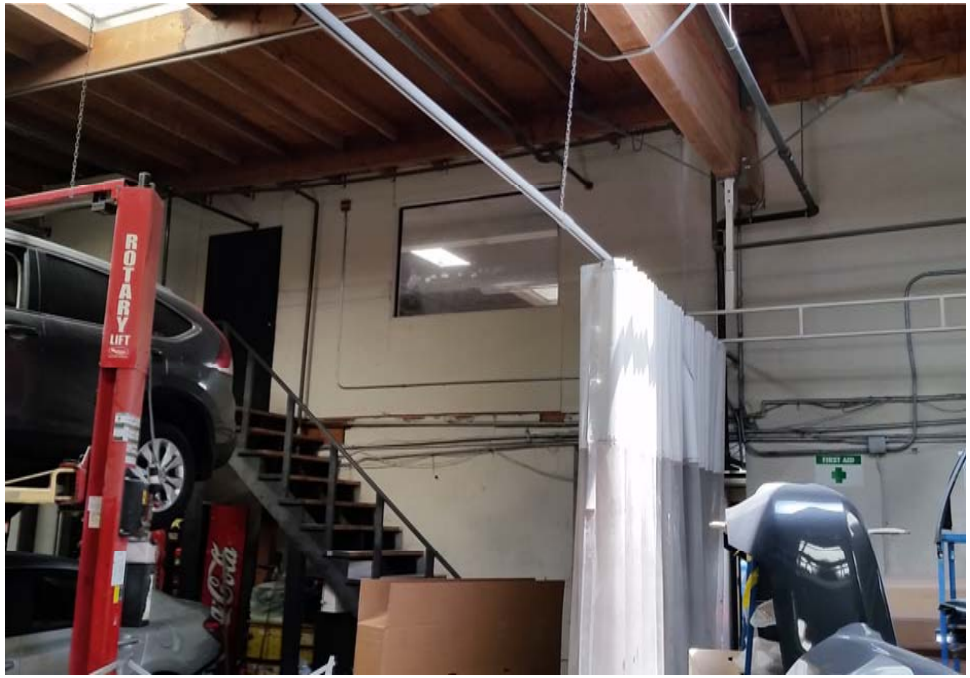
435SB-Pb-2

4355B - A - 21


JACK
4355B - Pb - 03

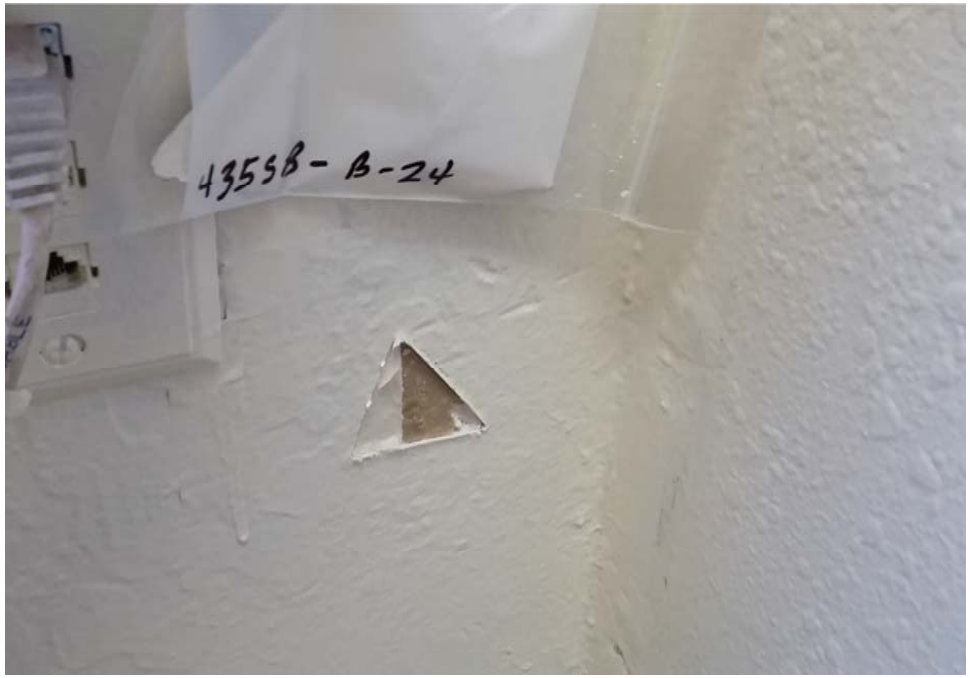

BOTARY

13
BOTARY


ROTARY
LIFT
FIRST AID

435 56-A-22

EXIT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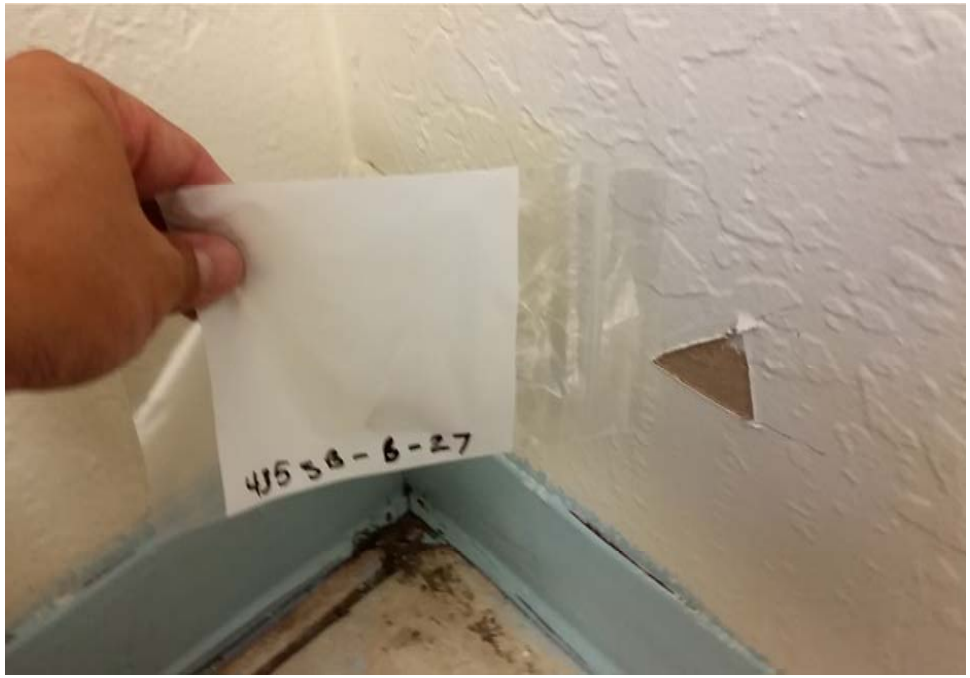
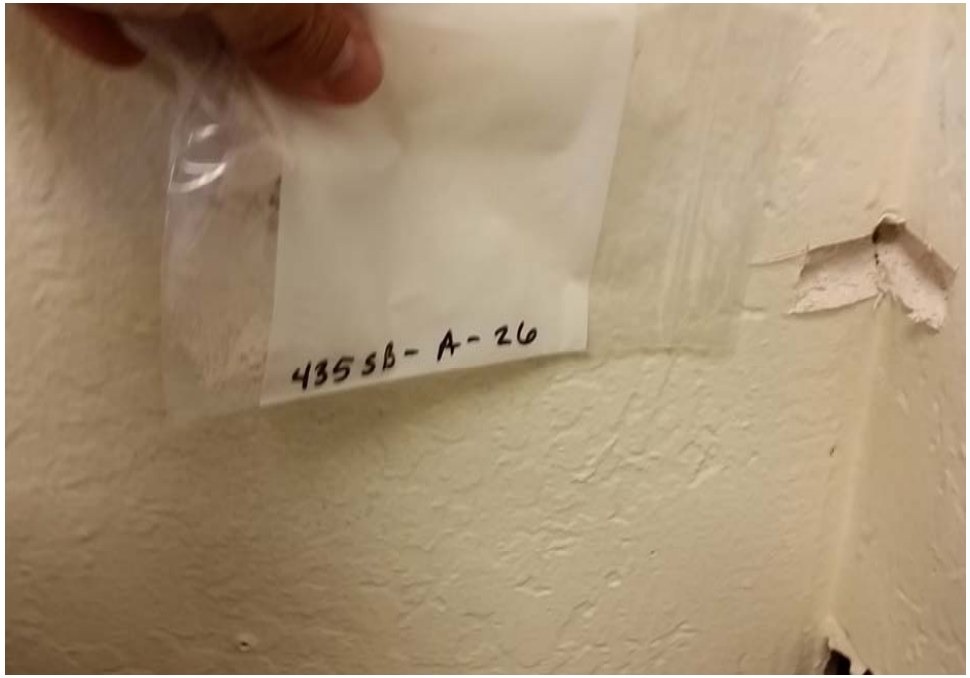
4355B-Pb-04

4355B-D-23

4355B-G-25

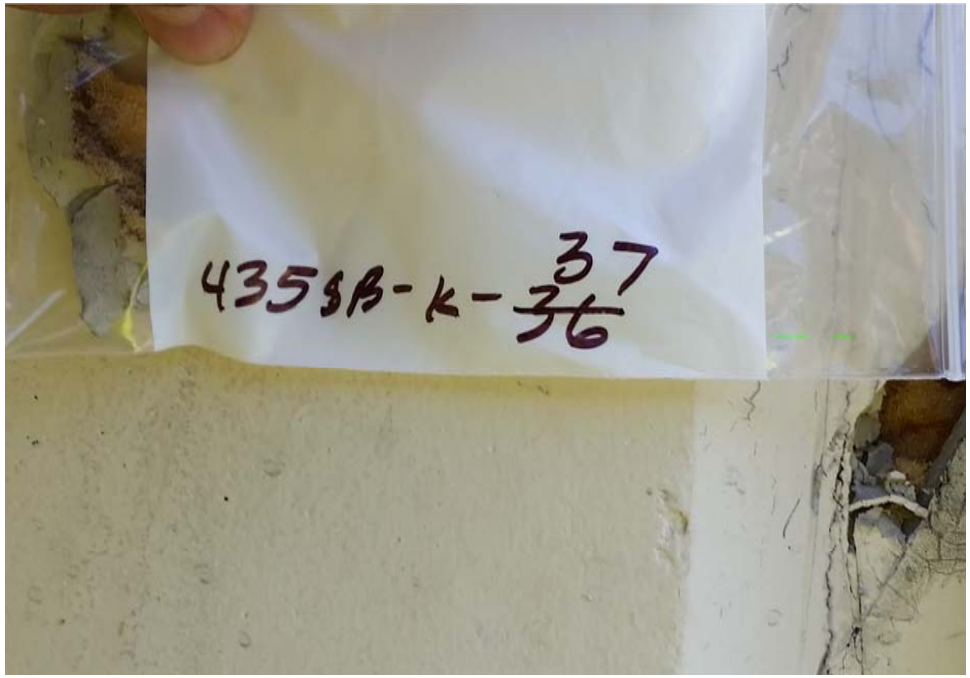

435 SB - B - 27

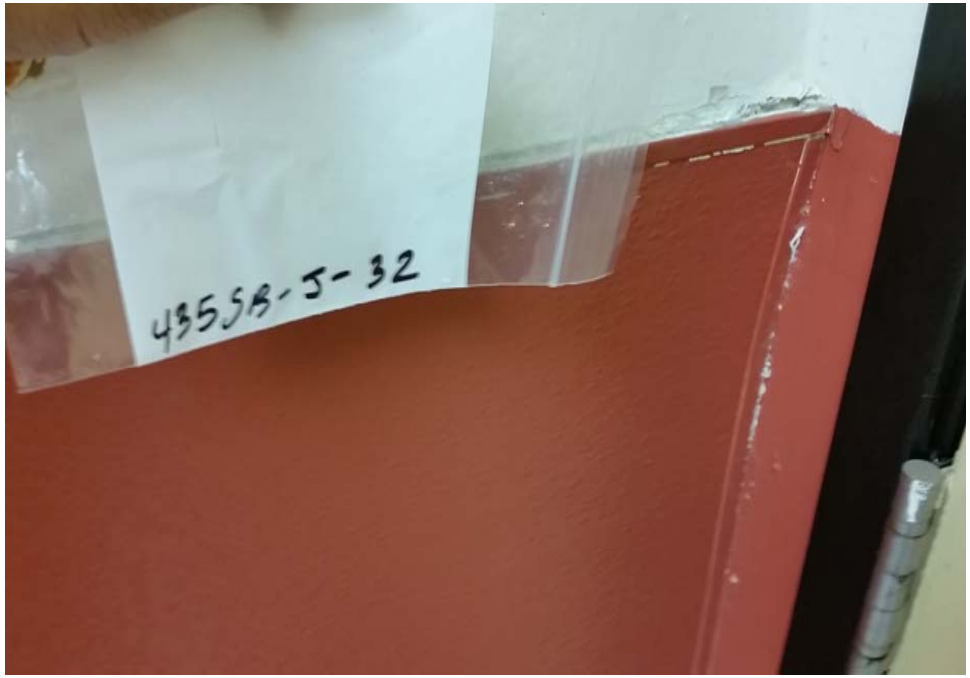
435 SB - E - 29


435 SB - A - 26

435 SB - G - 28

435SB-K-34


435SB-K-37


435SB-J-32

435SB-K-36

435SB-L-40

435SB-N-42

435SB-L-38

435SB-M-41

435SB-L-44

435SB-M-46

435SB-N-43

435SB-M-45

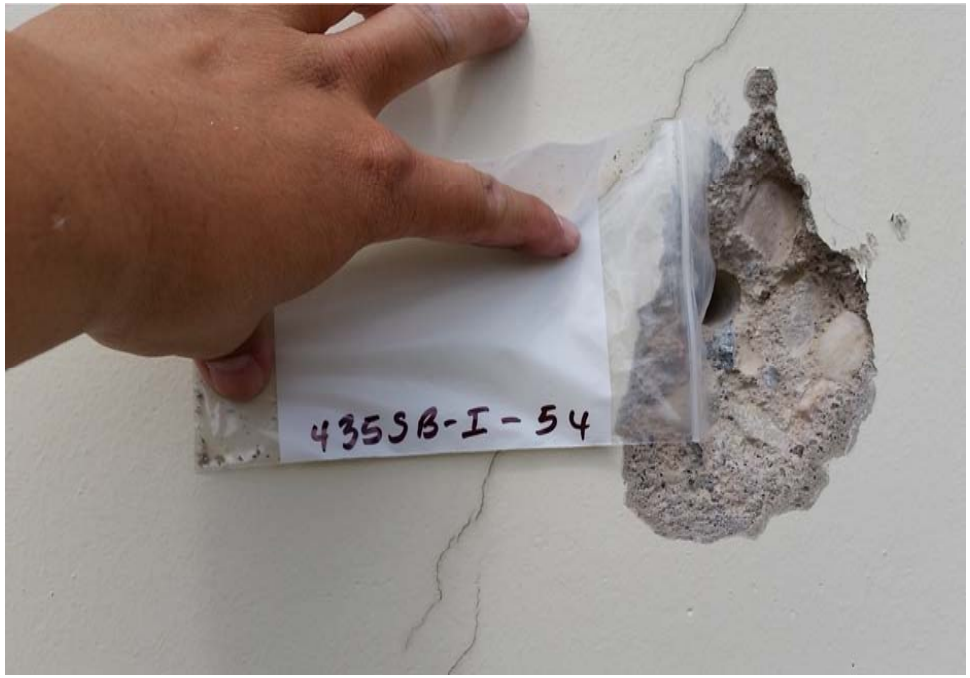
435SB-L-48

435SB-M-50

435SB-N-47

435SB-L-49

435SB-M-52


435SB-I-54

435SB-N-51

435SB-N-53

OPEN
BMW
PORSCHE

Collision
435
DE SERRAMONTE

4VCS426

445 SERRAMONTE BOULEVARD

Commercial Building 25,000 sq./ft.
445 Serramonte Boulevard
Colma, CA 94014

KELLCO Job #1506-11

Pre-Demolition
Asbestos and Lead Inspection Report

for

ENGEO, Inc.
2010 Crow Canyon Place
Suite #250
San Ramon, CA 94583

July 17, 2015 Revised

3137 Diablo Avenue • Hayward, CA 94545-2701• (510) 786-9751 • fax (510) 786-9625
http://www.kellco.com •: mailbox3137@kellco.co

Pre-Demolition
Asbestos and Lead Paint Inspection Report

Date:	July 17, 2015 - Revised
KELLCO Job #:	1506-11
Client:	ENGEO Inc. 2010 Crow Canyon Place Suite #250 San Ramon, CA 94583
Location:	445 Serramonte Boulevard Colma, CA 94014
Date of Inspection:	June 24, 2015
Inspectors:	Frank Valerga CAC #14-5279, CDPH Lead #21965
Lab Reports:	134056, 134057
Description Of The Inspected Area:	The inspection was conducted on the interior and exterior of a single story commercial building located in Colma, California. The interior has floor tile, floor tile mastic, vinyl flooring/mastic, carpet, carpet padding on the floors. There is gypsum wallboard, tape, joint compound, texture and floor tile one the walls. The ceiling has acoustical ceiling tiles on the ceiling. The exterior has wood siding and corrugated metal on the walls. The roofing is rolled asphalt shingle, gravel and tar over felt.

Background

This is a pre-demolition asbestos and lead inspection located in Colma, California.

Synopsis

Asbestos was found in the following materials;

- Roofing Tar

Lead paint was **NOT** found in the tested materials.

Fluorescent lights, fluorescent fixture ballasts and thermostats may contain PCB's and mercury.

About the Inspection

The inspection performed was both visual and tactile. Samples were taken of suspect materials located at the interior and exterior of the survey area.

The inspection was a reasonable attempt to find suspect materials that were hidden within walls, behind structures, in vertical shafts or in areas not normally accessible. If any non-sampled materials are uncovered, these should be submitted for asbestos and/or lead paint analysis.

- ***Asbestos Findings***

Asbestos samples were analyzed in Schneider Laboratories Global by Polarized Light Microscopy, the EPA's recommended method. Copies of the full laboratory reports are attached. These valuable reports can be utilized as future reference to determine if a particular material was tested.

Photographs of sampled materials are included. Sample locations are noted on the attached not-to-scale drawing.

The determination of a material to be Asbestos Containing Material (ACM) was made either by direct sampling or by homogeneity with at least one positive sample of the same material.

Materials that tested **positive** for asbestos are:

LAB #	FIELD #	FIELD DESCRIPTION	LAYER #	LAYER NAME	ASBESTOS %
134057-044	44	Roofing Tar	1	Roof Tar	6% CHRYSOTILE
134057-045	45	Roofing Tar	1	Roof Tar	4% CHRYSOTILE
134057-046	46	Roofing Tar	1	Roof Tar	5% CHRYSOTILE

Samples that have less than 10% asbestos can be submitted for further analysis by the Point Count method as described elsewhere in this document. If the Point Count method determines that the material contains less than 1% asbestos, these materials can be disposed of as non-hazardous asbestos containing construction waste.

Tested materials that were **none detected** for asbestos are:

LAB #	FIELD #	FIELD DESCRIPTION	LAYER #	LAYER NAME
134057-001	01	Drywall	1	Drywall
134057-001	01	Drywall	2	Tape
134057-001	01	Drywall	3	Joint Compound
134057-002	02	Drywall	1	Drywall
134057-002	02	Drywall	2	Tape
134057-002	02	Drywall	3	Joint Compound
134057-003	03	Drywall	1	Drywall
134057-003	03	Drywall	2	Tape
134057-003	03	Drywall	3	Joint Compound

LAB #	FIELD #	FIELD DESCRIPTION	LAYER #	LAYER NAME
134057-004	04	Drywall	1	Drywall
134057-004	04	Drywall	2	Tape
134057-004	04	Drywall	3	Joint Compound
134057-005	05	Drywall	1	Drywall
134057-005	05	Drywall	2	Tape
134057-005	05	Drywall	3	Joint Compound
134057-006	06	Drywall	1	Drywall
134057-006	06	Drywall	2	Tape
134057-006	06	Drywall	3	Joint Compound
134057-007	07	Drywall	1	Drywall
134057-007	07	Drywall	2	Tape
134057-007	07	Drywall	3	Joint Compound
134057-008	08	Floor Tile & Mastic	1	Floor Tile
134057-008	08	Floor Tile & Mastic	2	Mastic
134057-009	09	Floor Tile & Mastic	1	Floor Tile
134057-009	09	Floor Tile & Mastic	2	Mastic
134057-010	10	Floor Tile & Mastic	1	Floor Tile
134057-010	10	Floor Tile & Mastic	2	Mastic
134057-011	11	Floor Tile & Mastic	1	Floor Tile
134057-011	11	Floor Tile & Mastic	2	Mastic
134057-012	12	Floor Tile & Mastic	1	Floor Tile
134057-012	12	Floor Tile & Mastic	2	Mastic
134057-013	13	Floor Tile & Mastic	1	Floor Tile
134057-013	13	Floor Tile & Mastic	2	Mastic
134057-014	14	Rubber Baseboard & Mastic	1	Baseboard
134057-014	14	Rubber Baseboard & Mastic	2	Baseboard Mastic
134057-015	15	Rubber Baseboard & Mastic	1	Baseboard
134057-015	15	Rubber Baseboard & Mastic	2	Baseboard Mastic
134057-016	16	Rubber Baseboard & Mastic	1	Baseboard
134057-016	16	Rubber Baseboard & Mastic	2	Baseboard Mastic
134057-017	17	Rubber Baseboard & Mastic	1	Baseboard
134057-017	17	Rubber Baseboard & Mastic	2	Baseboard Mastic
134057-018	18	Rubber Baseboard & Mastic	1	Baseboard
134057-018	18	Rubber Baseboard & Mastic	2	Baseboard Mastic

LAB #	FIELD #	FIELD DESCRIPTION	LAYER #	LAYER NAME
134057-019	19	Rubber Baseboard & Mastic	1	Baseboard
134057-019	19	Rubber Baseboard & Mastic	2	Baseboard Mastic
134057-020	20	Ceiling Tile Break Room	1	Ceiling Tile
134057-021	21	Ceiling Tile Break Room	1	Ceiling Tile
134057-022	22	Ceiling Tile Break Room	1	Ceiling Tile
134057-023	23	Ceiling Tile Customer	1	Ceiling Tile
134057-024	24	Ceiling Tile Customer	1	Ceiling Tile
134057-025	25	Ceiling Tile Customer	1	Ceiling Tile
134057-026	26	Carpet & Mastic	1	Carpet
134057-026	26	Carpet & Mastic	2	Carpet Mastic
134057-027	27	Carpet & Mastic	1	Carpet
134057-027	27	Carpet & Mastic	2	Carpet Mastic
134057-028	28	Carpet & Mastic	1	Carpet
134057-028	28	Carpet & Mastic	2	Carpet Mastic
134057-029	29	Carpet & Mastic	1	Carpet
134057-029	29	Carpet & Mastic	2	Carpet Mastic
134057-030	30	Carpet & Mastic	1	Carpet
134057-030	30	Carpet & Mastic	2	Carpet Mastic
134057-031	31	Carpet & Mastic	1	Carpet
134057-031	31	Carpet & Mastic	2	Carpet Mastic
134057-032	32	Floor Tile & Mastic	1	Floor Tile
134057-032	32	Floor Tile & Mastic	2	Mastic
134057-033	33	Floor Tile & Mastic	1	Floor Tile
134057-033	33	Floor Tile & Mastic	2	Mastic
134057-034	34	Floor Tile & Mastic	1	Floor Tile
134057-034	34	Floor Tile & Mastic	2	Mastic
134057-035	35	Floor Tile & Mastic	1	Floor Tile
134057-035	35	Floor Tile & Mastic	2	Mastic
134057-036	36	Floor Tile & Mastic	1	Floor Tile
134057-036	36	Floor Tile & Mastic	2	Mastic
134057-037	37	Floor Tile & Mastic	1	Floor Tile
134057-037	37	Floor Tile & Mastic	2	Mastic
134057-038	38	Concrete & Cement	1	Concrete
134057-039	39	Concrete & Cement	1	Concrete
134057-040	40	Concrete & Cement	1	Concrete
134057-041	41	Roofing Shingles	1	Roof Shingle
134057-042	42	Roofing Shingles	1	Roof Shingle
134057-043	43	Roofing Shingles	1	Roof Shingle
134057-047	47	Roofing Shingles	1	Roof Shingle
134057-048	48	Roofing Shingles	1	Roof Shingle
134057-049	49	Roofing Shingles	1	Roof Shingle
134057-050	50	Ducting Wrap Tape	1	Tape

LAB #	FIELD #	FIELD DESCRIPTION	LAYER #	LAYER NAME
134057-051	51	Ducting Wrap Tape	1	Tape
134057-052	52	Ducting Wrap Tape	1	Tape

- ***Paint Findings***

Lead samples were analyzed by Atomic Absorption in Schneider Laboratories Global. OSHA requires protection of workers from exposure to any lead. Paint should be considered as containing lead if it is the same color as any positive tested material, unless it has specifically been tested and shown to be **none detected** for lead.

The following are materials for which the lead was **none detected**:

LAB #	FIELD #	FIELD DESCRIPTION	LEAD CONCENTRATION	UNITS
134056-001	PB-01	Interior Paint Grey	< 30.7	mg/kg
134056-002	PB-02	Interior Paint Grey	< 29.9	mg/kg
134056-003	PB-03	Interior Paint Grey	< 31.3	mg/kg
134056-004	PB-04	Interior Paint Dark Grey	< 29.9	mg/kg
134056-005	PB-05	Interior Paint Dark Grey	< 32.8	mg/kg

Although there are some materials that are negative for lead paint, for the purposes of demolition it is recommended that all painted materials be considered as lead containing unless otherwise tested.

- ***Other Hazardous Materials***

The building contains light fixtures with fluorescent bulbs and ballasts that may contain PCB's. These should be handled in accordance with regulations.

It is also anticipated that the fluorescent light tubes may contain mercury. If they are to be removed, they should be recycled properly

Regulatory Requirements

The Environmental Protection Agency (EPA) defines Asbestos Containing Material as any material that contains greater than 1% asbestos. Materials containing greater than 1% asbestos must be removed prior to demolition or renovation if they will be disturbed.

Friable asbestos containing material is any material that can be crushed or pulverized by hand pressure when dry, or materials that can be rendered to a crumbled, pulverized, or powdered state when dry by crushing, sanding, sawing, shot blasting, or through demolition or renovation activities.

As stated by NESHAP regulations, any material that contains less than 10% asbestos using the visual estimation method can be point counted with gravimetric reduction. The Point Counting method is a much more accurate analytical method for determining the percent of asbestos in a particular material. If the Point Count method determines that the material contains less than 1% asbestos, the material being analyzed can be disposed of as non-hazardous asbestos containing construction waste.

Removal or disturbance of material with any detectable amount of asbestos must be handled in accordance with OSHA regulations. Cal-OSHA registration is required if the material contains more than .1% asbestos (1/10th of a percent). If there is more than 100 feet (linear or square) of an asbestos containing material that will be abated or disturbed, a California State registered and licensed asbestos abatement contractor must perform the work. If there is less than 100 feet, the work does not require a licensed asbestos abatement contractor, but must still conform to Cal-OSHA regulations.

Comment Regarding All Asbestos Containing Materials:

Asbestos containing materials in good condition do not necessarily need to be removed unless they will be disturbed; they should however be respected.

Employees, contract workers and others should be advised not to drill, saw, scrape or otherwise disturb this material without taking precautionary measures appropriate to asbestos containing material.

Asbestos containing material should be removed prior to the renovation and must be removed prior to demolition.

Areas Needing Immediate Corrective Action

Asbestos (in any condition) should be removed prior to renovation and must be removed prior to demolition of the survey site.

Analytical Procedures

- ***POLARIZED LIGHT MICROSCOPY (PLM)***

  Bulk samples were analyzed in accordance with U.S. EPA "Test Method for Determination of Asbestos in Bulk Building Materials, 1993," with inclusion of area percent estimates of the sample components. The use of the McCrone Color Dispersion Staining Technique supplements the analysis when considered useful by the analyst. The samples are prepared with refractive immersion oil and are examined under Polarized Light Microscopy (PLM). The accuracy of the visual estimate method is 1%.

  As per the standard "...The accuracy in the determination of the presence or absence of asbestos of greater than 1 area percent asbestos is greater than 99%." ASTM Committee D22.05, 1/18/88, Standard *Method of Testing for Asbestos Containing Materials by Polarized Light Microscopy*. If the sample matrix is reduced to minimize non-asbestos components, the detection limit can be mathematically enhanced, based on the amount of material remaining after matrix reduction. This method is called gravimetric reduction. This method involves ashing and chemical dissolution of the sample.

- ***POINT COUNTING***

  The Point Counting method is a much more accurate analytical method for determining the percent of asbestos in a particular material. The laboratory uses a muffle furnace to ash the sample and remove organic compounds. Hydrochloric acid is used to dissolve some of the non-asbestos minerals. Under this method a minimum of 125 points are counted from each of 8

different slide preparations of the same sample (total of 1000 points min.) If the **Point Count Method** determines that the material contains less than 1% asbestos, the material being analyzed can be treated as non-hazardous asbestos containing construction waste**. Note: ONLY the Point Count Method can be used for this determination.**

- ***ATOMIC ABSORPTION FOR LEAD***

  Paint samples were collected for atomic absorption (AA) analysis. The detection limit for each sample depends upon many factors including the sensitivity of the instrument and the sample size. In the laboratory utilizing flame AA, the detection limit is normally .01% or 100 parts per million (ppm).

KELLCO Qualifications

The KELLCO asbestos inspector is licensed with the State of California Department of Occupational Safety and Health (CAL-OSHA).

The KELLCO lead inspector is licensed by the California Department of Public Health (CDPH)

The following supporting documents are attached to this report:

- Laboratory analytical reports
- Photographs of sample locations
- Floor plan or sketch showing sample locations

Please call KELLCO if there are any questions and/or clarifications regarding this report. We look forward to working with you in the future.

Sincerely,

KELLCO Services, Inc.

Tim C. Cannard CAC #94-1395, CDPH Lead #764
Senior Project Manager

Asbestos Definitions and Classifications

ACM	(Asbestos Containing Material) – **Commercial asbestos product** containing more than 1% asbestos. ACM must be disposed as hazardous waste. Note: Federal OSHA and Cal-OSHA control materials containing any amount of asbestos.
ACBM	(Asbestos Containing Building Material) – AHERA/ASHARA term for material containing more than 1% asbestos in or on interior structural members or other structural components. Includes covered walkways, porticos and exterior HVAC TSI.
ACCM	(Asbestos Containing Construction Material) – California term for a manufactured construction material containing greater than .1% (one tenth of one percent) asbestos.
PACM	(Presumed Asbestos Containing Material) OSHA considers all **TSI and surfacing** materials installed prior to1980 to be ACM unless proven otherwise.
Friable	Asbestos Containing Material that can be crumbled pulverized or reduced to powder by hand pressure when dry.
NOA	Naturally Occurring Asbestos. CARB defines as having >.25% by point counting.
Acm	CARB term for naturally occurring asbestos >.25% by point counting
DACM	Designated Asbestos Containing Material: Floortile installed before 1981

Categories of Asbestos Used BY EPA AHERA/ASHARA and OSHA/Cal-OSHA

TSI	(Thermal System Insulation) - "Thermal system insulation (TSI)" means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain. "Thermal system insulation ACM" is thermal system insulation which contains more than 1% asbestos.
SURFACING (usually mixed on site at time of application)	"Surfacing material" means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes). "Surfacing ACM" means surfacing material which contains more than 1% asbestos. NOTE: OSHA/Cal-OSHA do not classify skim coat, taping mud, floor tile mastic, stucco, leveling compound, and hard wall plasters or wall texturing as surfacing.
MISC.	All other ACM, including classify taping mud, floor tile mastic, stucco, leveling compound, and hard wall plasters or wall texturing as surfacing.

NESHAPS Categories for Asbestos (used by Air Quality Management Districts for Renovation and Demolition)

Category I	Cat I Non-friable Asbestos Containing Material(ACM) refers to asbestos containing packing, gaskets, resilient floor covering, Galbestos, and asphalt roofing products containing more than 1% asbestos.
Category II	Cat II Non-friable Asbestos-Containing Material (ACM) is any material that is not Cat I that contains greater than 1% asbestos.
RACM	"Regulated Asbestos-Containing Material." – Friable manufactured asbestos material (ACM) or a Category I non-friable ACM that has become friable OR a Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading OR Category II non-friable 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. RACM should be removed prior to renovation or demolition.

Characterization of Asbestos Containing Materials

Material	Estimated Quantity	TSI	Surfacing	Misc.	RACM	Cat I	Cat II
Roofing Tar/Penetration Mastic	~1,200 sq./ft.			X		X	

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Attn:

Project: Commericial Bldg 250000 Sq Ft
Location: 445 Serramonte Boulevard
Number: 1506-11

Order #: 134057

Received 07/01/15
Analyzed 07/01/15
Reported 07/01/15

PO Number: 1506-11

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-001	06/24/15	01	Drywall		
Layer 1: Drywall White, Powdery				None Detected	12% CELLULOSE FIBER 3% MINERAL/GLASS WOOL 85% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	95% CELLULOSE FIBER 5% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134057-002	06/24/15	02	Drywall		
Layer 1: Drywall White, Powdery				None Detected	8% CELLULOSE FIBER 2% MINERAL/GLASS WOOL 90% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	98% CELLULOSE FIBER 2% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134057-003	06/24/15	03	Drywall		
Layer 1: Drywall White, Powdery				None Detected	15% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 80% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	96% CELLULOSE FIBER 4% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-004	06/24/15	04	Drywall		
Layer 1: Drywall White, Powdery				None Detected	10% CELLULOSE FIBER 2% MINERAL/GLASS WOOL 88% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	95% CELLULOSE FIBER 5% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134057-005	06/24/15	05	Drywall		
Layer 1: Drywall White, Powdery				None Detected	15% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 80% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	98% CELLULOSE FIBER 2% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134057-006	06/24/15	06	Drywall		
Layer 1: Drywall White, Powdery				None Detected	12% CELLULOSE FIBER 3% MINERAL/GLASS WOOL 85% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	96% CELLULOSE FIBER 4% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL
134057-007	06/24/15	07	Drywall		
Layer 1: Drywall White, Powdery				None Detected	10% CELLULOSE FIBER 2% MINERAL/GLASS WOOL 88% NON FIBROUS MATERIAL
Layer 2: Tape Brown, Fibrous				None Detected	96% CELLULOSE FIBER 4% NON FIBROUS MATERIAL
Layer 3: Joint Compound White, Granular				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-008	06/24/15	08	Floor Tile & Mastic		
Layer 1: Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134057-009	06/24/15	09	Floor Tile & Mastic		
Layer 1: Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134057-010	06/24/15	10	Floor Tile & Mastic		
Layer 1: Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134057-011	06/24/15	11	Floor Tile & Mastic		
Layer 1: Floor Tile Gray, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-012	06/24/15	12	Floor Tile & Mastic		
Layer 1: Floor Tile Gray, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-013	06/24/15	13	Floor Tile & Mastic		
Layer 1: Floor Tile Gray, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	100% NON FIBROUS MATERIAL

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Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-014	06/24/15	14	Rubber Baseboard & Mastic		
Layer 1: Baseboard Gray, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Baseboard Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-015	06/24/15	15	Rubber Baseboard & Mastic		
Layer 1: Baseboard Gray, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Baseboard Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-016	06/24/15	16	Rubber Baseboard & Mastic		
Layer 1: Baseboard Gray, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Baseboard Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-017	06/24/15	17	Rubber Baseboard & Mastic		
Layer 1: Baseboard Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Baseboard Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-018	06/24/15	18	Rubber Baseboard & Mastic		
Layer 1: Baseboard Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Baseboard Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-019	06/24/15	19	Rubber Baseboard & Mastic		
Layer 1: Baseboard Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Baseboard Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-020	06/24/15	20	Ceiling Tile Break Room		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	45% CELLULOSE FIBER 10% FOAMED GLASS 35% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134057-021	06/24/15	21	Ceiling Tile Break Room		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	45% CELLULOSE FIBER 10% FOAMED GLASS 40% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
134057-022	06/24/15	22	Ceiling Tile Break Room		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	45% CELLULOSE FIBER 5% FOAMED GLASS 45% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
134057-023	06/24/15	23	Ceiling Tile Customer		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	40% CELLULOSE FIBER 15% FOAMED GLASS 35% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134057-024	06/24/15	24	Ceiling Tile Customer		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	40% CELLULOSE FIBER 10% FOAMED GLASS 40% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134057-025	06/24/15	25	Ceiling Tile Customer		
Layer 1: Ceiling Tile White/Gray, Fibrous				None Detected	45% CELLULOSE FIBER 10% FOAMED GLASS 40% MINERAL/GLASS WOOL 5% NON FIBROUS MATERIAL
134057-026	06/24/15	26	Carpet & Mastic		
Layer 1: Carpet Blue, Fibrous				None Detected	10% NON FIBROUS MATERIAL 90% SYNTHETIC FIBER
Layer 2: Carpet Mastic Yellow, Soft				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134057-027	06/24/15	27	Carpet & Mastic		
Layer 1: Carpet Blue, Fibrous				None Detected	5% NON FIBROUS MATERIAL 95% SYNTHETIC FIBER
Layer 2: Carpet Mastic Yellow, Soft				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL

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Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-028	06/24/15	28	Carpet & Mastic		
Layer 1: Carpet Blue, Fibrous				None Detected	2% NON FIBROUS MATERIAL 98% SYNTHETIC FIBER
Layer 2: Carpet Mastic Yellow, Soft				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134057-029	06/24/15	29	Carpet & Mastic		
Layer 1: Carpet Gray, Fibrous				None Detected	5% NON FIBROUS MATERIAL 95% SYNTHETIC FIBER
Layer 2: Carpet Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-030	06/24/15	30	Carpet & Mastic		
Layer 1: Carpet Gray, Fibrous				None Detected	10% NON FIBROUS MATERIAL 90% SYNTHETIC FIBER
Layer 2: Carpet Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-031	06/24/15	31	Carpet & Mastic		
Layer 1: Carpet Gray, Fibrous				None Detected	6% NON FIBROUS MATERIAL 94% SYNTHETIC FIBER
Layer 2: Carpet Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-032	06/24/15	32	Floor Tile & Mastic		
Layer 1: Floor Tile Black, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-033	06/24/15	33	Floor Tile & Mastic		
Layer 1: Floor Tile Black, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-034	06/24/15	34	Floor Tile & Mastic		
Layer 1: Floor Tile Black, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Beige, Soft				None Detected	100% NON FIBROUS MATERIAL
134057-035	06/24/15	35	Floor Tile & Mastic		
Layer 1: Floor Tile White, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Brittle				None Detected	100% NON FIBROUS MATERIAL
134057-036	06/24/15	36	Floor Tile & Mastic		
Layer 1: Floor Tile White, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Brittle				None Detected	100% NON FIBROUS MATERIAL
134057-037	06/24/15	37	Floor Tile & Mastic		
Layer 1: Floor Tile White, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Brittle				None Detected	100% NON FIBROUS MATERIAL
134057-038	06/24/15	38	Concrete & Cement		
Layer 1: Concrete Gray, Hard				None Detected	100% NON FIBROUS MATERIAL
134057-039	06/24/15	39	Concrete & Cement		
Layer 1: Concrete Gray, Hard				None Detected	100% NON FIBROUS MATERIAL
134057-040	06/24/15	40	Concrete & Cement		
Layer 1: Concrete Gray, Hard				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-041	06/24/15	41	Roofing Shingles		
Layer 1: Roof Shingle White/Gray/Black, Bituminous/Granular				None Detected	20% MINERAL/GLASS WOOL 80% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134057-042	06/24/15	42	Roofing Shingles		
Layer 1: Roof Shingle White/Gray/Black, Bituminous/Granular				None Detected	12% MINERAL/GLASS WOOL 88% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134057-043	06/24/15	43	Roofing Shingles		
Layer 1: Roof Shingle White/Gray/Black, Bituminous/Granular				None Detected	15% MINERAL/GLASS WOOL 85% NON FIBROUS MATERIAL
Sample was inhomogenous, subsamples of each component were analyzed separately.					
134057-044	06/24/15	44	Roofing Tar		
Layer 1: Roof Tar Black/Silver, Bituminous/Brittle				6% CHRYSOTILE	4% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134057-045	06/24/15	45	Roofing Tar		
Layer 1: Roof Tar Black/Silver, Bituminous/Brittle				4% CHRYSOTILE	6% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134057-046	06/24/15	46	Roofing Tar		
Layer 1: Roof Tar Black/Silver, Bituminous/Brittle				5% CHRYSOTILE	5% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Unable to separate individual layers.					
134057-047	06/24/15	47	Roofing Shingles		
Layer 1: Roof Shingle Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
134057-048	06/24/15	48	Roofing Shingles		
Layer 1: Roof Shingle Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
134057-049	06/24/15	49	Roofing Shingles		
Layer 1: Roof Shingle Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134057-050	06/24/15	50	Ducting Wrap Tape		
Layer 1: Tape White/Gray, Fibrous/Soft				None Detected	80% NON FIBROUS MATERIAL 20% SYNTHETIC FIBER
Unable to separate individual layers.					
134057-051	06/24/15	51	Ducting Wrap Tape		
Layer 1: Tape White/Gray, Fibrous/Soft				None Detected	75% NON FIBROUS MATERIAL 25% SYNTHETIC FIBER
Unable to separate individual layers.					
134057-052	06/24/15	52	Ducting Wrap Tape		
Layer 1: Tape White/Gray, Fibrous/Soft				None Detected	88% NON FIBROUS MATERIAL 12% SYNTHETIC FIBER
Unable to separate individual layers.					

Analyst: Hashim, Reel
134057-07/01/15 12:43 PM

Reviewed By: **John Wilson**
Analyst

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	Commerical Building = 25,000 sq./ft. 445 Serramonte Boulevard Colma CA. 94014

KELLCO Services JOB# **1506-11** LAB LOGIN #_____

COLLECTED BY: Frank Valerga

COLLECTED DATE 6/24/15

TURN AROUND TIME: Normal 24 TAT 4 8 (24) 48 5-DAY

RESULTS NEEDED BY

CIRCLE TYPE OF BULK ANALYSIS

(PLM) LEAD PAINT LEAD WIPE NON VIABLE MOLD VIABLE MOLD eCOLI OTHER_____

SAMPLES REC'D 52 ANALYZE TO FIRST POSITIVE YES NO

REPORT RESULTS TO PROJECT MANAGER: Tim Cannard

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 1 OF 4

KELLCO Services JOB#: **1506-11**
Commerical Building = 25,000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
01	Drywall	White		
02	" "	" "		
03	" "	" "		
04	" "	" "		
05	" "	" "		
06	" "	" "		
07	" "	" "		
08	Floor Tile & Mastic	Beige		
09	" "	" "		

134057
V:\134\134057

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6/29/15	6:50pm	T. Ward	7-1-15	10:30

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 2 OF 4

KELLCO Services JOB#: **1506-11**
Commerical Building = 25,000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
10	" "	" "		
11	Floor Tile & Mastic	Grey		
12	" "	" "		
13	" "	" "		
14	Rubber Baseboard & Mastic	Grey		
15	" "	" "		
16	" "	" "		
17	Rubber Baseboard & Mastic	Black		
18	" "	" "		
19	" "	" "		
20	Ceiling Tile - Break Room Areas	White		
21	" "	" "		
22	" "	" "		
23	Ceiling Tile - Customer Areas	White		
24	" "	" "		
25	" "	" "		
26	Carpet & Mastic	Blue		
27	" "	" "		

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6/29/15	6:30 pm			

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 4 OF 4

KELLCO Services JOB#: **1506-11**
Commerical Building = 25,000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
46	" "	" "		
47	Roofing Shingles	Black		
48	" "	" "		
49	" "	" "		
50	Duct Wrap/Tape	White		
51	" "	" "		
52	" "	" "		

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[signature]	6/29/15	6:50pm			

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 3 OF 4

KELLCO Services JOB#: **1506-11**
Commerical Building = 25,000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
28	" "	" "		
29	Carpet & Mastic	Grey		
30	" "	" "		
31	" "	" "		
32	Floor Tile & Mastic	Black		
33	" "	" "		
34	" "	" "		
35	Floor Tile & Mastic	White		
36	" "	" "		
37	" "	" "		
38	Concrete/Cement	Grey		
39	" "	" "		
40	" "	" "		
41	Roofing Shingles	White/Grey		
42	" "	" "		
43	" "	" "		
44	Roofing Tar	Grey/Black		
45	" "	" "		

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6/29/13	6:50pm			

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Attn:

Project: Commercial Bldg 25000 Sq Ft
Location: 445 Serramonte Boulevard
Number: 1506-11

Order #: 134056

Matrix	Paint
Received	07/01/15
Analyzed	07/01/15
Reported	07/01/15
PO Number:	1506-11

Sample ID / Parameter	Cust. Sample ID	Location / Method	Sample Date	Weight / Total µg	% / Wt.	Conc.	RL*
134056-001	PB-01	Interior Paint Grey	06/24/15	326 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00307 %	<30.7 mg/kg	30.7 mg/kg
		Sample contains substrate which may affect the calculation of weight percent.					
134056-002	PB-02	Interior Paint Grey	06/24/15	335 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00299 %	<29.9 mg/kg	29.9 mg/kg
		Sample contains substrate which may affect the calculation of weight percent.					
134056-003	PB-03	Interior Paint Grey	06/24/15	320 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00313 %	<31.3 mg/kg	31.3 mg/kg
		Sample contains substrate which may affect the calculation of weight percent.					
134056-004	PB-04	Interior Paint Dark Grey	06/24/15	335 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00299 %	<29.9 mg/kg	29.9 mg/kg
		Sample contains substrate which may affect the calculation of weight percent.					
134056-005	PB-05	Interior Paint Dark Grey	06/24/15	305 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00328 %	<32.8 mg/kg	32.8 mg/kg
		Sample contains substrate which may affect the calculation of weight percent.					

Analyst: IH
134056-07/01/15 03:54 PM

Reviewed By: **Sultan Al-Johani**
Analyst

Minimum reporting limit: 10.0 µg. Lead Based Paint contains 0.5% lead by weight per Federal statute. The OSHA Lead in Construction Standard, 29 CFR 1926.62, is invoked if any lead is present in the sample. Concentration and *Reporting Limit (RL) based on weights provided by client. All internal QC parameters were met. Unusual sample conditions, if any, are described. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	Commerical Building = 25,000 sq./ft. 445 Serramonte Boulevard Colma CA. 94014

KELLCO Services JOB# **1506-11** LAB LOGIN #_____

COLLECTED BY: Frank Valerga

COLLECTED DATE 6/24/15

TURN AROUND TIME: Normal 24 TAT 4 8 (24) 48 5-DAY

RESULTS NEEDED BY

CIRCLE TYPE OF BULK ANALYSIS

PLM (LEAD PAINT) LEAD WIPE NON VIABLE MOLD VIABLE MOLD eCOLI OTHER_____

SAMPLES REC'D 5 ANALYZE TO FIRST POSITIVE YES NO

REPORT RESULTS TO PROJECT MANAGER: Tim Cannard

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 1 OF 1

KELLCO Services JOB#: **1506-11**
Commerical Building = 25,000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
PB-01	Interior Paint	Grey		
PB-02	" "	" "		
PB-03	" "	" "		
PB-04	" "	Dark Grey		
PB-05	" "	Grey		

134056
V:\134\134056

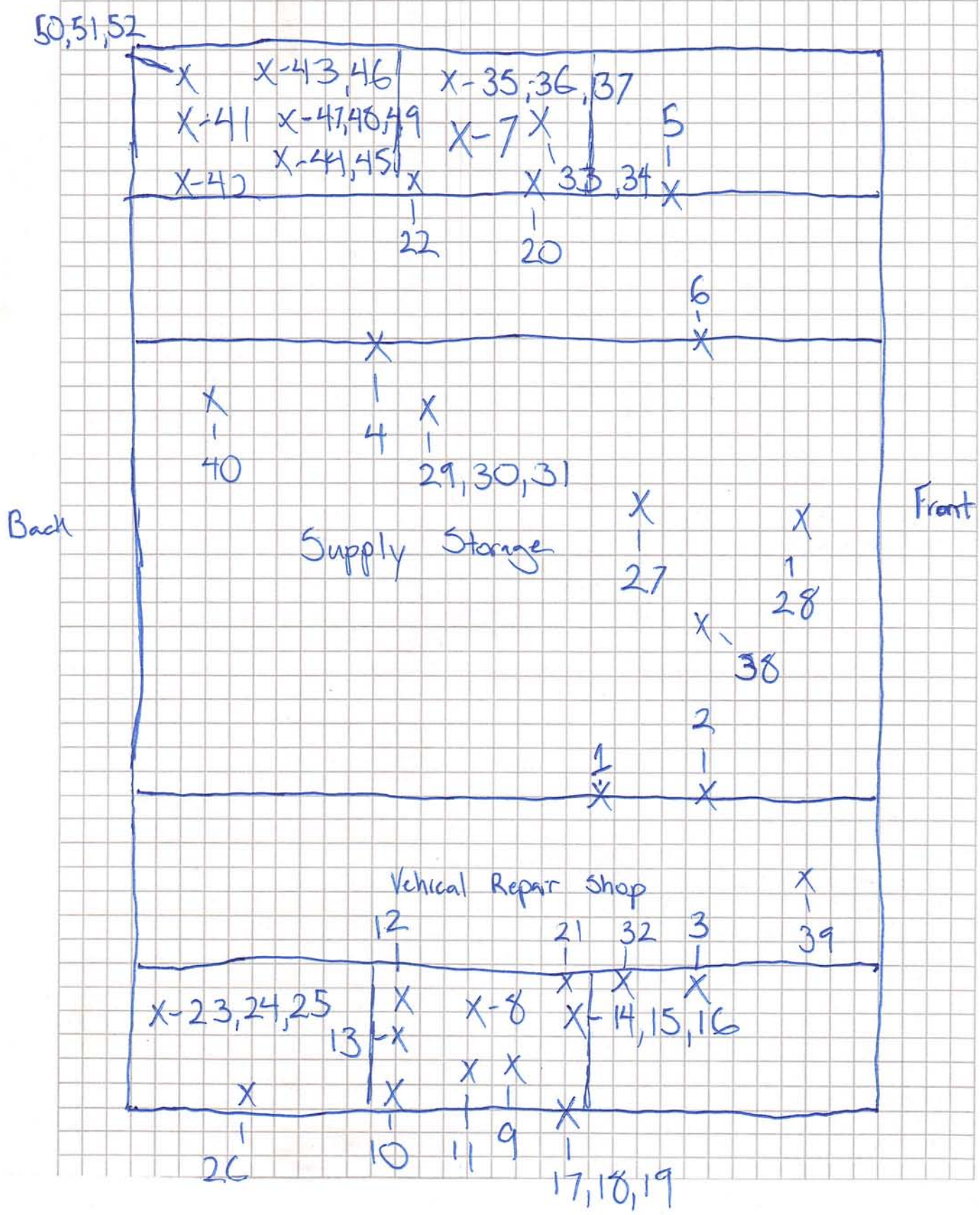
RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6/29/15	6:59 pm	T. Ward	7-1-15	10:30

6716

KELLCO Job # 1506-11
Client: ENGEO Inc.

Jobsite: 445 Serramonte Blvd

K E L L C O

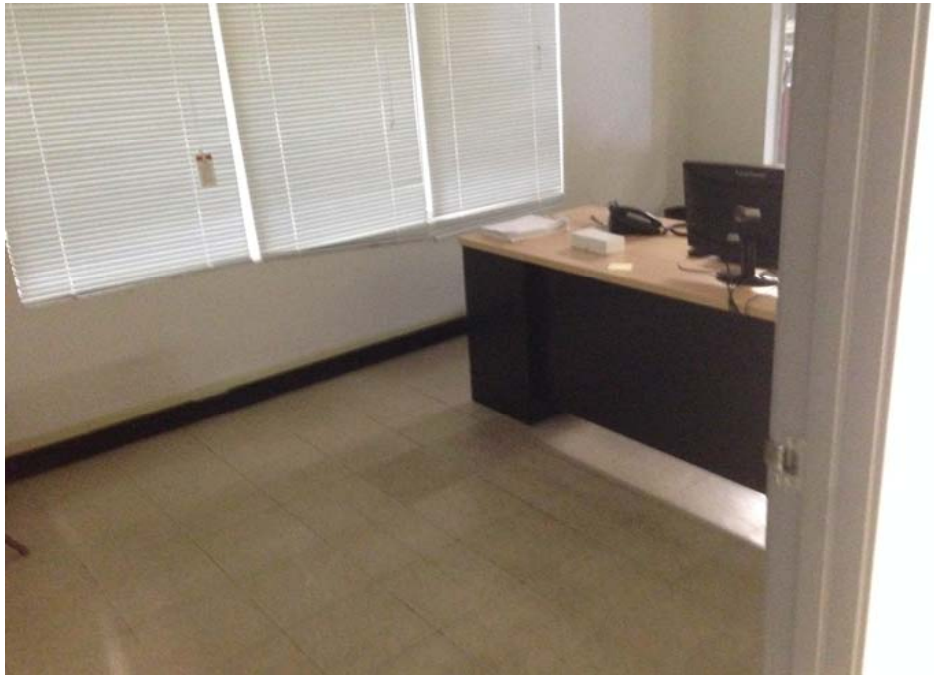


MOVED
SERVICE AND PARTS DEPT. IS NOW AT
RAMONTE BLVD
Service

HYUNDAI

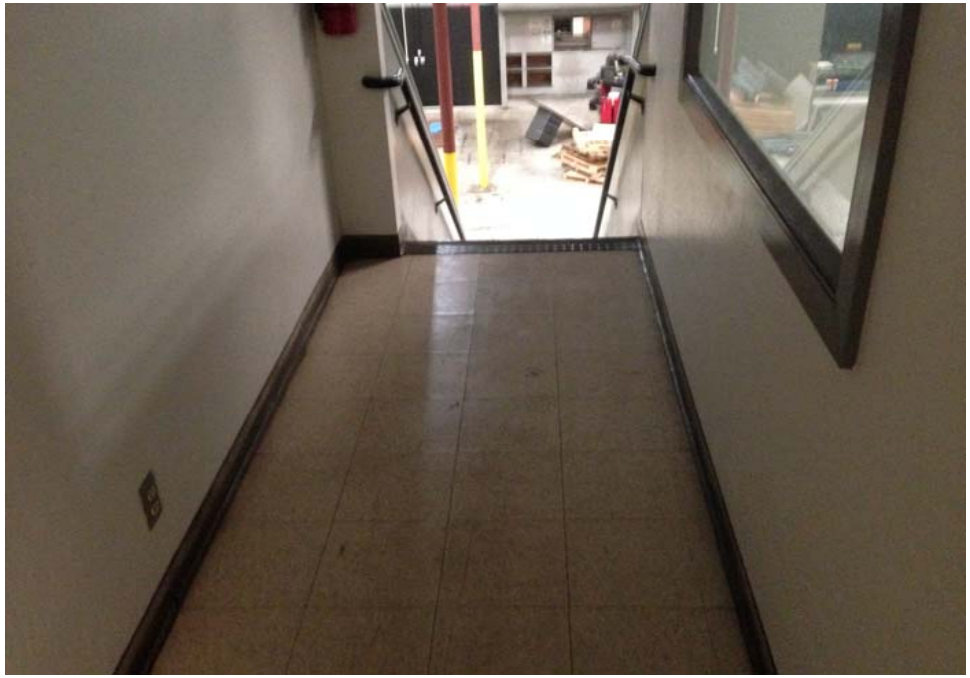
445
WE SELL TIRES
Service
Key Drop Box

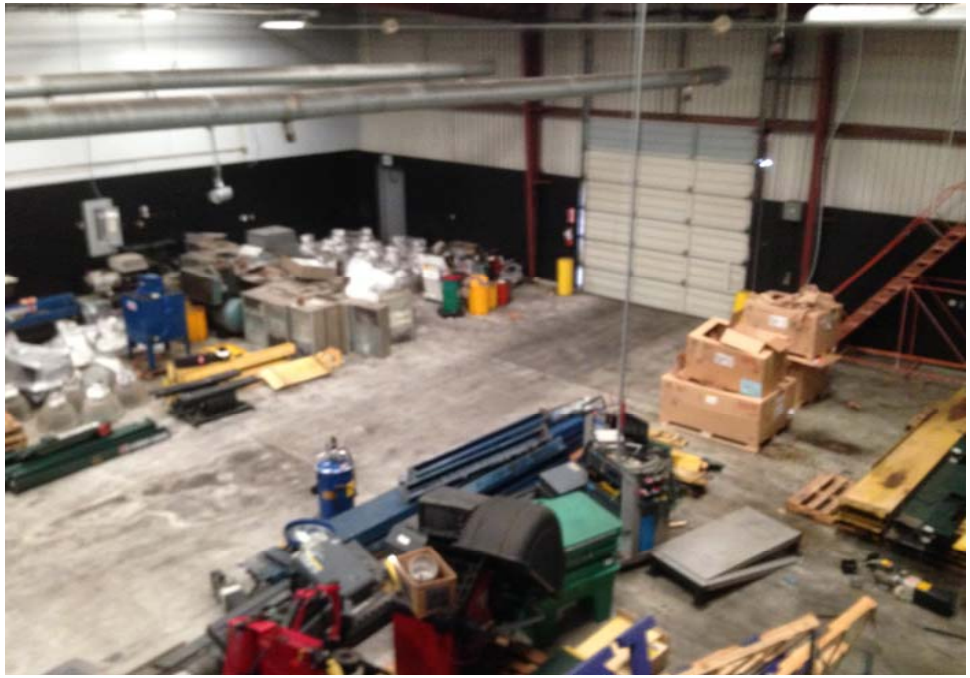
445

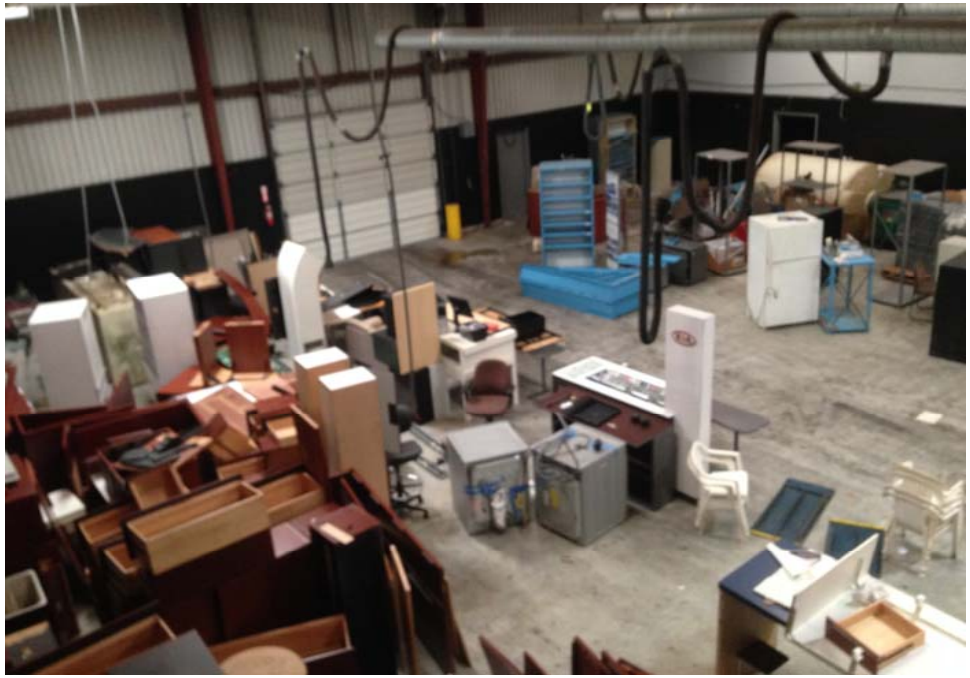


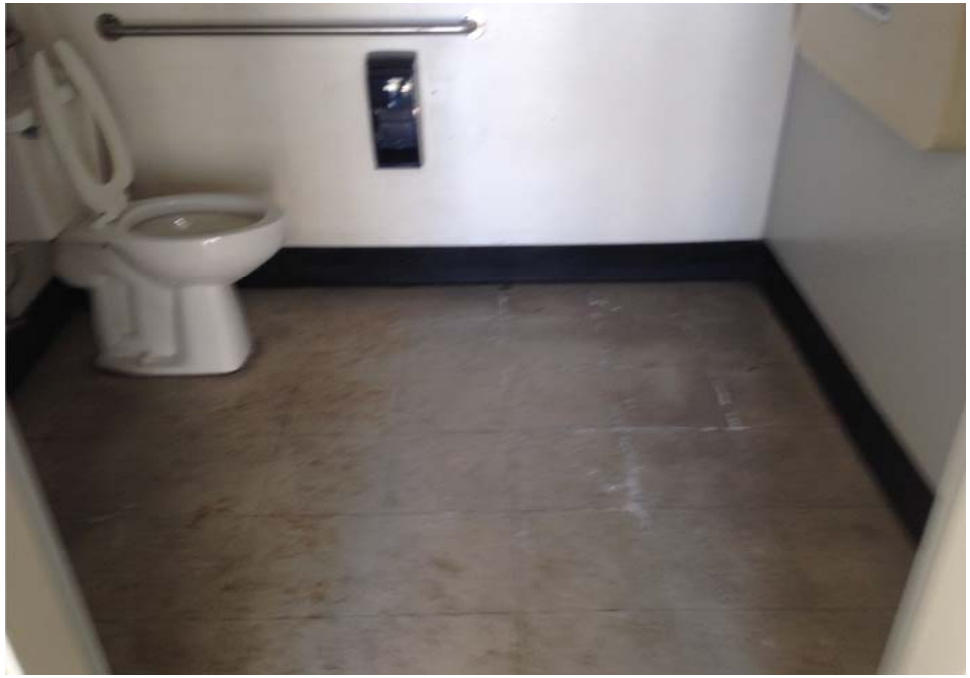
WOMEN

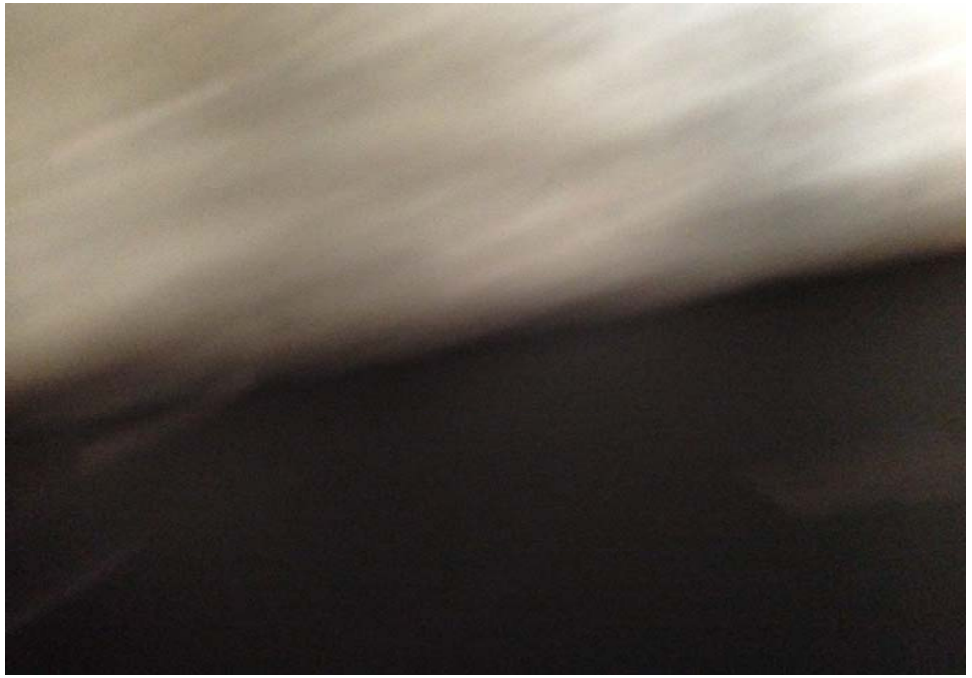
MEN
MEN











445

445

445

32

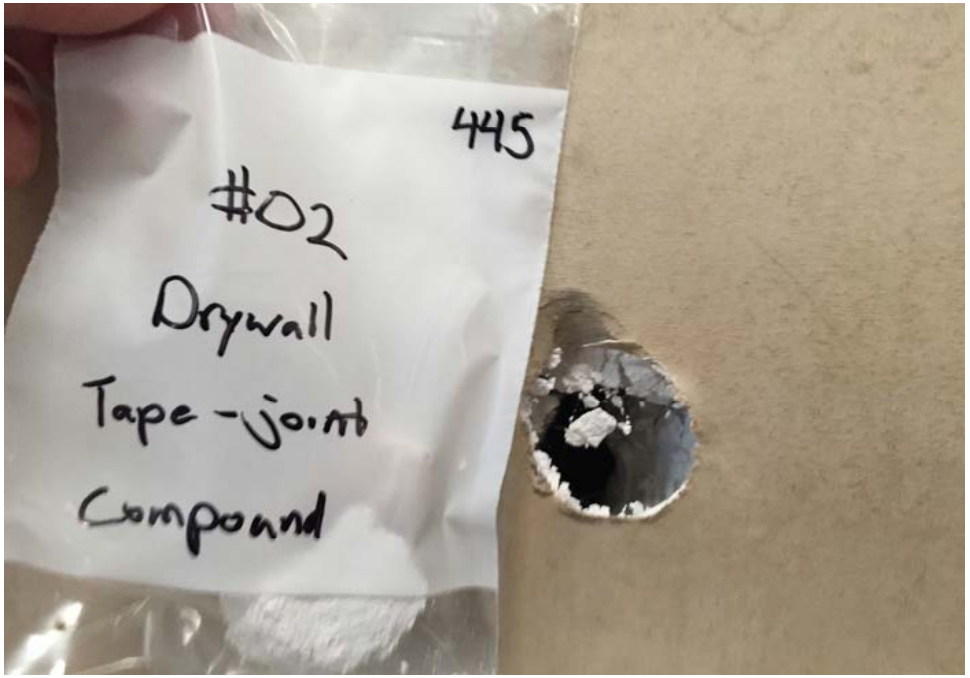
445

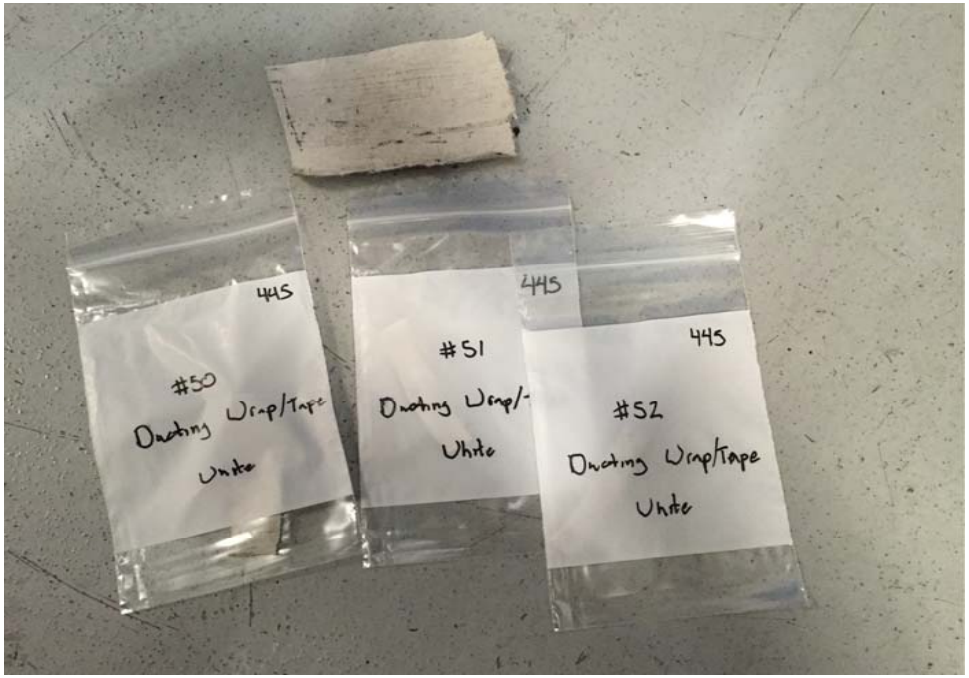
445
HYUNDAI
Hyundai Serramonte
Parts
&
Receiving

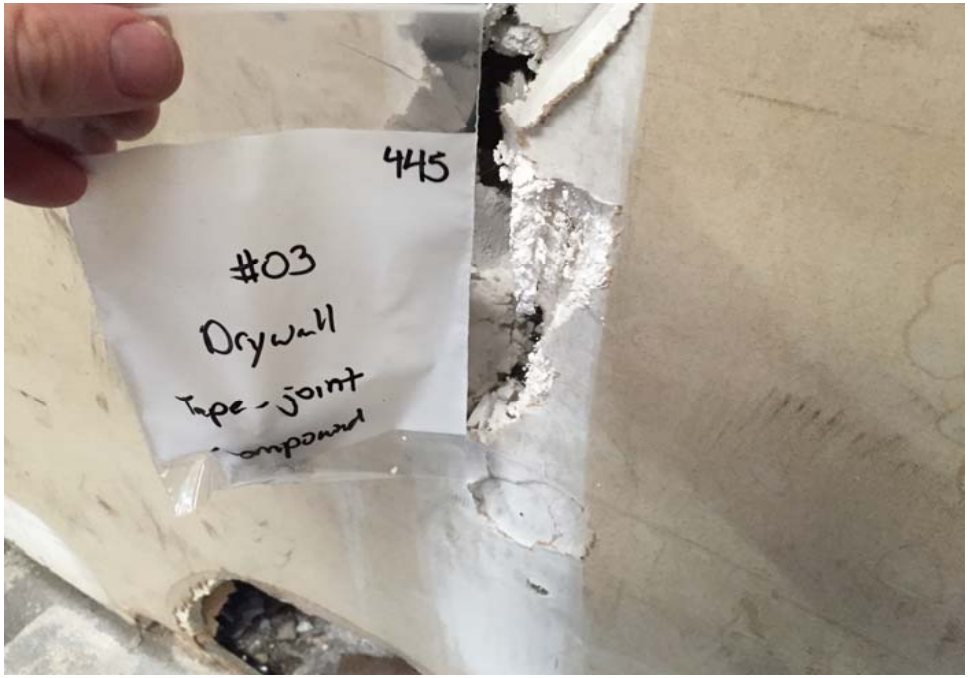
EXIT ONLY
445

445

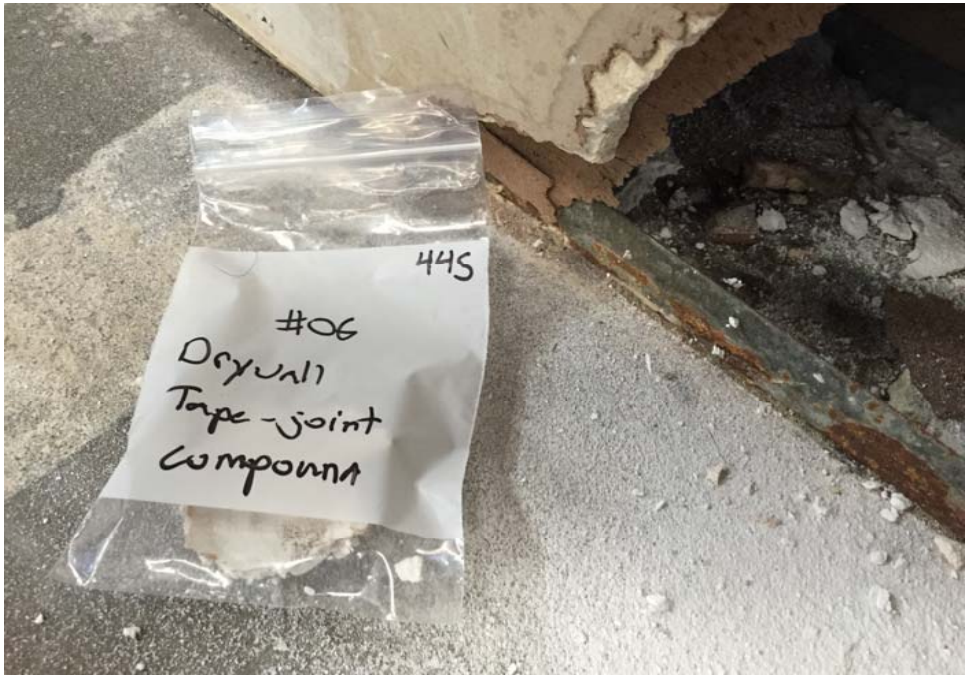
445
WARNING
THIS AREA CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

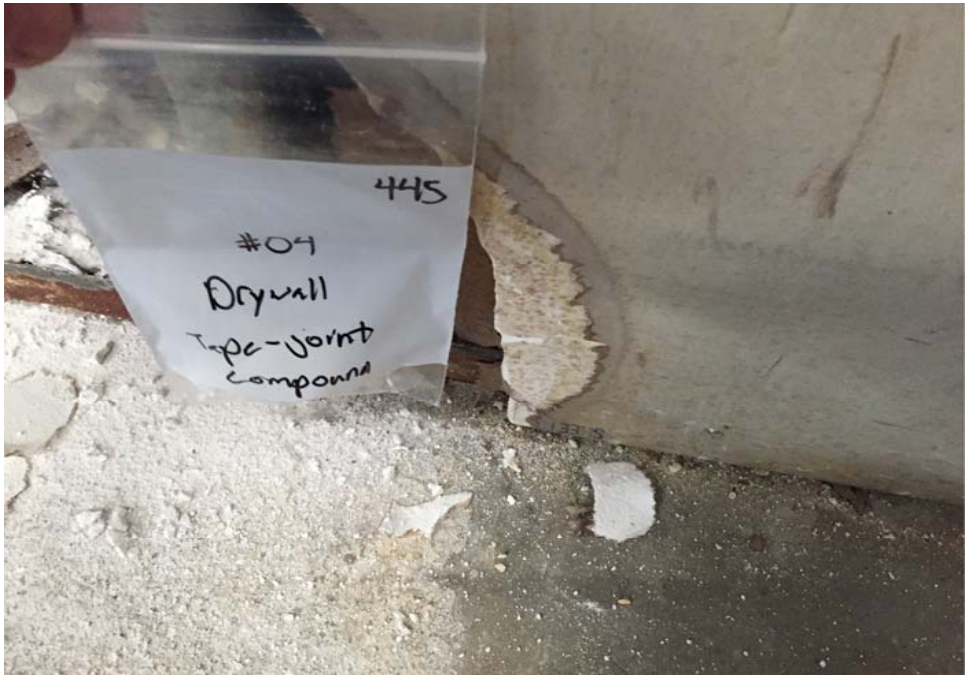

445
#02
Drywall
Tape-joint
Compound

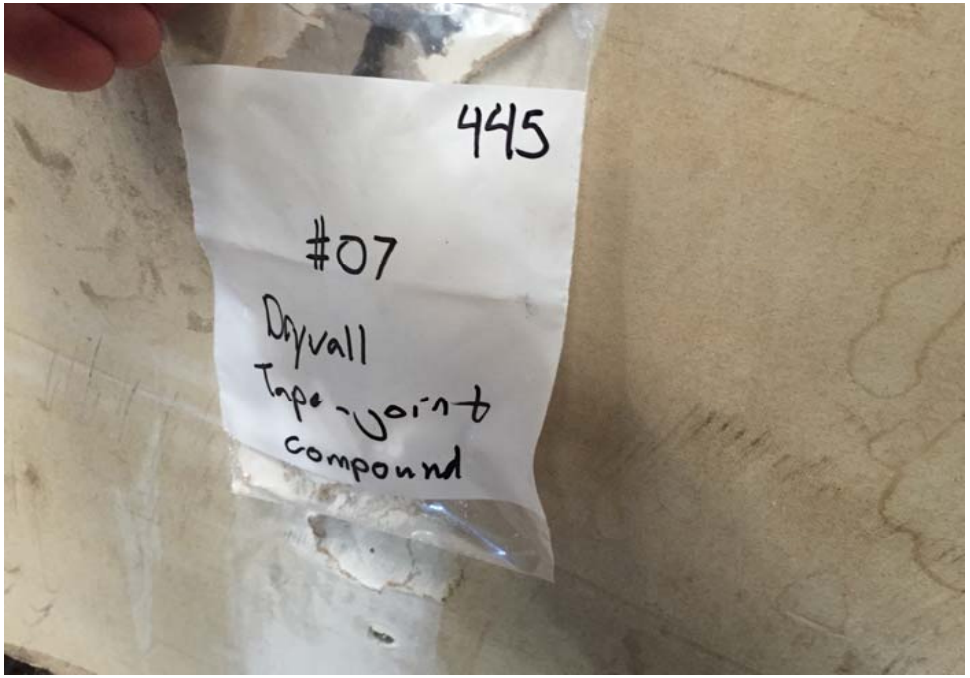

445
#50
Duct Wrap/Tape
White
445
#51
Duct Wrap/
White
445
#52
Duct Wrap/Tape
White

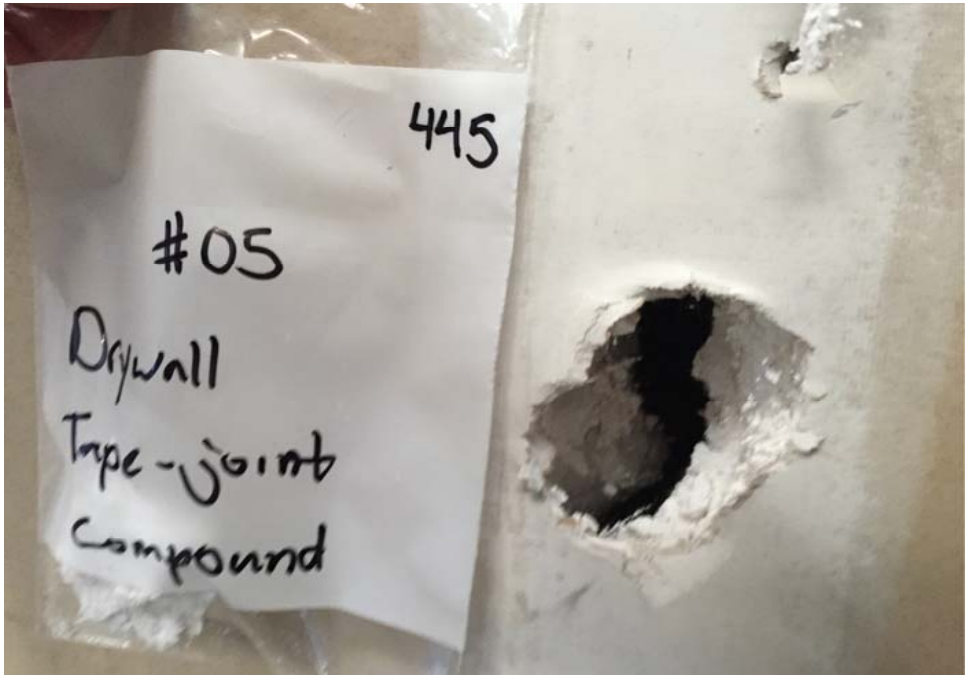

445
#03
Drywall
Tape-joint

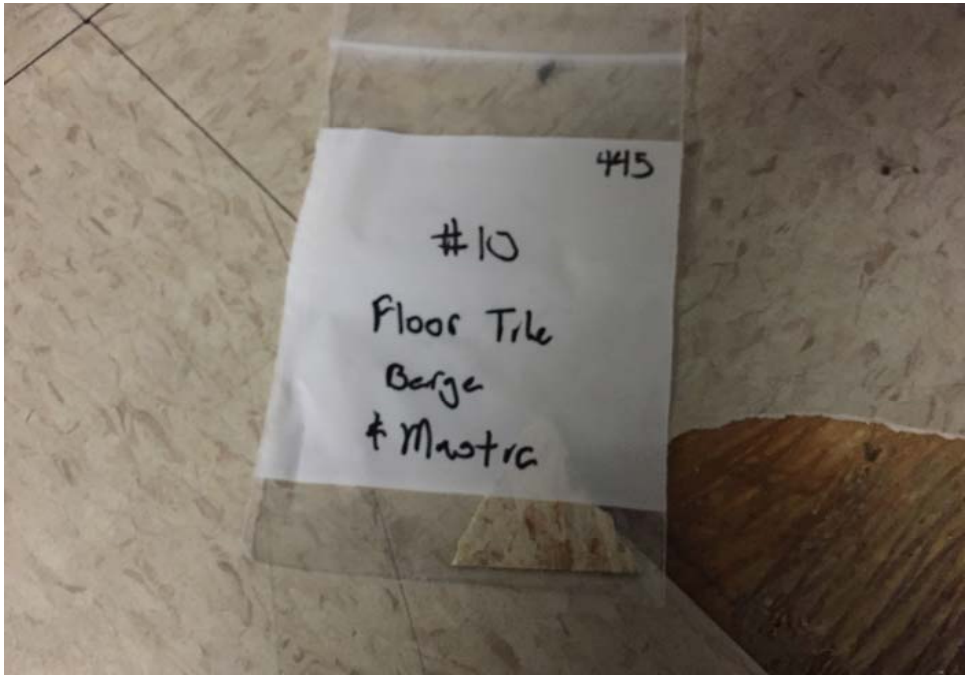
445
#01
Drywall

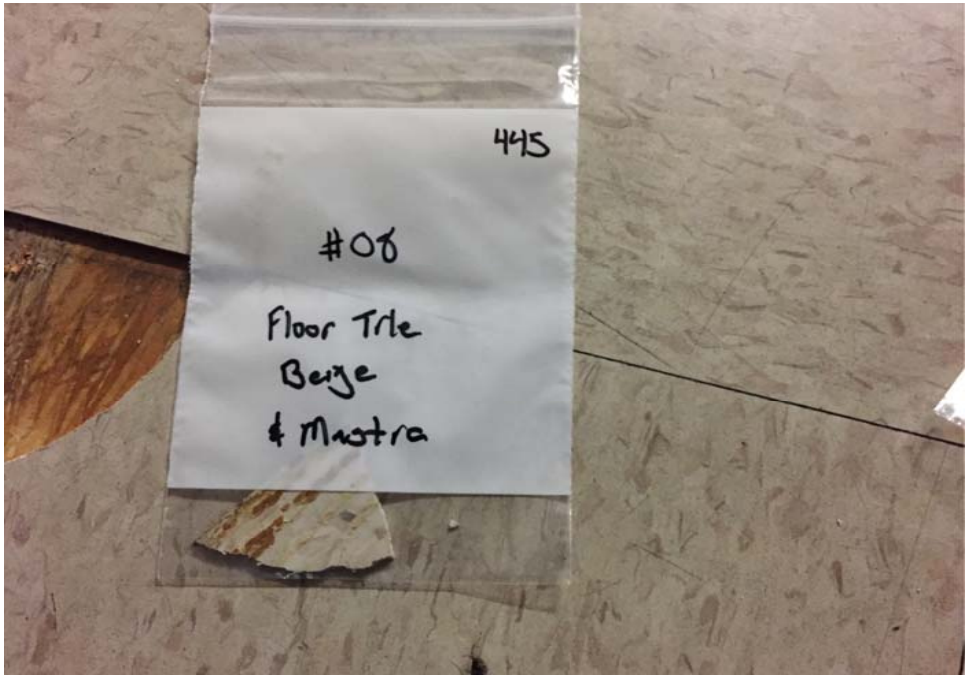

445
#06
Drywall
Tape-joint
compound

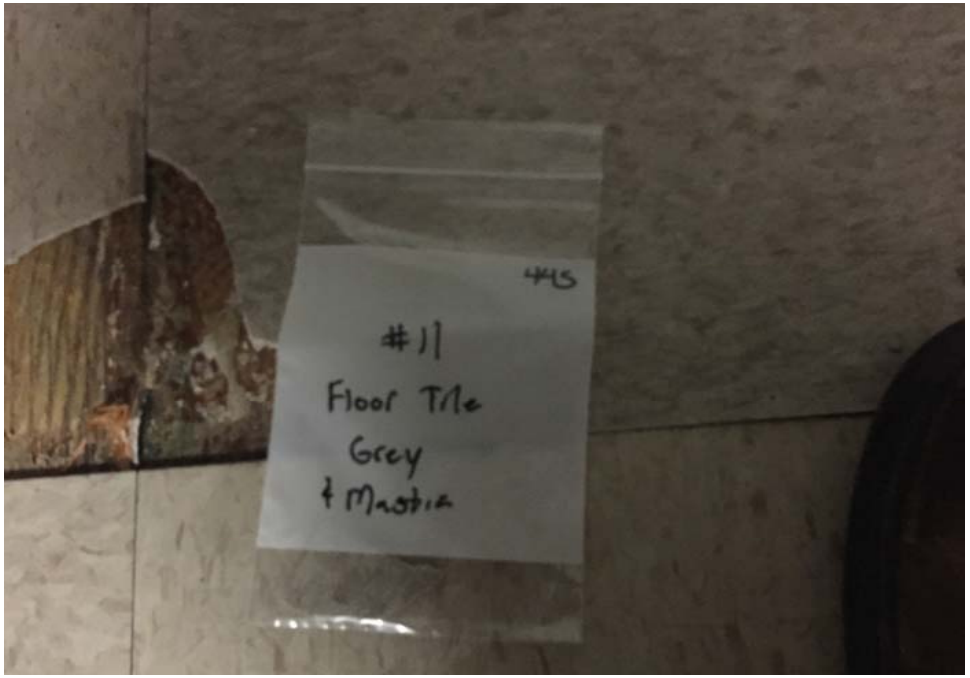

445
#04
Drywall
Tape-joint
compound

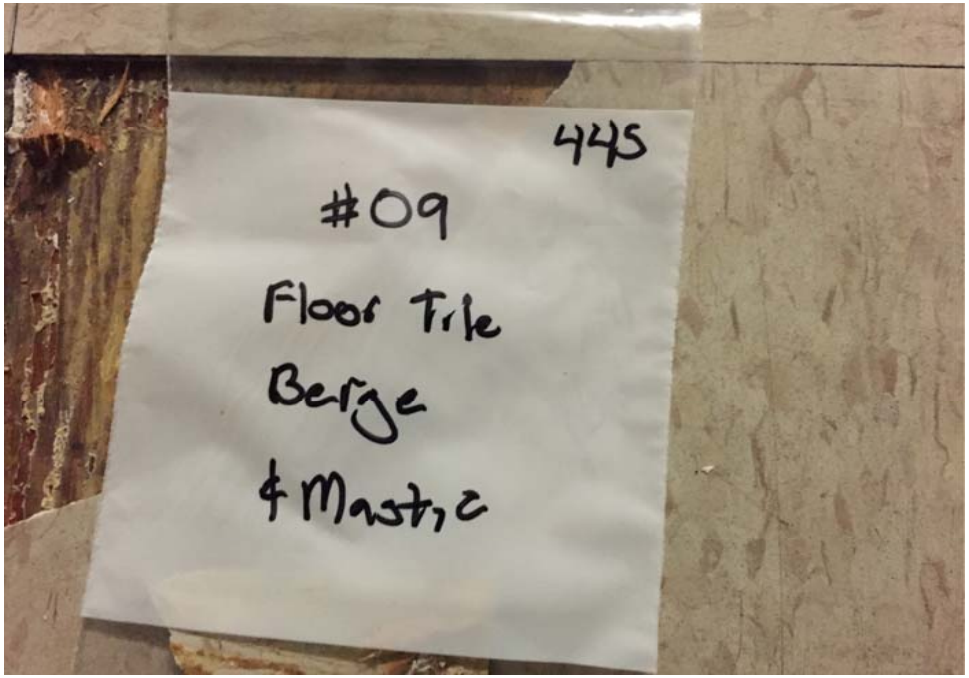

445
#07
Drywall
Tape-joint
compound


445
#05
Drywall
Tape-joint
Compound

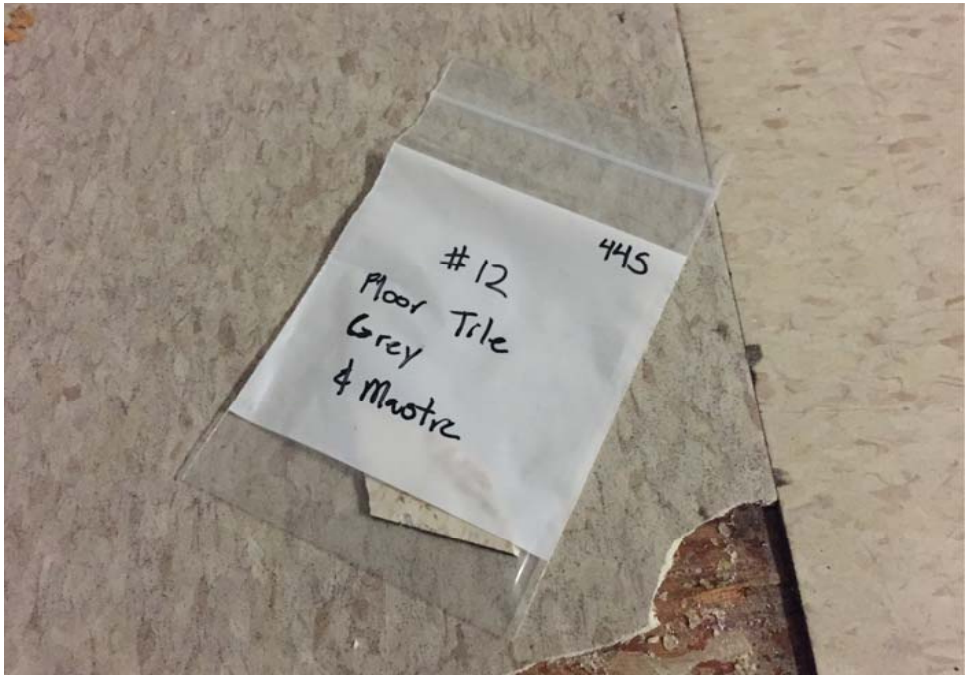

445
#10
Floor Tile
Beige
& Mastic


445
#08
Floor Tile
Beige
& Mastic

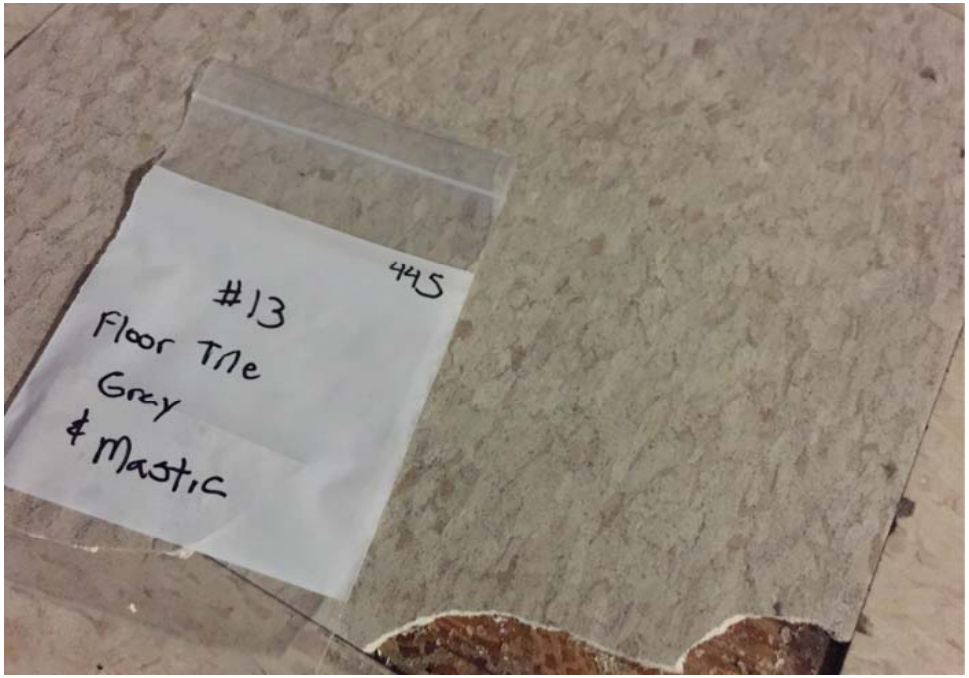

445
#11
Floor Tile
Grey
& Mastic

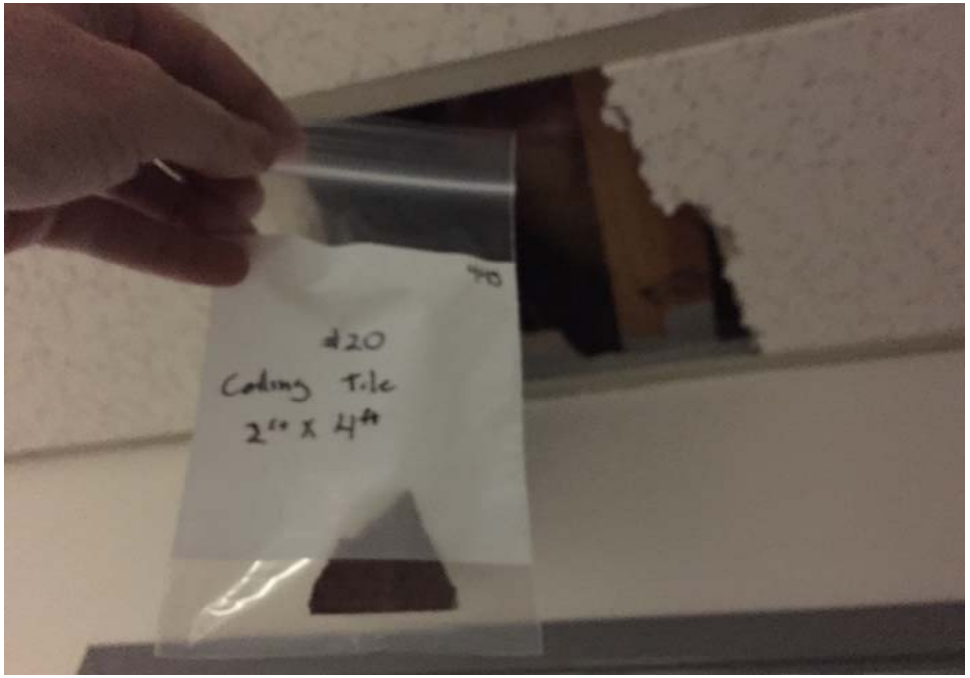

445
#09
Floor Tile
Beige
& Mastic

445
#14
Rubber Baseboard
Gray
& Mastic

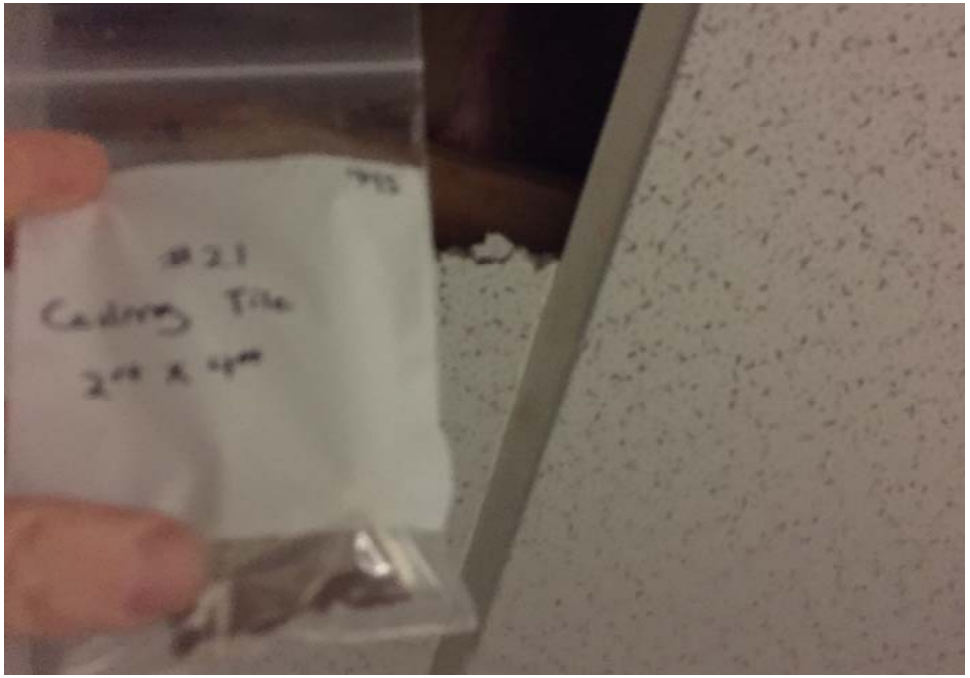

445
#12
Floor Tile
Grey
& Mastic

445
#15
Rubber Base Board
Gray
& Mastic


445
#13
Floor Tile
Gray
& Mastic

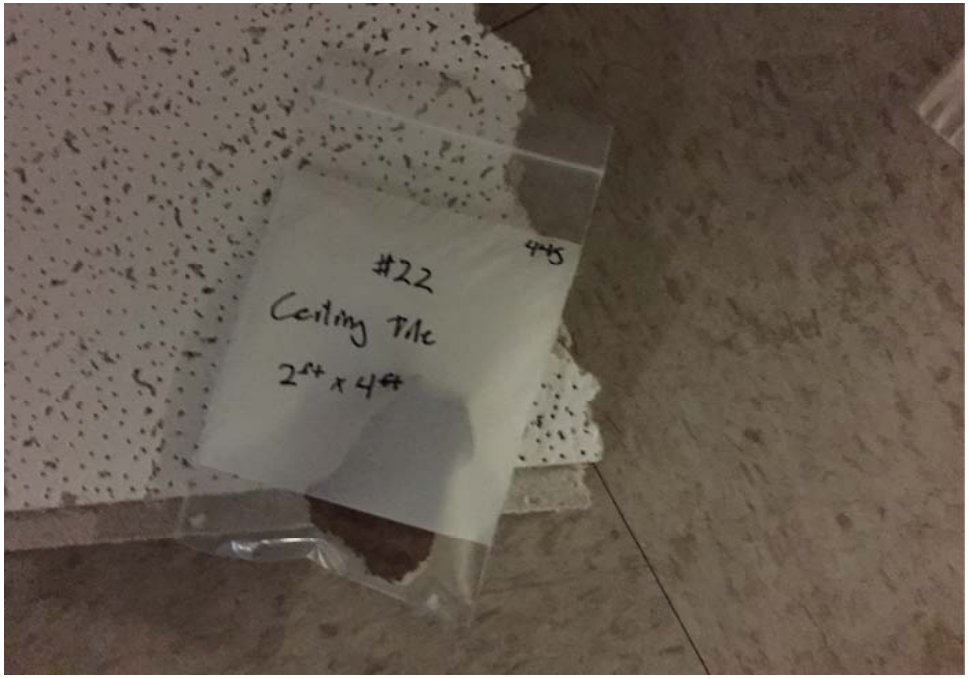

#20
Ceiling Tile
2" x 4"

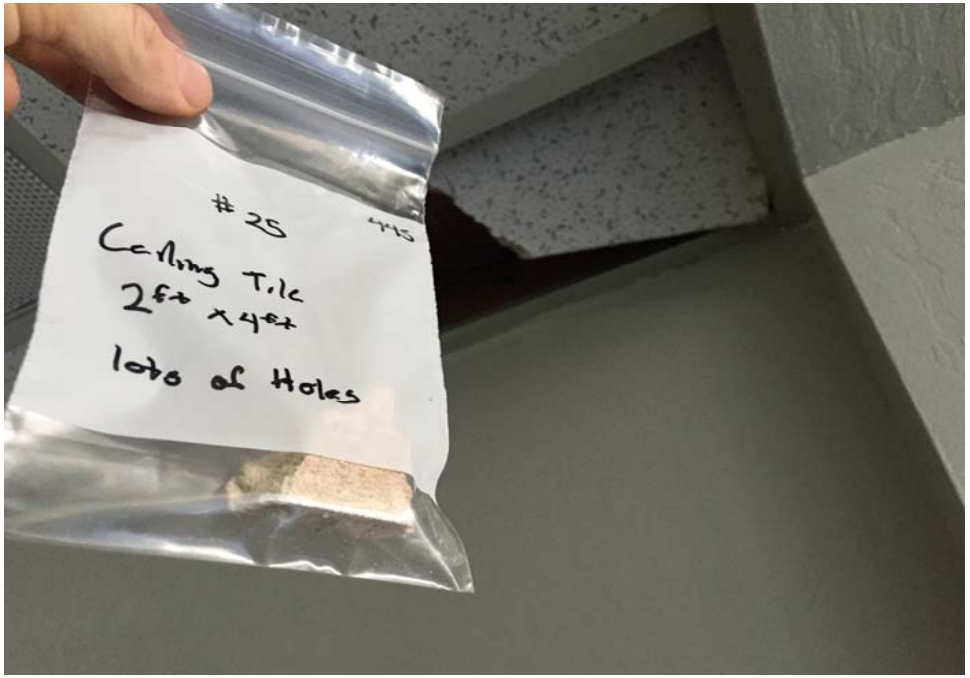
445
#16
Rubber Baseboard
Gray
& Mastic

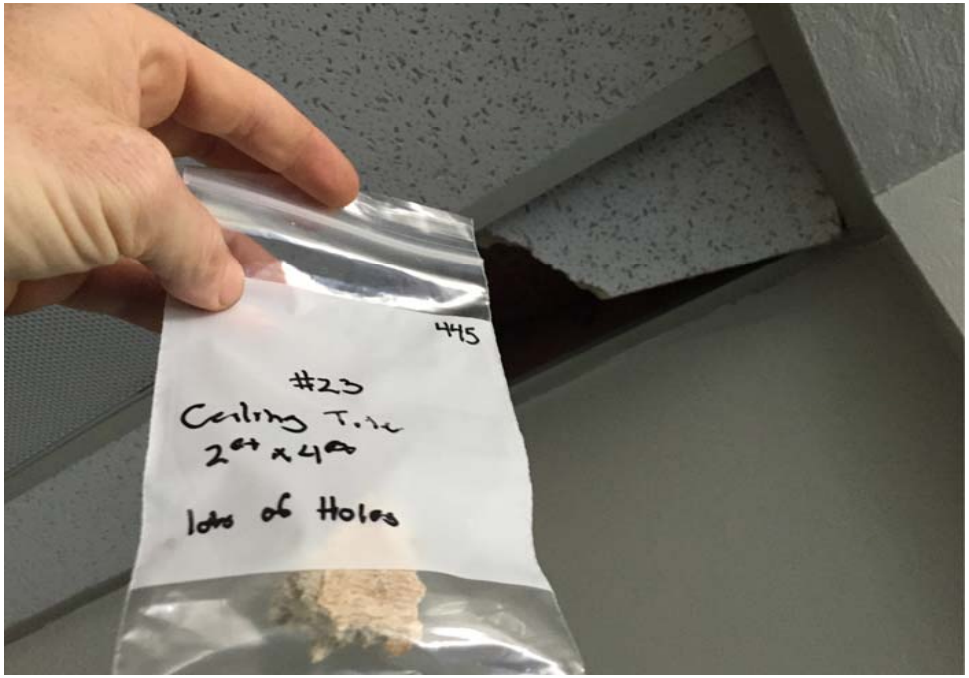

#21
Ceiling Tile
2" x 4"

#19
445
Rubber Baseboard
Black
& Mastic
445
#18
Rubber Baseboard
Black
& Mastic
445
#17
Rubber Baseboard
Black
& Mastic

445
#24
Ceiling Tile
2ft x 4ft
lots of holes

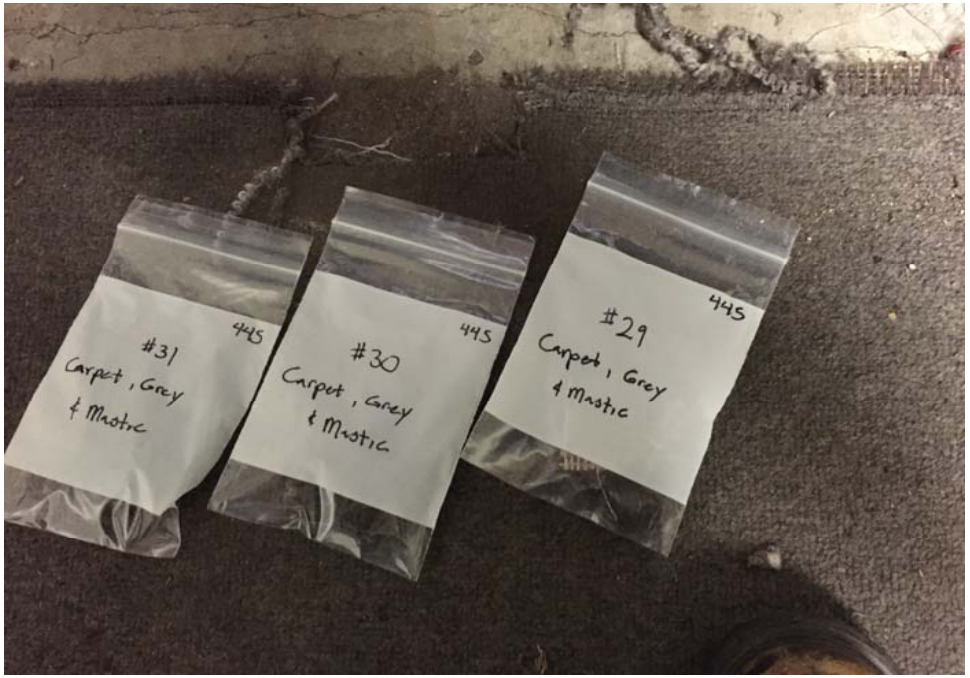

445
#22
Ceiling Tile
2ft x 4ft


445
25
Ceiling Tile
2ft x 4ft
lots of Holes

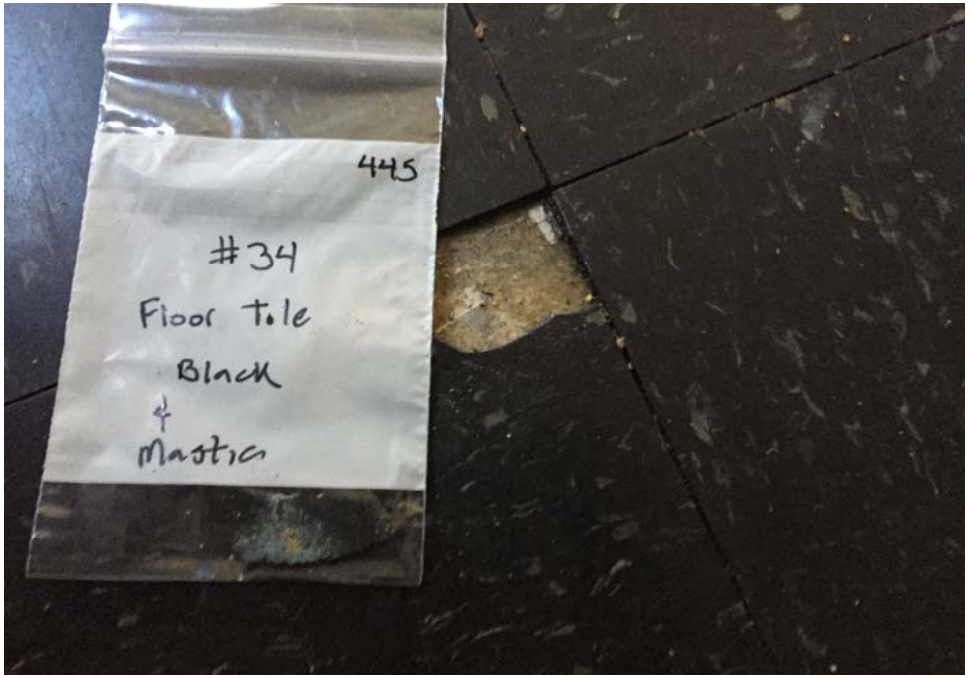

445
#23
Ceiling Tile
2ft x 4ft
lots of Holes

445
#28
Carpet, Blue
& Mastic

445
#26
Carpet, Blue
& Mastic

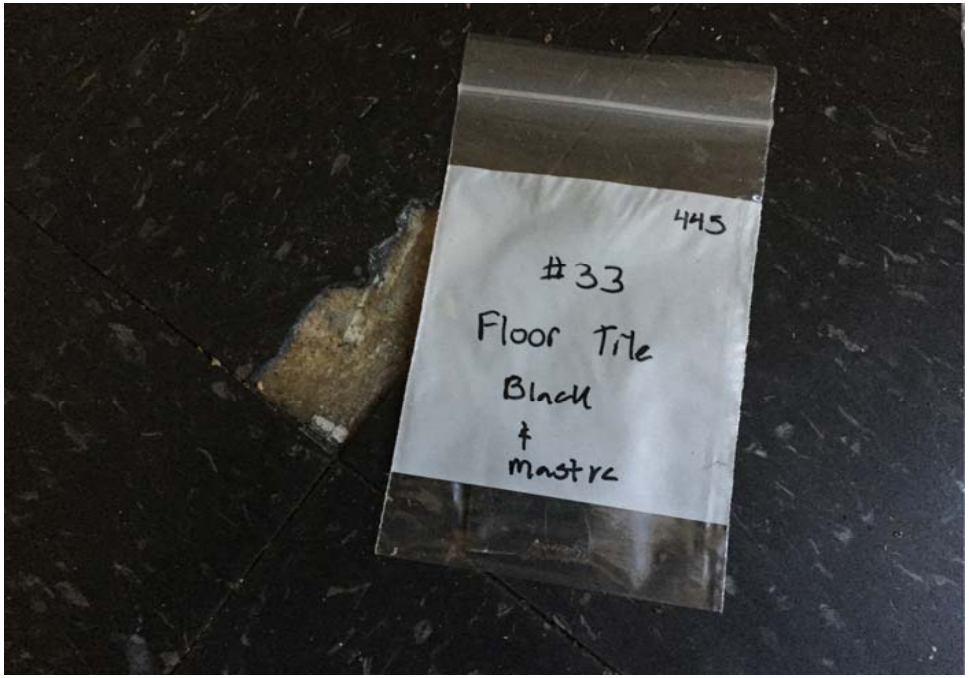

445
#31
Carpet, Grey
& Mastic
445
#30
Carpet, Grey
& Mastic
445
#29
Carpet, Grey
& Mastic

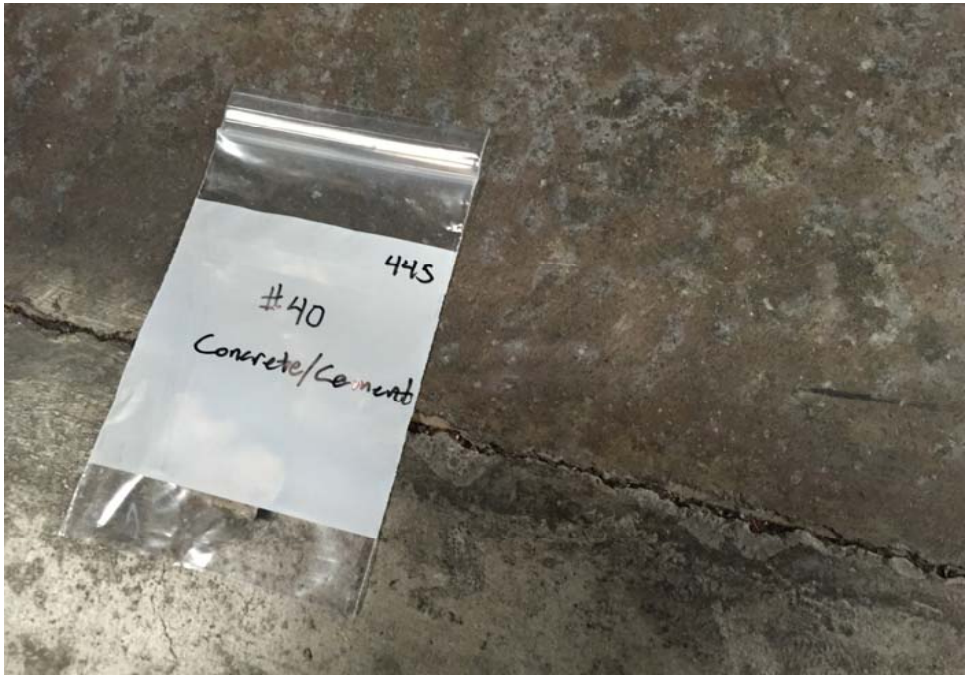
445
#27
Carpet, Blue
& Mastic


445
#34
Floor Tile
Black
&
Mastic

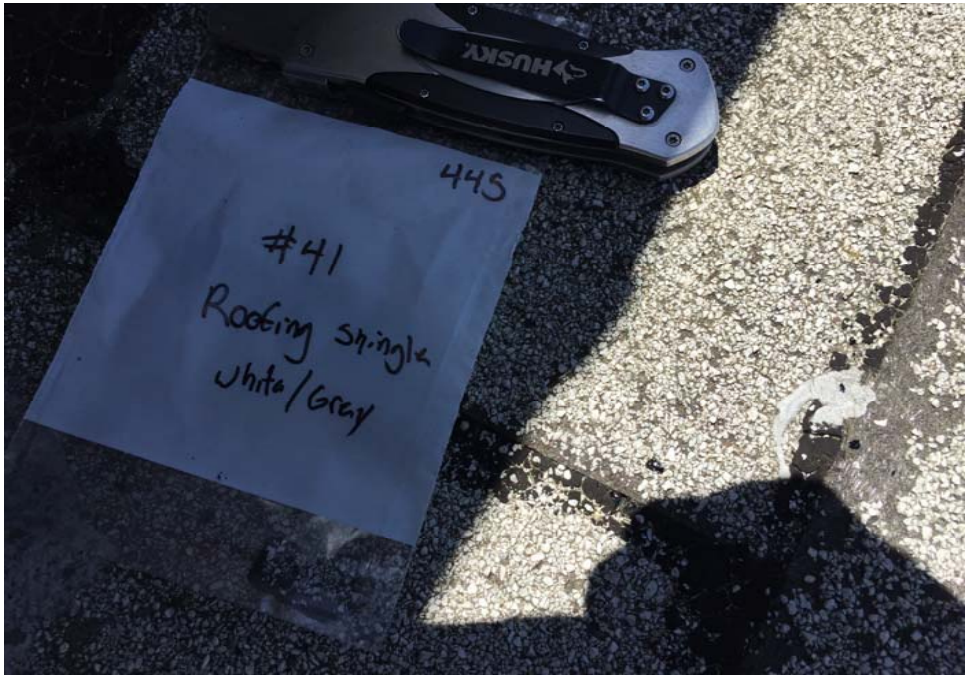
445
#32
Floor Tile
Black
&
Mastic

445
#37
Floor Tile
White
&
Mastic
445
#35
Floor Tile
White
&
Mastic
445
#36
Floor Tile
White
&
Mastic


445
#33
Floor Tile
Black
&
Mastic


445
#40
Concrete/Cement

445
#38
Concrete/Cement


HUSKY
445
#41
Roofing shingle
White/Gray

445
#39
Concrete/Cement

445
#44
Roofing Tar
Grey/Black

445
#42
Roofing shingle
White/Grey

445
#45
Roofing Tar
Grey/Black

445
#43
Roofing Shingle
White/Grey

445
#46
Roofing Tar
Grey/Black

445
#47
Roofing Shingle
Black
445
#48
Roofing Shingle
Black
#49
Roofing Shingle
Black

455 SERRAMONTE BOULEVARD

455 Serramonte Boulevard
Colma, CA 94014

KELLCO Job # 1506-12

Pre-Demolition
Asbestos and Lead Inspection Report

for

ENGEO Inc.
2010 Crow Canyon Place
Suite #250
San Ramon, CA 94583

July 17, 2015 - Revised

3137 Diablo Avenue • Hayward, CA 94545-2701• (510) 786-9751 • fax (510) 786-9625
http://www.kellco.com •: mailbox3137@kellco.co

Pre-Demolition
Asbestos and Lead Paint Inspection Report

Date:	July 17, 2015 - Revised
KELLCO Job #:	1506-12
Client:	ENGEO Inc. 2010 Crow Canyon Place Suite #250 San Ramon, CA 94583
Location:	455 Serramonte Boulevard Colma, CA 94014
Date of Inspection:	June 25, 2015 & June 26, 2015
Inspectors:	Frank Valerga CAC #14-5279, CDPH Lead #21965
Lab Reports:	134058, 134055
Description Of The Inspected Area:	The inspection was conducted on the interior and exterior of a single story commercial building located in Colma, California. The interior has floor tile, floor tile mastic, vinyl flooring/mastic, carpet, carpet padding on the floors. There is gypsum wallboard, tape, joint compound, texture and floor tile one the walls. The ceiling has acoustical ceiling tiles on the ceiling. The exterior has wood siding and corrugated metal on the walls. The roofing is foam roof.

Background

This is a pre-demolition asbestos and lead inspection on a commercial building located in Colma, California.

Synopsis

Asbestos was **NOT** found in the tested materials.

Lead paint was **NOT** found in the tested materials.

Fluorescent lights, fluorescent fixture ballasts and thermostats may contain PCB's and mercury.

About the Inspection

The inspection performed was both visual and tactile. Samples were taken of suspect materials located at the interior and exterior of the survey area.

The inspection was a reasonable attempt to find suspect materials that were hidden within walls, behind structures, in vertical shafts or in areas not normally accessible. If any non-sampled materials are uncovered, these should be submitted for asbestos and/or lead paint analysis.

- ***Asbestos Findings***

Asbestos samples were analyzed in Schneider Laboratories Global by Polarized Light Microscopy, the EPA's recommended method. Copies of the full laboratory reports are attached. These valuable reports can be utilized as future reference to determine if a particular material was tested.

Photographs of sampled materials are included. Sample locations are noted on the attached not-to-scale drawing.

The determination of a material to be Asbestos Containing Material (ACM) was made either by direct sampling or by homogeneity with at least one positive sample of the same material.

Tested materials that were **none detected** for asbestos are:

LAB #	FIELD #	DESCRIPTION	LAYER #	LAYER NAME	LAYER DESCRIPTION
134058-001	01	Drywall White	1	Drywall	White, Powdery
134058-001	01	Drywall White	1	Drywall	White, Powdery
134058-001	01	Drywall White	1	Drywall	White, Powdery
134058-002	02	Drywall White	1	Drywall	White, Powdery
134058-002	02	Drywall White	1	Drywall	White, Powdery
134058-002	02	Drywall White	1	Drywall	White, Powdery
134058-002	02	Drywall White	2	Joint Compound	White, Granular
134058-002	02	Drywall White	2	Joint Compound	White, Granular
134058-003	03	Drywall White	1	Drywall	White, Powdery
134058-003	03	Drywall White	1	Drywall	White, Powdery

LAB #	FIELD #	DESCRIPTION	LAYER #	LAYER NAME	LAYER DESCRIPTION
134058-003	03	Drywall White	1	Drywall	White, Powdery
134058-004	04	Drywall White	1	Drywall	White, Powdery
134058-004	04	Drywall White	1	Drywall	White, Powdery
134058-004	04	Drywall White	1	Drywall	White, Powdery
134058-004	04	Drywall White	2	Joint Compound	White, Granular
134058-004	04	Drywall White	2	Joint Compound	White, Granular
134058-005	05	Drywall White	1	Drywall	White, Powdery
134058-005	05	Drywall White	1	Drywall	White, Powdery
134058-005	05	Drywall White	1	Drywall	White, Powdery
134058-005	05	Drywall White	2	Joint Compound	White, Granular
134058-005	05	Drywall White	2	Joint Compound	White, Granular
134058-006	06	Drywall White	1	Drywall	White, Powdery
134058-006	06	Drywall White	1	Drywall	White, Powdery
134058-006	06	Drywall White	1	Drywall	White, Powdery
134058-006	06	Drywall White	2	Joint Compound	White, Granular
134058-006	06	Drywall White	2	Joint Compound	White, Granular
134058-007	07	Drywall White	1	Drywall	White, Powdery
134058-007	07	Drywall White	1	Drywall	White, Powdery
134058-007	07	Drywall White	1	Drywall	White, Powdery
134058-008	08	Floor Tile & Mastic Grey	1	Floor Tile	Gray, Organically Bound
134058-008	08	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous

LAB #	FIELD #	DESCRIPTION	LAYER #	LAYER NAME	LAYER DESCRIPTION
134058-008	08	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-008	08	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-009	09	Floor Tile & Mastic Grey	1	Floor Tile	Gray, Organically Bound
134058-009	09	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-009	09	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-009	09	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-010	10	Floor Tile & Mastic Grey	1	Floor Tile	Gray, Organically Bound
134058-010	10	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-010	10	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-010	10	Floor Tile & Mastic Grey	2	Mastic	Black, Bituminous
134058-011	11	Rubber BB & Mastic Black	1	Baseboard	Black, Rubbery
134058-011	11	Rubber BB & Mastic Black	2	Mastic	White, Soft
134058-011	11	Rubber BB & Mastic Black	2	Mastic	White, Soft
134058-012	12	Rubber BB & Mastic Black	1	Baseboard	Black, Rubbery
134058-012	12	Rubber BB & Mastic Black	2	Mastic	White, Soft
134058-012	12	Rubber BB & Mastic Black	2	Mastic	White, Soft
134058-013	13	Rubber BB & Mastic Black	1	Baseboard	Black, Rubbery
134058-013	13	Rubber BB & Mastic Black	2	Mastic	White, Soft
134058-013	13	Rubber BB & Mastic Black	2	Mastic	White, Soft
134058-014	14	Floor Tile & Mastic Beige	1	Floor Tile	Beige, Organically Bound
134058-014	14	Floor Tile & Mastic Beige	2	Mastic	Yellow, Soft

LAB #	FIELD #	DESCRIPTION	LAYER #	LAYER NAME	LAYER DESCRIPTION
134058-014	14	Floor Tile & Mastic Beige	2	Mastic	Yellow, Soft
134058-015	15	Floor Tile & Mastic Beige	1	Floor Tile	Beige, Organically Bound
134058-015	15	Floor Tile & Mastic Beige	2	Mastic	Yellow, Soft
134058-015	15	Floor Tile & Mastic Beige	2	Mastic	Yellow, Soft
134058-016	16	Floor Tile & Mastic Beige	1	Floor Tile	Beige, Organically Bound
134058-016	16	Floor Tile & Mastic Beige	2	Mastic	Yellow, Soft
134058-016	16	Floor Tile & Mastic Beige	2	Mastic	Yellow, Soft
134058-017	17	Floor Tile & Mastic Black	1	Floor Tile	Black, Organically Bound
134058-017	17	Floor Tile & Mastic Black	2	Mastic	Black, Bituminous
134058-017	17	Floor Tile & Mastic Black	2	Mastic	Black, Bituminous
134058-018	18	Floor Tile & Mastic Black	1	Floor Tile	Black, Organically Bound
134058-018	18	Floor Tile & Mastic Black	2	Mastic	Black, Bituminous
134058-018	18	Floor Tile & Mastic Black	2	Mastic	Black, Bituminous
134058-019	19	Floor Tile & Mastic Black	1	Floor Tile	Black, Organically Bound
134058-019	19	Floor Tile & Mastic Black	2	Mastic	Black, Bituminous
134058-019	19	Floor Tile & Mastic Black	2	Mastic	Black, Bituminous
134058-020	20	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-020	20	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-020	20	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-021	21	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-021	21	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous

LAB #	FIELD #	DESCRIPTION	LAYER #	LAYER NAME	LAYER DESCRIPTION
134058-021	21	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-022	22	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-022	22	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-022	22	Ceiling Tile Off White	1	Ceiling Tile	Off White, Fibrous
134058-023	23	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-023	23	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-023	23	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-024	24	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-024	24	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-024	24	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-025	25	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-025	25	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-025	25	Ceiling Tile White	1	Ceiling Tile	Gray, Fibrous
134058-026	26	Concrete/Cement Grey	1	Concrete	Gray, Hard
134058-027	27	Concrete/Cement Grey	1	Concrete	Gray, Hard
134058-028	28	Concrete/Cement Grey	1	Concrete	Gray, Hard
134058-029	30	Foam Roof White/Orange	1	Foam	White/Orange, Foamy
134058-029	30	Foam Roof White/Orange	1	Foam	White/Orange, Foamy
134058-030	31	Foam Roof White/Orange	1	Foam	White/Orange, Foamy
134058-030	31	Foam Roof White/Orange	1	Foam	White/Orange, Foamy
134058-031	32	Foam Roof White/Orange	1	Foam	White/Orange, Foamy

LAB #	FIELD #	DESCRIPTION	LAYER #	LAYER NAME	LAYER DESCRIPTION
134058-031	32	Foam Roof White/Orange	1	Foam	White/Orange, Foamy
134058-032	33	Ducting Wrap Gray	1	Duct Wrap	Gray, Fibrous
134058-032	33	Ducting Wrap Gray	1	Duct Wrap	Gray, Fibrous
134058-033	34	Ducting Wrap Gray	1	Duct Wrap	Gray, Fibrous
134058-033	34	Ducting Wrap Gray	1	Duct Wrap	Gray, Fibrous
134058-034	35	Ducting Wrap Gray	1	Duct Wrap	Gray, Fibrous
134058-034	35	Ducting Wrap Gray	1	Duct Wrap	Gray, Fibrous

- ***Paint Findings***

Lead samples were analyzed by Atomic Absorption in Schneider Laboratories Global. OSHA requires protection of workers from exposure to any lead. Paint should be considered as containing lead if it is the same color as any positive tested material, unless it has specifically been tested and shown to be **none detected** for lead.

The following are materials for which the lead was **none detected**:

LAB #	FIELD #	DESCRIPTION	LEAD CONCENTRATION	UNITS
134055-001	PB-01	Interior Red/White	< 32.3	mg/kg
134055-002	PB-02	Interior Red/White	< 31.0	mg/kg
134055-003	PB-03	Interior White	< 30.4	mg/kg
134055-004	PB-04	Interior White	< 32.9	mg/kg
134055-005	PB-05	Interior White	< 32.7	mg/kg

Although there are some materials that are negative for lead paint, for the purposes of demolition it is recommended that all painted materials be considered as lead containing unless otherwise tested.

- ***Other Hazardous Materials***

Throughout the property there are cans of paint, oil, and other chemicals that have been left on the site. These should be handled appropriately

The building contains light fixtures with fluorescent bulbs and ballasts that may contain PCB's. These should be handled in accordance with regulations.

It is also anticipated that the fluorescent light tubes may contain mercury. If they are to be removed, they should be recycled properly

Regulatory Requirements

The Environmental Protection Agency (EPA) defines Asbestos Containing Material as any material that contains greater than 1% asbestos.

Analytical Procedures

- ***POLARIZED LIGHT MICROSCOPY (PLM)***

  Bulk samples were analyzed in accordance with U.S. EPA "Test Method for Determination of Asbestos in Bulk Building Materials, 1993," with inclusion of area percent estimates of the sample components. The use of the McCrone Color Dispersion Staining Technique supplements the analysis when considered useful by the analyst. The samples are prepared with refractive immersion oil and are examined under Polarized Light Microscopy (PLM). The accuracy of the visual estimate method is 1%.

  As per the standard "...The accuracy in the determination of the presence or absence of asbestos of greater than 1 area percent asbestos is greater than 99%." ASTM Committee D22.05, 1/18/88, Standard *Method of Testing for Asbestos Containing Materials by Polarized Light Microscopy*. If the sample matrix is reduced to minimize non-asbestos components, the detection limit can be mathematically enhanced, based on the amount of material remaining after matrix reduction. This method is called gravimetric reduction. This method involves ashing and chemical dissolution of the sample.

- ***ATOMIC ABSORPTION FOR LEAD***

  Paint samples were collected for atomic absorption (AA) analysis. The detection limit for each sample depends upon many factors including the sensitivity of the instrument and the sample size. In the laboratory utilizing flame AA, the detection limit is normally .01% or 100 parts per million (ppm).

KELLCO Qualifications

The KELLCO asbestos inspector is licensed with the State of California Department of Occupational Safety and Health (CAL-OSHA).

The KELLCO lead inspector is licensed by the California Department of Public Health (CDPH)

The following supporting documents are attached to this report:

- Laboratory analytical reports
- Photographs of sample locations
- Floor plan or sketch showing sample locations

Please call KELLCO if there are any questions and/or clarifications regarding this report. We look forward to working with you in the future.

Sincerely,

KELLCO Services, Inc.

Tim C. Cannard CAC #94-1395, CDPH Lead #764
Senior Project Manager

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Order #: 134058

Received 07/01/15
Analyzed 07/01/15
Reported 07/01/15

Attn:

Project: Commercial Building
Location: 455 Serramonte Boulevard
Number: 1506-12

PO Number:

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134058-001	06/25/15	01	Drywall White		
Layer 1: Drywall White, Powdery				None Detected	20% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 75% NON FIBROUS MATERIAL
134058-002	06/25/15	02	Drywall White		
Layer 1: Drywall White, Powdery				None Detected	20% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 75% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134058-003	06/25/15	03	Drywall White		
Layer 1: Drywall White, Powdery				None Detected	20% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 75% NON FIBROUS MATERIAL
134058-004	06/25/15	04	Drywall White		
Layer 1: Drywall White, Powdery				None Detected	20% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 75% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134058-005	06/25/15	05	Drywall White		
Layer 1: Drywall White, Powdery				None Detected	20% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 75% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134058-006	06/25/15	06	Drywall White		
Layer 1: Drywall White, Powdery				None Detected	20% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 75% NON FIBROUS MATERIAL
Layer 2: Joint Compound White, Granular				None Detected	2% CELLULOSE FIBER 98% NON FIBROUS MATERIAL
134058-007	06/25/15	07	Drywall White		
Layer 1: Drywall White, Powdery				None Detected	15% CELLULOSE FIBER 5% MINERAL/GLASS WOOL 80% NON FIBROUS MATERIAL
134058-008	06/25/15	08	Floor Tile & Mastic Grey		
Layer 1: Floor Tile Gray, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	2% CELLULOSE FIBER 95% NON FIBROUS MATERIAL 3% POLYETHYLENE
134058-009	06/25/15	09	Floor Tile & Mastic Grey		
Layer 1: Floor Tile Gray, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	2% CELLULOSE FIBER 95% NON FIBROUS MATERIAL 3% POLYETHYLENE
134058-010	06/25/15	10	Floor Tile & Mastic Grey		
Layer 1: Floor Tile Gray, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	2% CELLULOSE FIBER 95% NON FIBROUS MATERIAL 3% POLYETHYLENE
134058-011	06/25/15	11	Rubber BB & Mastic Black		
Layer 1: Baseboard Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic White, Soft				None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134058-012	06/25/15	12	Rubber BB & Mastic Black		
Layer 1: Baseboard Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic White, Soft				None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
134058-013	06/25/15	13	Rubber BB & Mastic Black		
Layer 1: Baseboard Black, Rubbery				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic White, Soft				None Detected	5% CELLULOSE FIBER 95% NON FIBROUS MATERIAL
134058-014	06/25/15	14	Floor Tile & Mastic Beige		
Layer 1: Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
134058-015	06/25/15	15	Floor Tile & Mastic Beige		
Layer 1: Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
134058-016	06/25/15	16	Floor Tile & Mastic Beige		
Layer 1: Floor Tile Beige, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Yellow, Soft				None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
134058-017	06/25/15	17	Floor Tile & Mastic Black		
Layer 1: Floor Tile Black, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers	Other Materials
134058-018	06/25/15	18	Floor Tile & Mastic Black		
Layer 1: Floor Tile Black, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
134058-019	06/25/15	19	Floor Tile & Mastic Black		
Layer 1: Floor Tile Black, Organically Bound				None Detected	100% NON FIBROUS MATERIAL
Layer 2: Mastic Black, Bituminous				None Detected	3% CELLULOSE FIBER 97% NON FIBROUS MATERIAL
134058-020	06/25/15	20	Ceiling Tile Off White		
Layer 1: Ceiling Tile Off White, Fibrous				None Detected	45% CELLULOSE FIBER 45% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134058-021	06/25/15	21	Ceiling Tile Off White		
Layer 1: Ceiling Tile Off White, Fibrous				None Detected	45% CELLULOSE FIBER 45% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134058-022	06/25/15	22	Ceiling Tile Off White		
Layer 1: Ceiling Tile Off White, Fibrous				None Detected	45% CELLULOSE FIBER 45% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134058-023	06/25/15	23	Ceiling Tile White		
Layer 1: Ceiling Tile Gray, Fibrous				None Detected	45% CELLULOSE FIBER 45% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134058-024	06/25/15	24	Ceiling Tile White		
Layer 1: Ceiling Tile Gray, Fibrous				None Detected	45% CELLULOSE FIBER 45% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134058-025	06/25/15	25	Ceiling Tile White		
Layer 1: Ceiling Tile Gray, Fibrous				None Detected	45% CELLULOSE FIBER 45% MINERAL/GLASS WOOL 10% NON FIBROUS MATERIAL
134058-026	06/25/15	26	Concrete/Cement Grey		
Layer 1: Concrete Gray, Hard				None Detected	100% NON FIBROUS MATERIAL

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

Method: EPA 600/R-93/116 & 600/M4-82-020

PLM Analysis

Sample ID	Collected	Cust. ID	Location	Asbestos Fibers		Other Materials
134058-027	06/25/15	27	Concrete/Cement Grey			
Layer 1: Concrete Gray, Hard				None Detected	100%	NON FIBROUS MATERIAL
134058-028	06/25/15	28	Concrete/Cement Grey			
Layer 1: Concrete Gray, Hard				None Detected	100%	NON FIBROUS MATERIAL
134058-029	06/25/15	30	Foam Roof White/Orange			
Layer 1: Foam White/Orange, Foamy				None Detected	90% 10%	FOAMED GLASS NON FIBROUS MATERIAL
134058-030	06/25/15	31	Foam Roof White/Orange			
Layer 1: Foam White/Orange, Foamy				None Detected	90% 10%	FOAMED GLASS NON FIBROUS MATERIAL
134058-031	06/25/15	32	Foam Roof White/Orange			
Layer 1: Foam White/Orange, Foamy				None Detected	90% 10%	FOAMED GLASS NON FIBROUS MATERIAL
134058-032	06/25/15	33	Ducting Wrap Gray			
Layer 1: Duct Wrap Gray, Fibrous				None Detected	95% 5%	MINERAL/GLASS WOOL NON FIBROUS MATERIAL
134058-033	06/25/15	34	Ducting Wrap Gray			
Layer 1: Duct Wrap Gray, Fibrous				None Detected	95% 5%	MINERAL/GLASS WOOL NON FIBROUS MATERIAL
134058-034	06/25/15	35	Ducting Wrap Gray			
Layer 1: Duct Wrap Gray, Fibrous				None Detected	95% 5%	MINERAL/GLASS WOOL NON FIBROUS MATERIAL

Analyst: Wilson, John
134058-07/01/15 04:43 PM

Reel Hashim

Reviewed By: **Reel Hashim**
Analyst

Method reporting limit is 1%. PLM analysis is based on Visual Estimation and NESHAP recommends that any asbestos content less than 10 percent be verified by PLM Point Count or TEM Analysis. This report must not be reproduced except in full with the approval of the laboratory. The test results reported relate only to the samples submitted.

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	Commerical Building = 25, 000 sq./ft. 455 Serramonte Boulevard Colma CA. 94014

KELLCO Services JOB# **1506-12** LAB LOGIN #_____

COLLECTED BY: Frank Valerga

COLLECTED DATE 6/25/15

TURN AROUND TIME: Normal 24 TAT 4 8 (24) 48 5-DAY

RESULTS NEEDED BY

CIRCLE TYPE OF BULK ANALYSIS

(PLM) LEAD PAINT LEAD WIPE NON VIABLE MOLD VIABLE MOLD eCOLI OTHER_____

SAMPLES REC'D 35 ANALYZE TO FIRST POSITIVE YES NO

REPORT RESULTS TO PROJECT MANAGER: Tim Cannard

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 1 OF 3

KELLCO Services JOB#: **1506-12**
Commerical Building = 25, 000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
01	Drywall	White		
02	" "	" "		
03	" "	" "		
04	" "	" "		
05	" "	" "		
06	" "	" "		
07	" "	" "		
08	Floor Tile & Mastic	Grey		
09	" "	" "		

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RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6/29/15	7:15 pm	T. Ware	7-1-15	10:30

6715

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 2 OF 3

KELLCO Services JOB#: **1506-12**
Commerical Building = 25, 000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
10	" "	" "		
11	Rubber Baseboard & mastic	Black		
12	" "	" "		
13	" "	" "		
14	Floor Tile & Mastic	Beige		
15	" "	" "		
16	" "	" "		
17	Floor Tile & Mastic	Black		
18	" "	" "		
19	" "	" "		
20	Ceiling Tile	Off White		
21	" "	" "		
22	" "	" "		
23	Ceiling Tile	White		
24	" "	" "		
25	" "	" "		
26	Concret / Cement	Grey		
27	" "	" "		

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6/29/15	7:15 pm			

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 3 OF 3

KELLCO Services JOB#: **1506-12**
Commerical Building = 25, 000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
28	" "	" "		
30	Foam Roof	White/Orange		
31	" "	" "		
32	" "	" "		
33	Ducting Wrap	Grey		
34	" "	" "		
35	" "	" "		

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[illegible]	6/29/15	3:15 pm			

Analysis Report

Schneider Laboratories Global, Inc

2512 W. Cary Street • Richmond, Virginia • 23220-5117
804-353-6778 • 800-785-LABS (5227) • Fax 804-359-1475

Customer: Kellco Services Inc. (193)
Address: 3137 Diablo Avenue
Hayward, CA 94545-2701

Attn:

Project: Commercial Building
Location: 455 Serramonte Boulevard
Number: 1506-12

Order #: 134055

Matrix Paint
Received 07/01/15
Analyzed 07/01/15
Reported 07/01/15

PO Number:

Sample ID / Parameter	Cust. Sample ID	Location / Method	Sample Date	Weight / Total µg	% / Wt.	Conc.	RL*
134055-001	PB-01	Interior Red/White	06/25/15	310 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00323 %	<32.3 mg/kg	32.3 mg/kg
134055-002	PB-02	Interior Red/White	06/25/15	323 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.0031 %	<31.0 mg/kg	31.0 mg/kg
134055-003	PB-03	Interior White	06/25/15	329 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00304 %	<30.4 mg/kg	30.4 mg/kg
134055-004	PB-04	Interior White	06/25/15	304 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00329 %	<32.9 mg/kg	32.9 mg/kg
134055-005	PB-05	Interior White	06/25/15	306 mg			
Lead		EPA 7000B / 3050B		<10.0 µg	<0.00327 %	<32.7 mg/kg	32.7 mg/kg

Analyst: IH
134055-07/01/15 03:53 PM

Reviewed By: **Sultan Al-Johani**
Analyst

Minimum reporting limit: 10.0 µg. Lead Based Paint contains 0.5% lead by weight per Federal statute. The OSHA Lead in Construction Standard, 29 CFR 1926.62, is invoked if any lead is present in the sample. Concentration and *Reporting Limit (RL) based on weights provided by client. All internal QC parameters were met. Unusual sample conditions, if any, are described. Values are reported to three significant figures. PPM = mg/kg | PPB = µg/kg. The test results reported relate only to the samples submitted.

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	Commerical Building = 25, 000 sq./ft. 455 Serramonte Boulevard Colma CA. 94014

KELLCO Services JOB# **1506-12** LAB LOGIN #_____

COLLECTED BY: Frank Valerga

COLLECTED DATE 6/25/15

TURN AROUND TIME: Normal 24 TAT 4 8 (24) 48 5-DAY

RESULTS NEEDED BY

CIRCLE TYPE OF BULK ANALYSIS

PLM (LEAD PAINT) LEAD WIPE NON VIABLE MOLD VIABLE MOLD eCOLI OTHER_____

SAMPLES REC'D 5 ANALYZE TO FIRST POSITIVE YES NO

REPORT RESULTS TO PROJECT MANAGER: Tim Cannard

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 1 OF 1

KELLCO Services JOB#: **1506-12**
Commerical Building = 25, 000 sq./ft.

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
PB-01	Interior	Red/White		
PB-02	" "	" "		
PB-03	" "	White		
PB-04	" "	" "		
PB-05	" "	" "		

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RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
[signature]	6/29/15	7:30pm	T. Wart	7-1-15	10:30

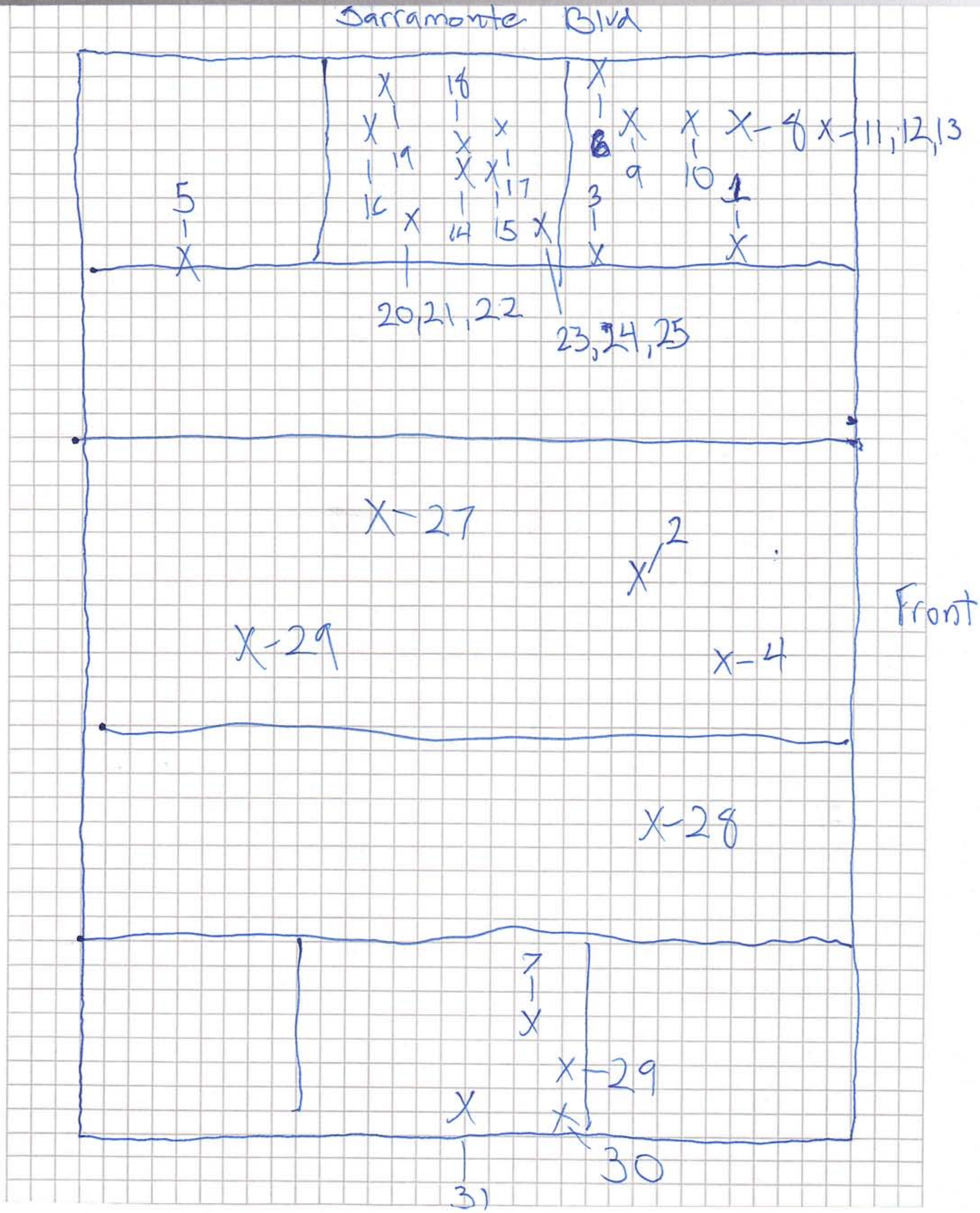
6716

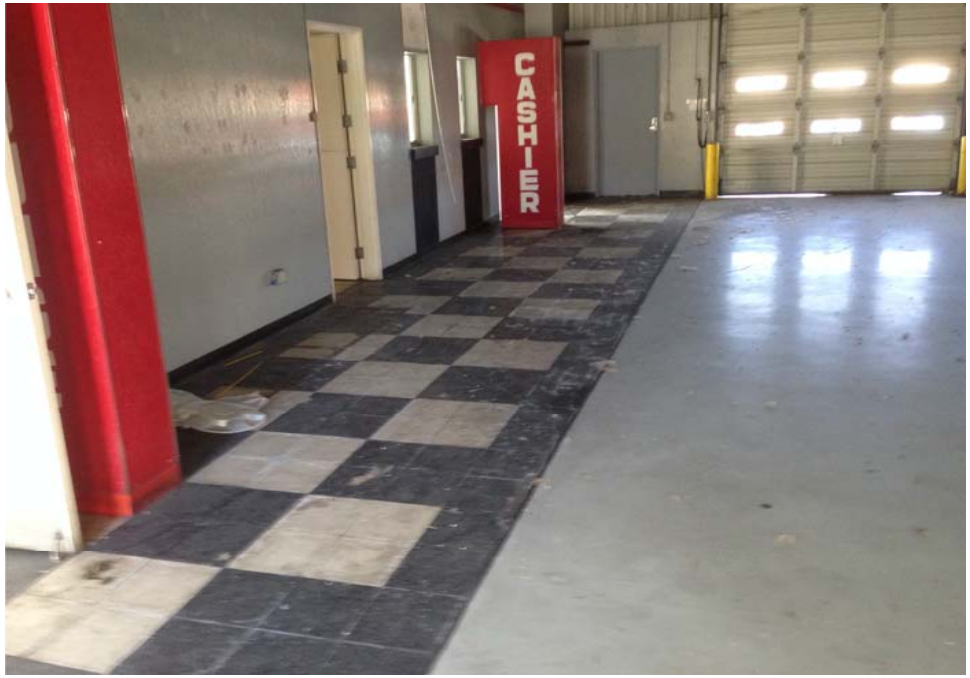
KELLCO Job # 1506-12

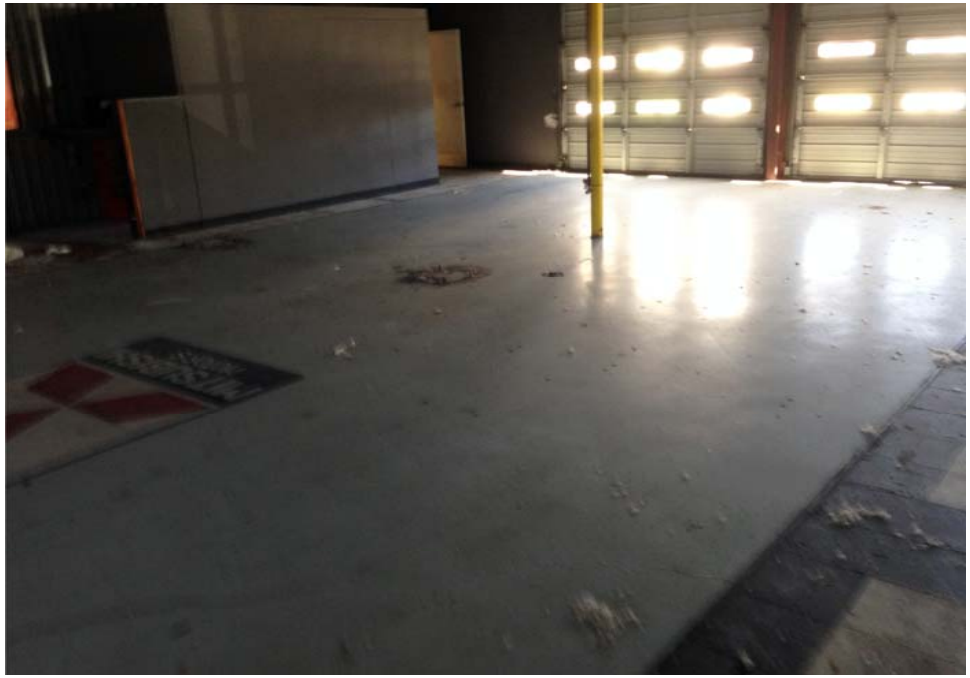
Client:

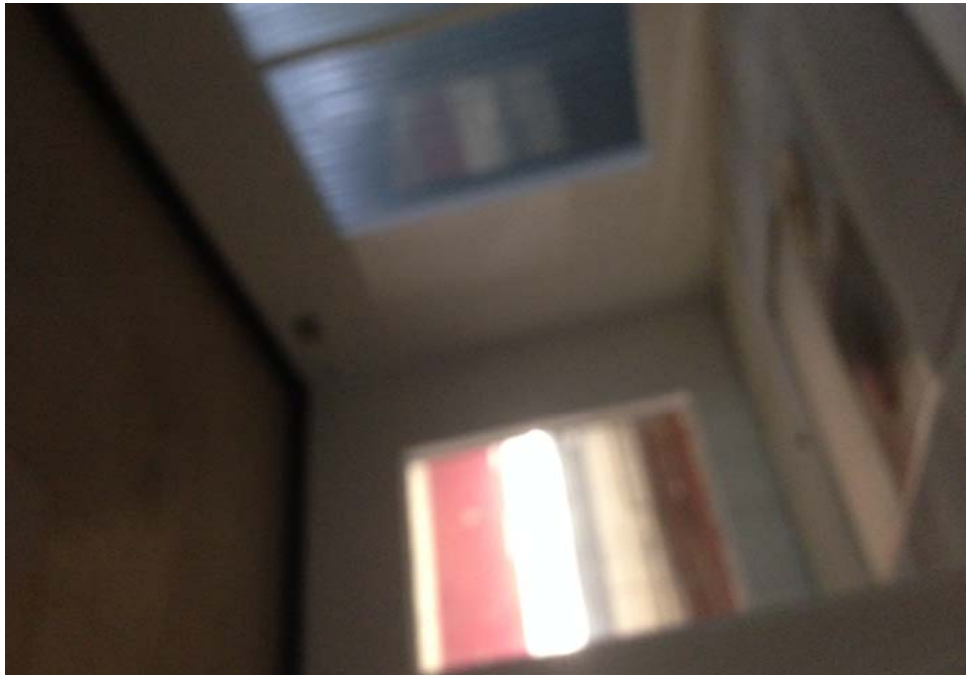
Jobsite: 455 Serramonte Blvd

K E L L C O



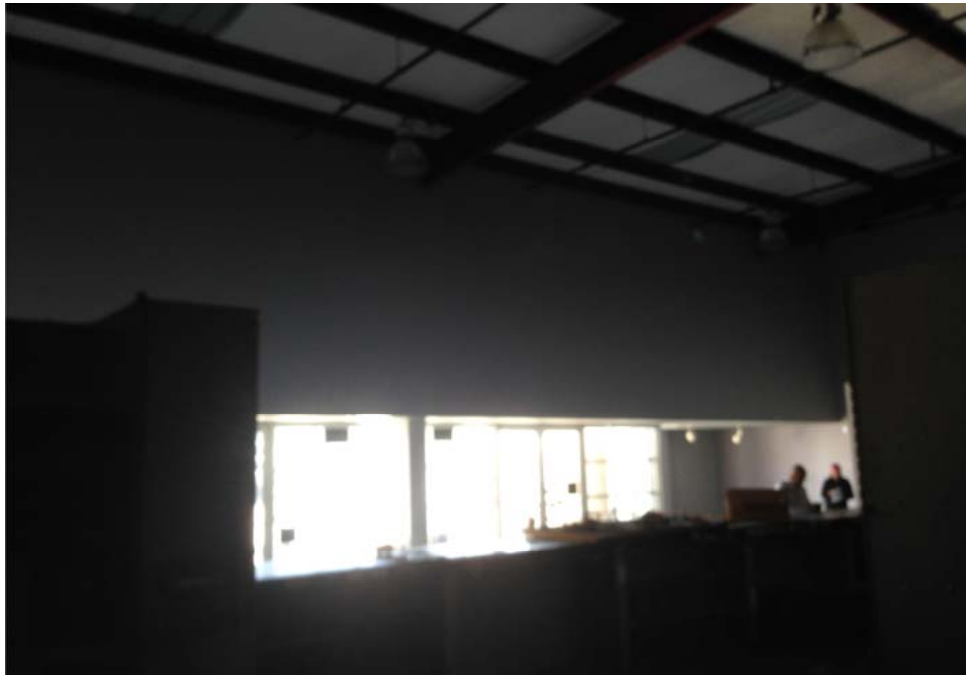

CASHIER

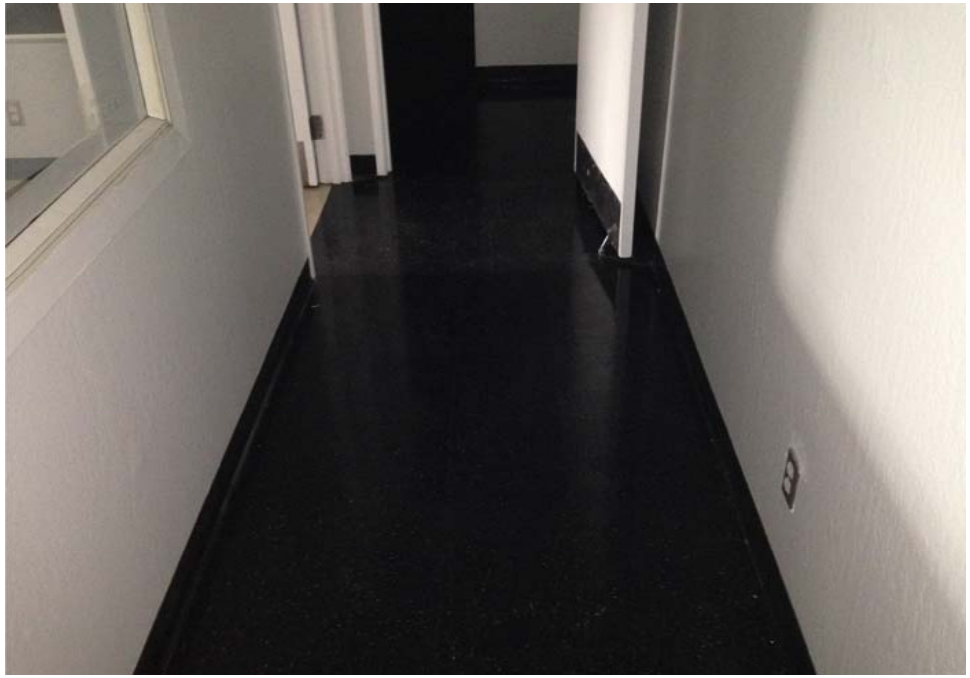


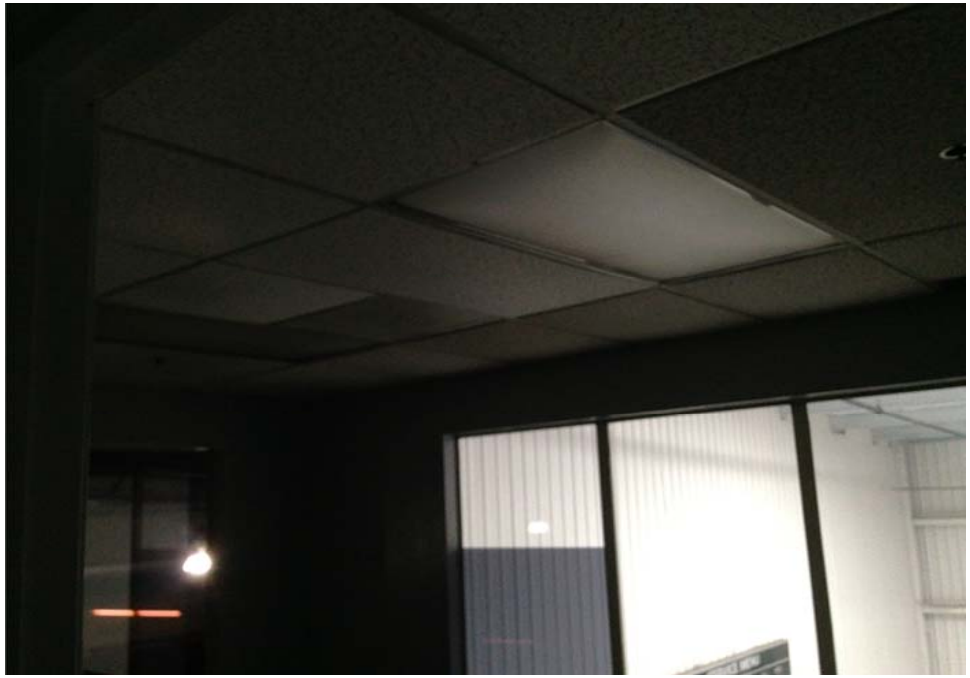


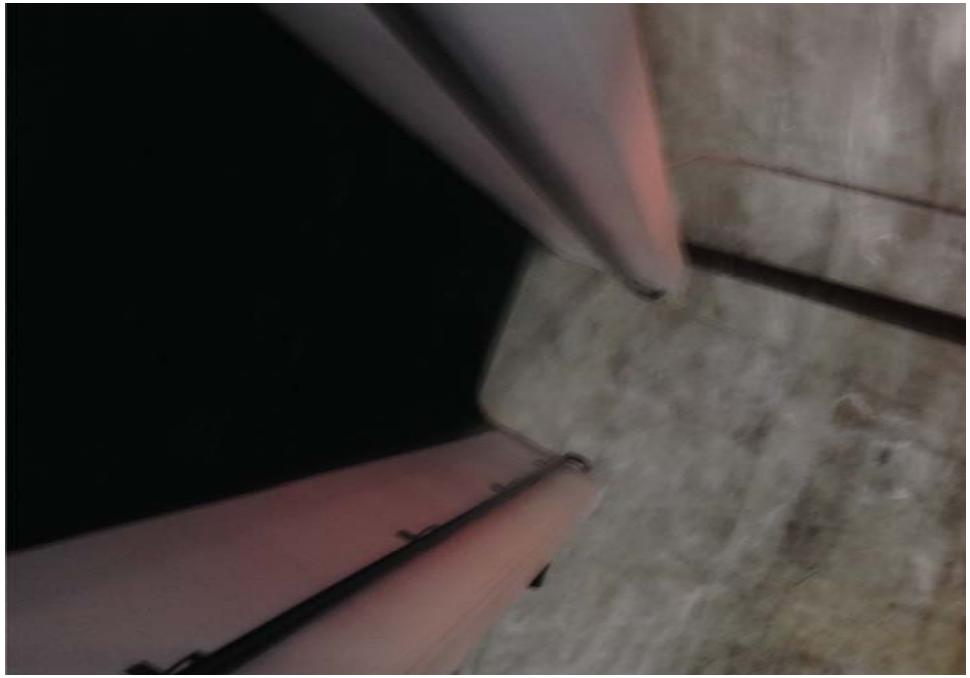
TOOL
SALE!

First Aid









455
PARTS
RECEIVING

PARTS RECEIVING
455 SERRAMONTE BLVD.

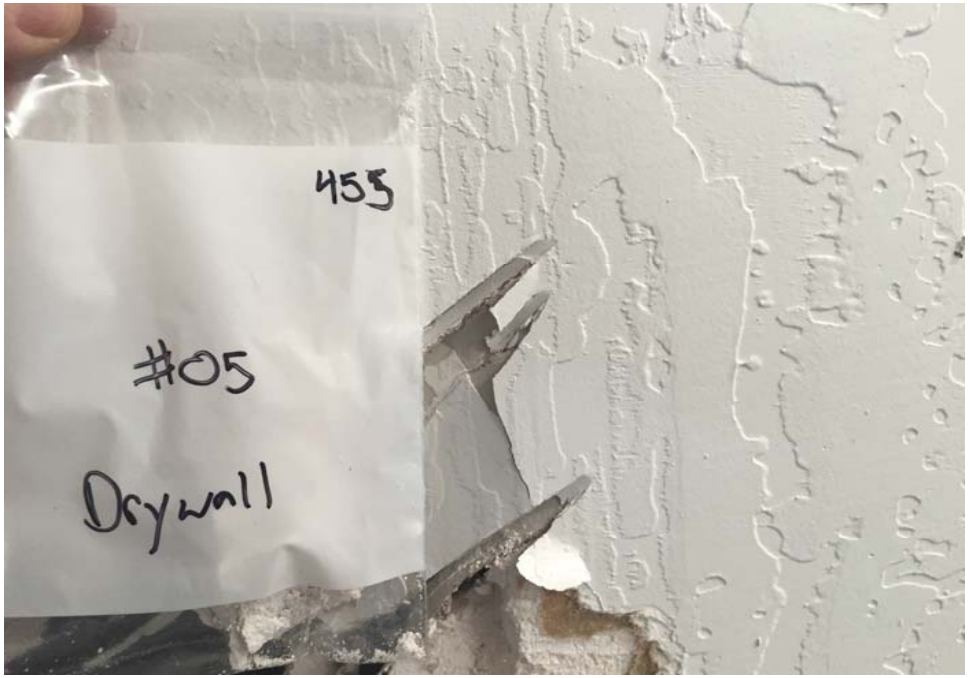
455

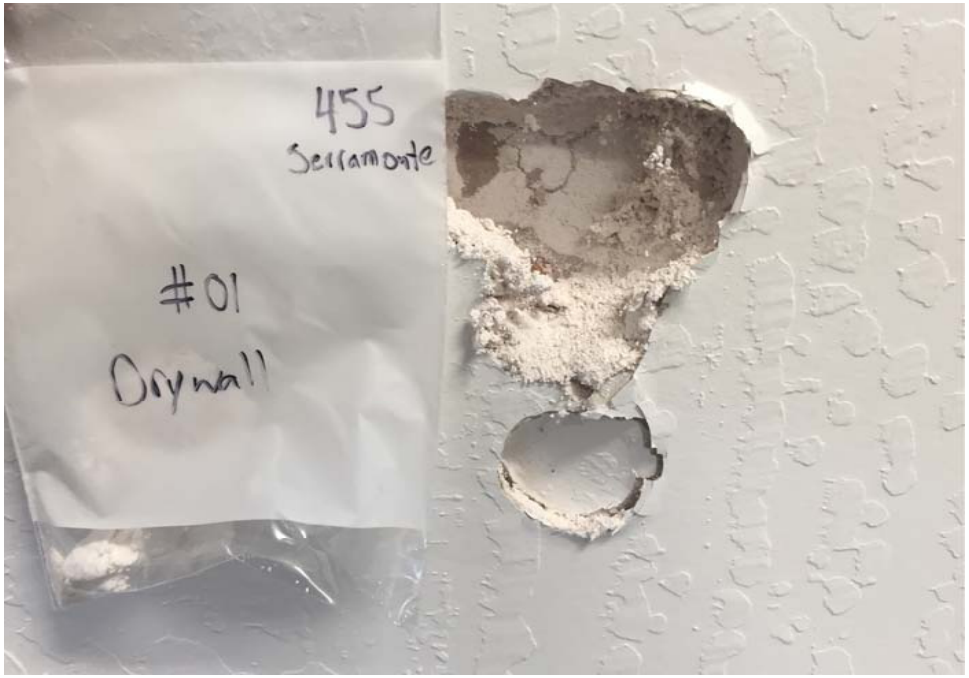
SERVICE
DEPARTMENT
Jeep

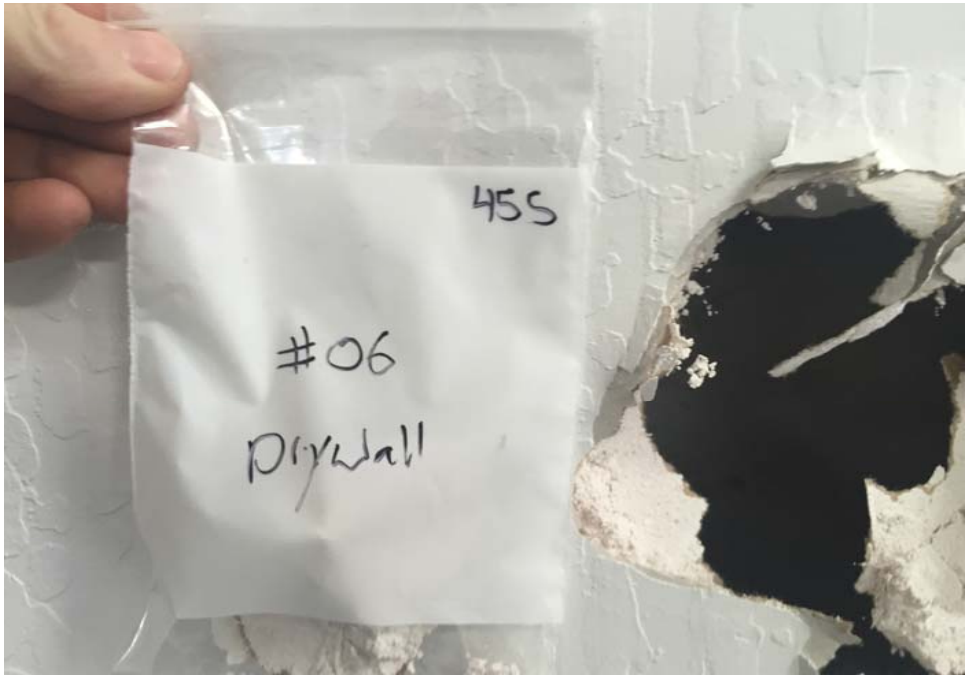
Jeep

SERVICE
SERVICE
Jeep

455
SMOKING
ASE


455
#05
Drywall


455
Serramonte
#01
Drywall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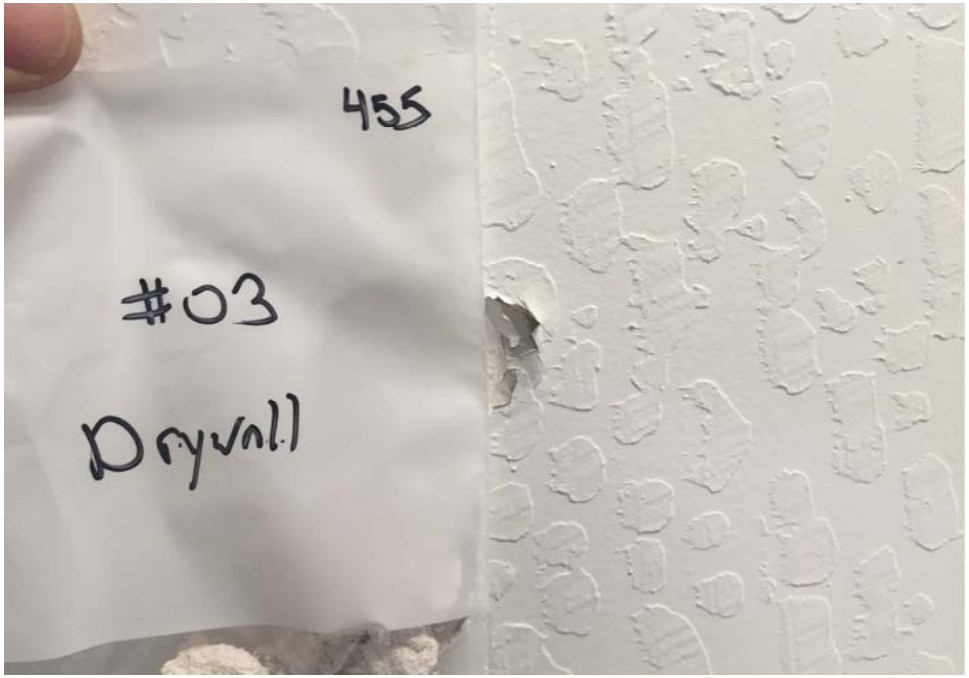
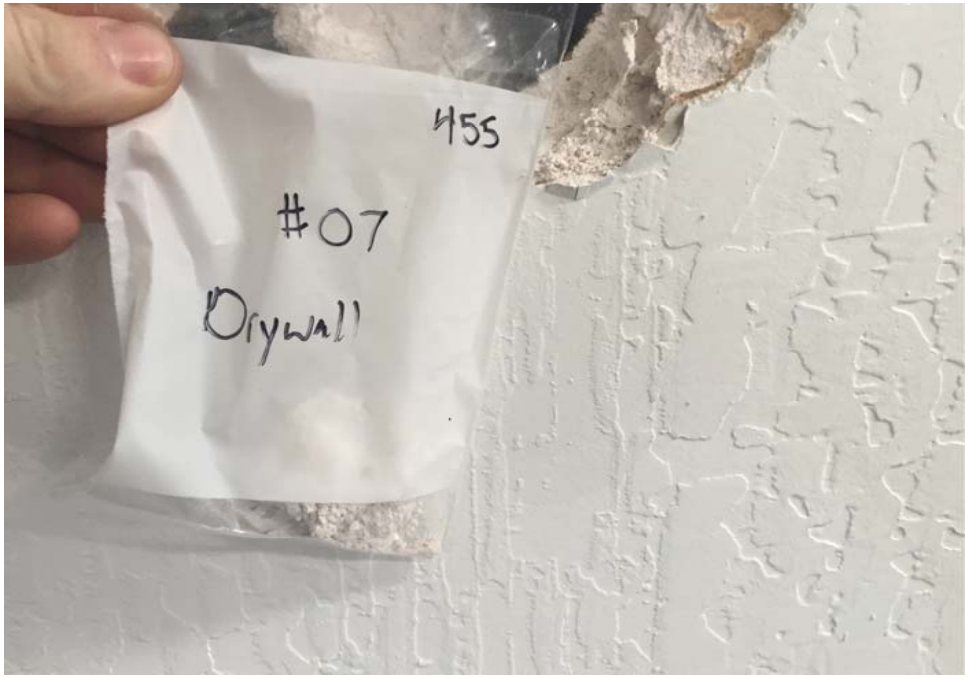
#06
Drywall

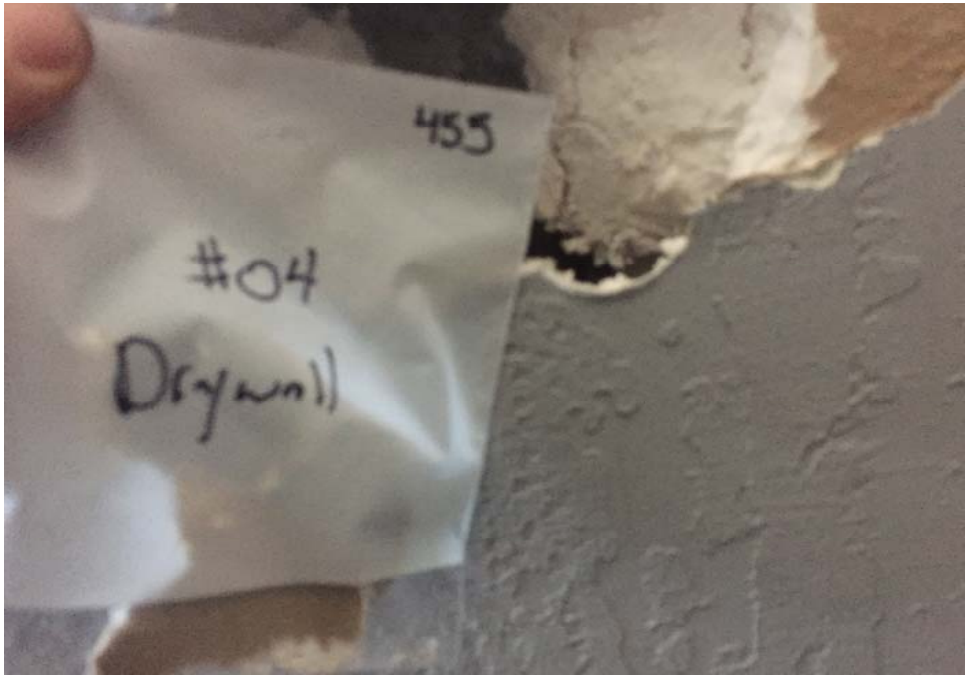

455
#03
Drywall

#09
455
Floor Tile & Mastic
Grey


455
#07
Drywall

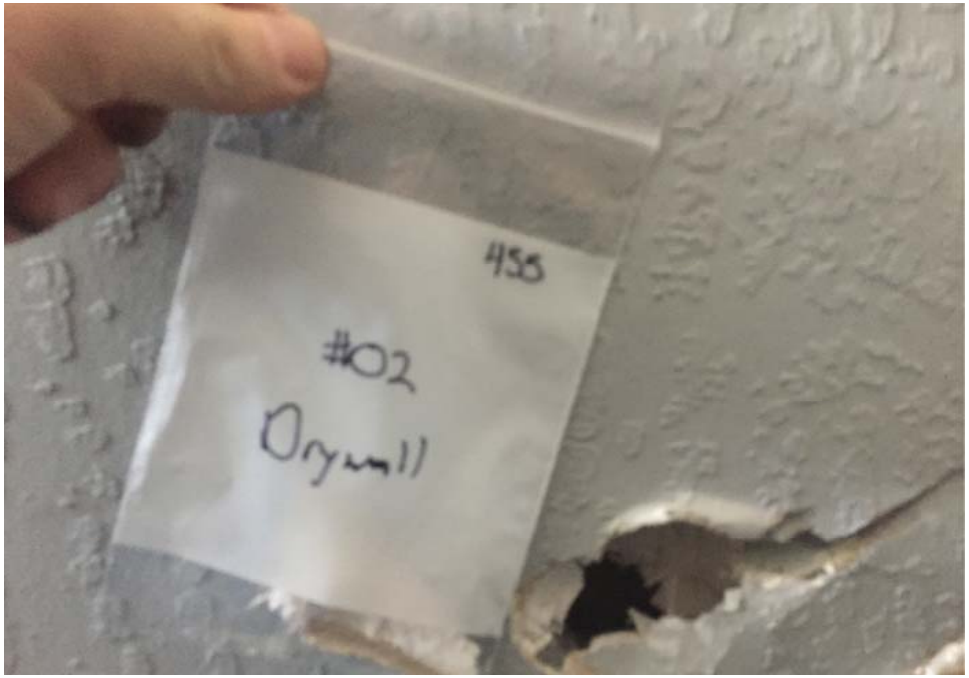
455
#10
Floor Tile & Mastic
Grey

455
#08
Floor Tile & Mastic
Grey

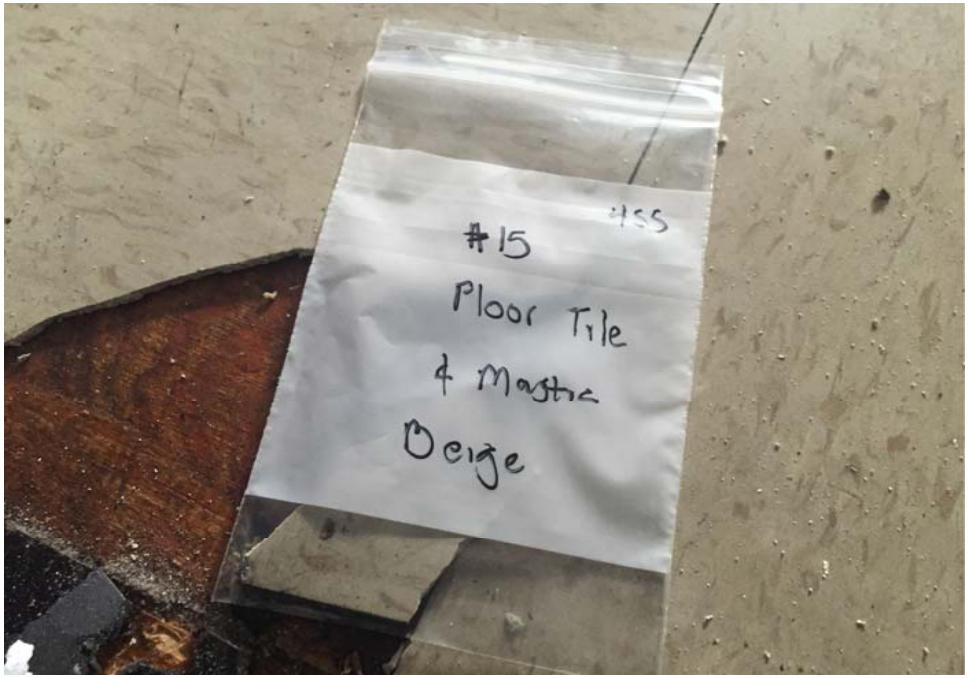

455
#04
Drywall

455
#11
Rubber Baseboard
Black
455
#12
Rubber Baseboard
Black
455
#13
Rubber Baseboard
Black

455
#14
Floor Tile
+ mastic
Beige


455
#02
Drywall

455
#17
Floor Tile
& Mastic
Black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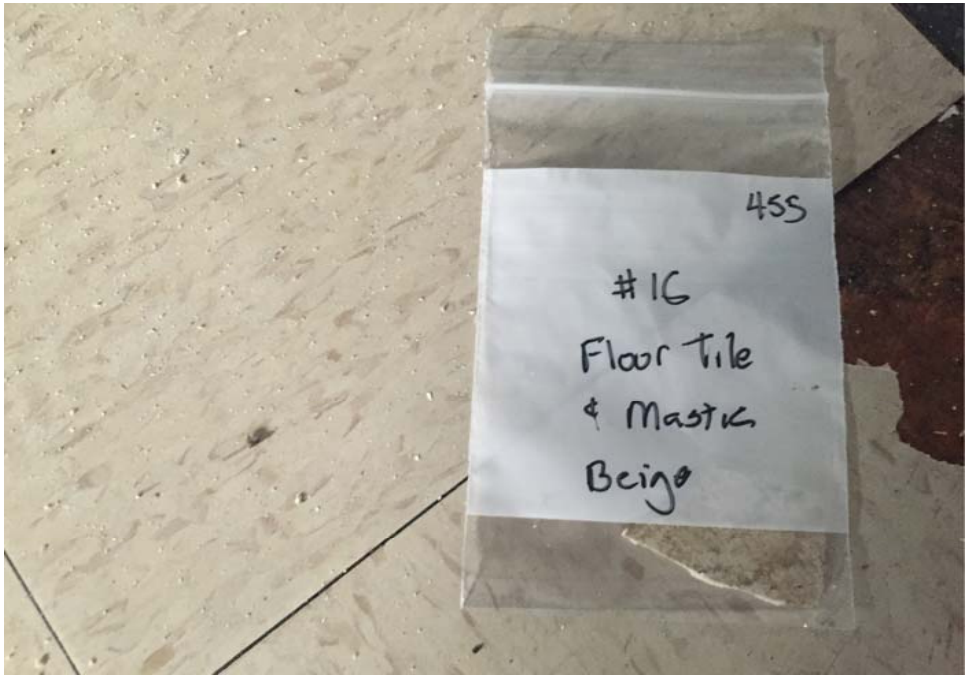
#15
Floor Tile
& Mastic
Beige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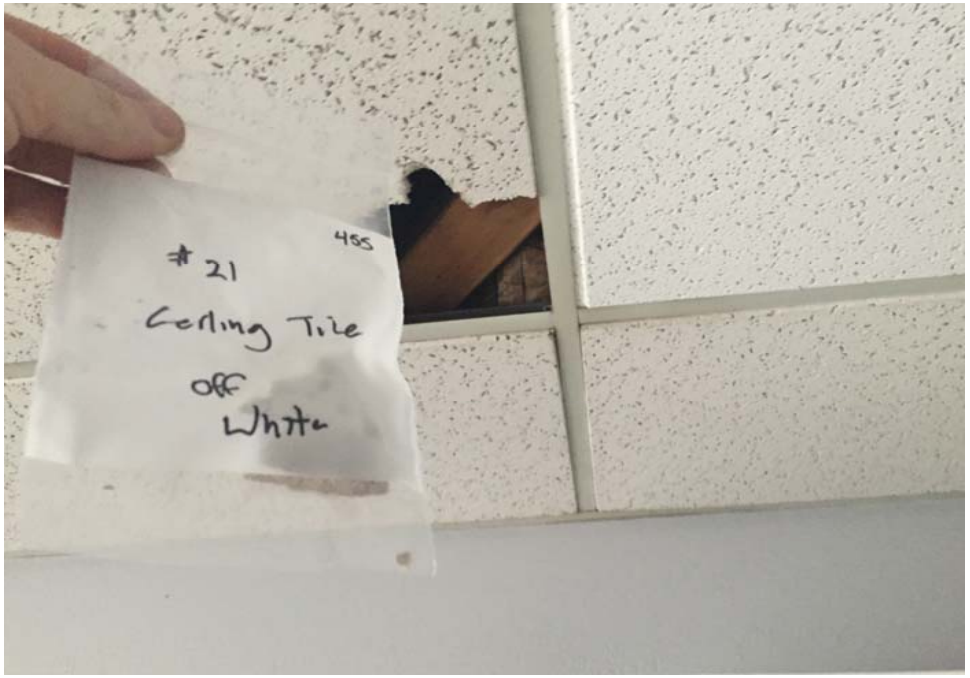
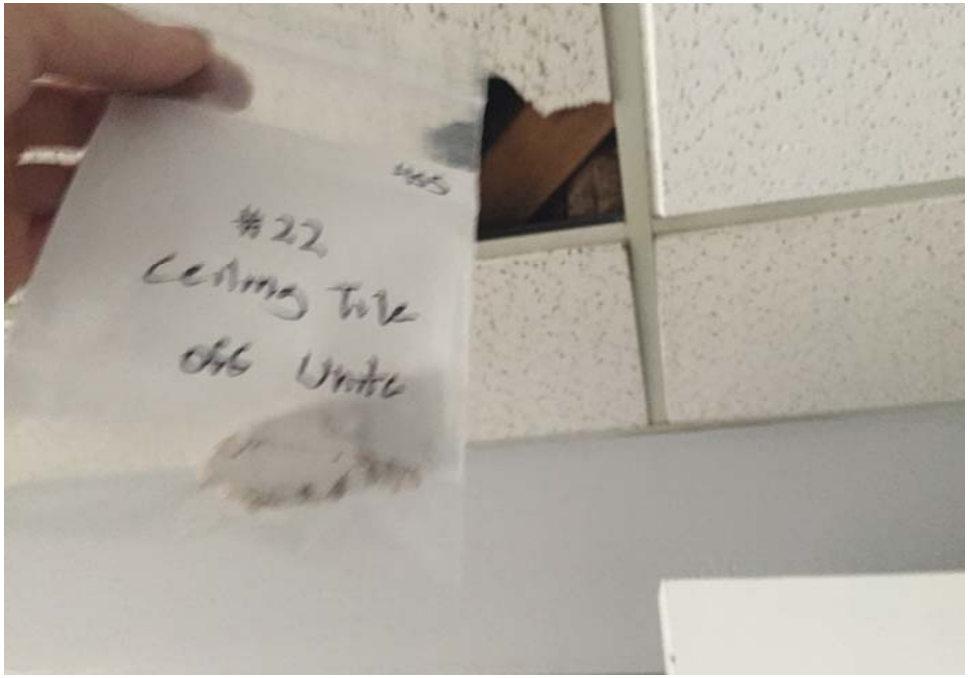
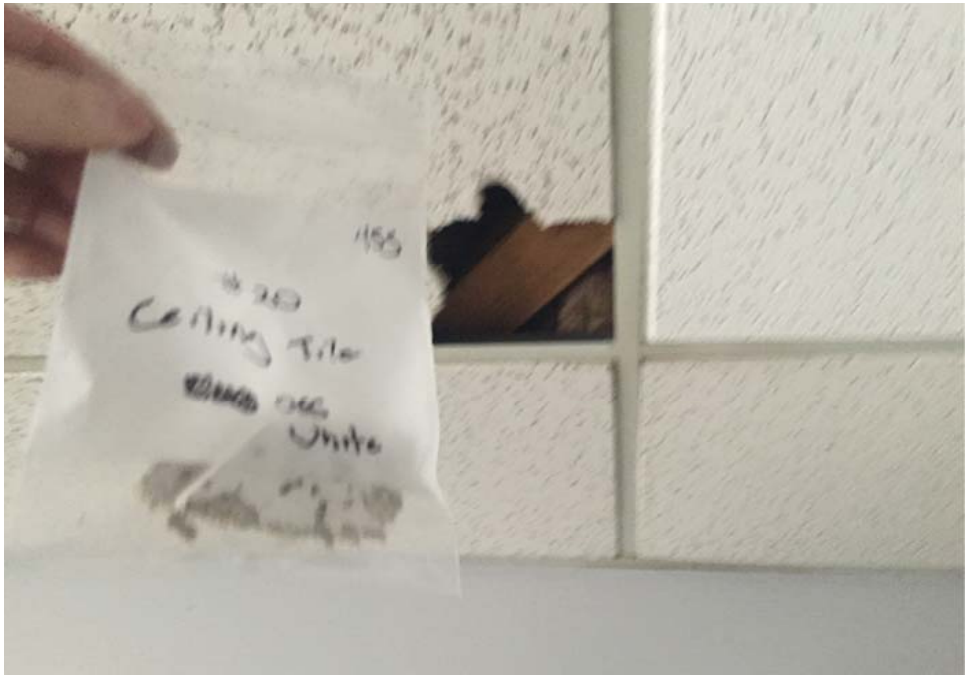
#16
Floor Tile
& Mastic
Beige

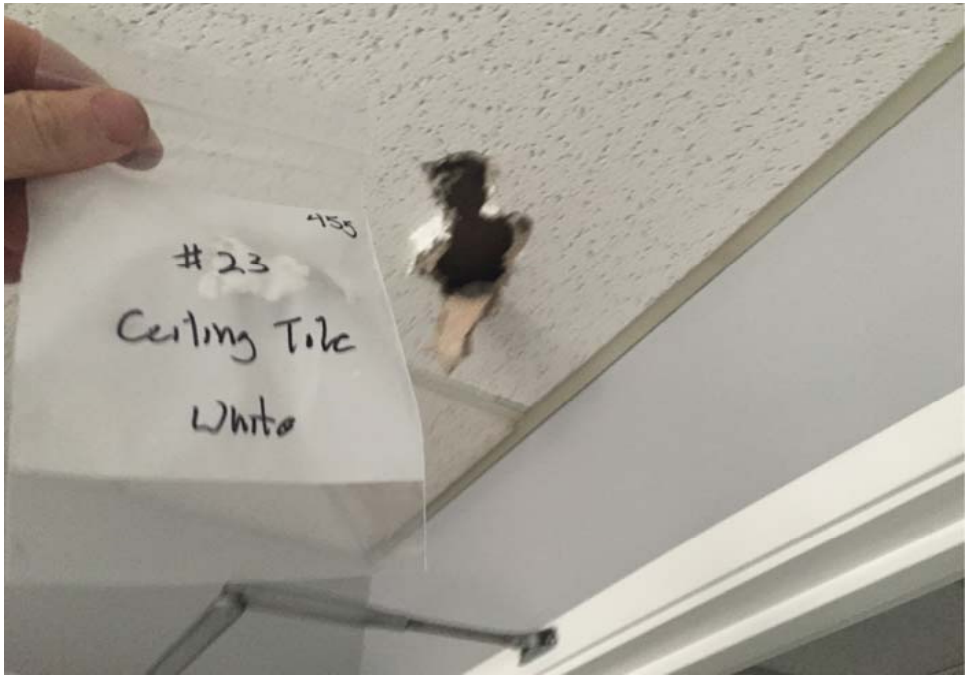

455
21
Ceiling Tile
off
White

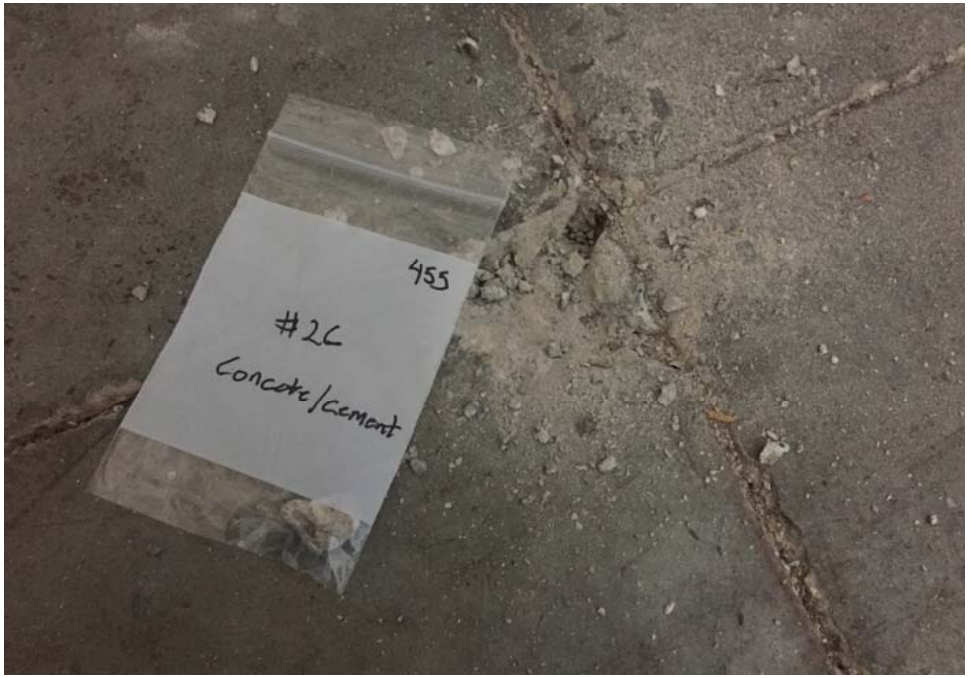
455
#19
Floor Tile
& Mastic
Black


#22
Ceiling Tile
off White


455
Ceiling Tile
off
White

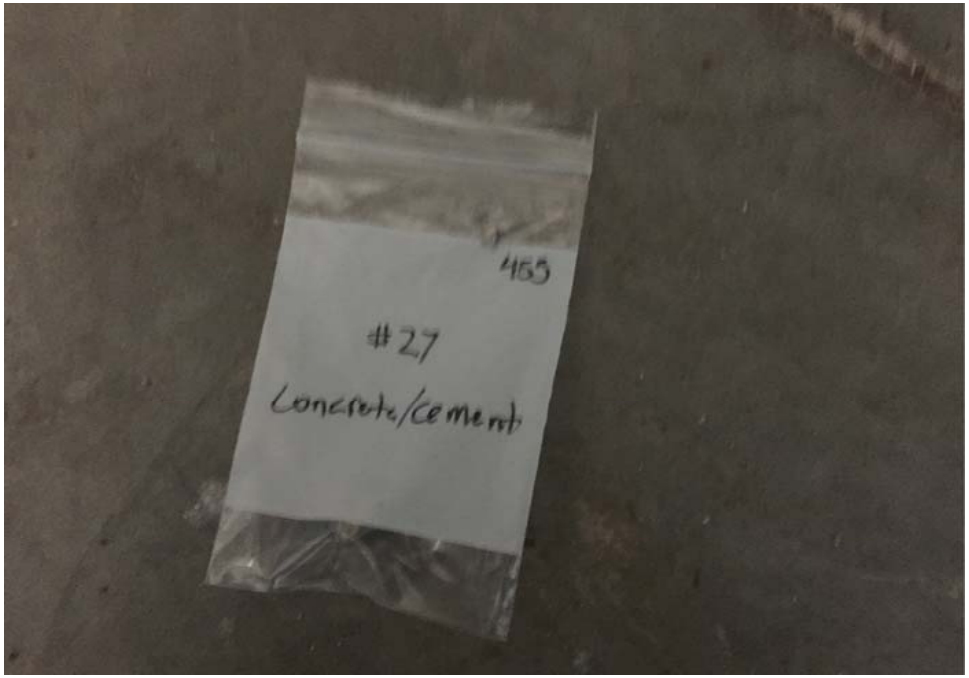
455
#25
Ceiling Tile
White


455
#23
Ceiling Tile
White

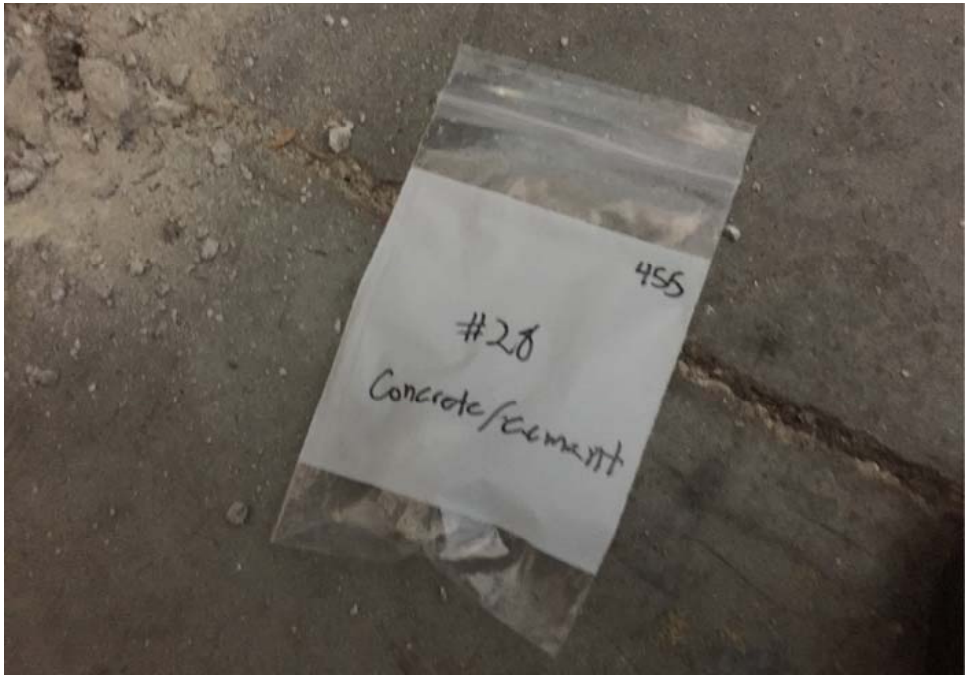

455
#26
Concrete/cement

455
#24
Ceiling Tile
White

455
#29
Foam
Roof


455
#27
Concrete/cement

455
#30
Foam
Roof


455
#28
Concrete/cement

455
#3
Foam
Roof

APPENDIX G:
PHASE I ENVIRONMENTAL SITE ASSESSMENT – MAY 19, 2015

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

CARMAX AUTOMOTIVE DEALERSHIP
COLMA, CALIFORNIA

Submitted to:
Ms. Amanda Steinle
CenterPoint Integrated Solutions, LLC
1240 Bergen Parkway, Suite A-250
Evergreen, CO 80439

Prepared by:
ENGEO Incorporated

May 19, 2015

Project No:
12054.000.000

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Project No.
12054.000.000

May 19, 2015

Ms. Amanda Steinle
CenterPoint Integrated Solutions, LLC
1240 Bergen Parkway, Suite A-250
Evergreen, CO 80439

Subject: CarMax Automotive Dealership
Colma, California

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Dear Ms. Steinle:

ENGEO is pleased to present our phase I environmental site assessment of the subject property (Property), located in Colma, California. The attached report includes a description of the site assessment activities, along with ENGEO's findings, opinions, and conclusions regarding the Property.

ENGEO has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Property, and has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. We declare that, to the best of our professional knowledge and belief, the responsible charge for this study meets the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312 and ASTM 1527-13.

We are pleased to be of service to you on this project. If you have any questions concerning the contents of our report, please contact us.

Sincerely,

ENGEO Incorporated

Kelsey Gerhart

Kelsey Gerhart, EIT
kg/sm/jf

Shawn Munger, CHG

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EXECUTIVE SUMMARY

ENGEO conducted a phase I environmental site assessment for the proposed CarMax dealership (Property), located at 435, 445, and 455 Serramonte Boulevard in Colma, California (Figures 1 and 2). The Property is approximately 8.8 acres in area and is identified as Assessor's Parcel Numbers (APN) 011-341-340 and 011-341-350 (Figure 3).

Review of historical records indicates that the approximately 8.8-acre Property consisted of agricultural land that had been previously leased for the cultivation of primroses and other flowers; several acres of the Property were used for nursery facilities. Current development includes three large industrial buildings, constructed in the 1980s and 1990s, with appurtenant parking lots and landscaping. The buildings have the following current or past uses:

- 455 Serramonte Boulevard: vacant former Jeep, Chrysler, and Plymouth service center building.
- 445 Serramonte Boulevard: vacant former Hyundai service center building.
- 435 Serramonte Boulevard: existing automotive repair shop (AW Collision).

This assessment included a review of local, state, tribal, and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources. A reconnaissance of the Property was conducted to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials and interviews with persons knowledgeable about current and past site use.

The site reconnaissance and records review did not find documentation of soil, soil gas, or groundwater impairments associated with the Property.

A review of regulatory databases maintained by county, state, tribal, and federal agencies found documentation of minor hazardous materials violations or discharge on the Property, including a 20-gallon release of diesel fuel from a damaged fuel tank at 445 Serramonte Boulevard that occurred in 2014. The release was contained, and less than 1 liter of diesel fuel was reportedly discharged to an onsite storm drain.

A 2,000-gallon underground storage tank (UST) containing waste oil was installed in June 1986. The UST is located between 445 and 455 Serramonte Boulevard. According to Colma Fire District's Chief Inspector, the UST was removed on May 7, 2015. The Chief Fire Inspector and a representative from the San Mateo County Department of Environmental Health (SMCDEH) were onsite to observe the removal of the tank. According to the Colma Fire Chief Inspector, the UST still contained approximately 120 gallons of waste oil. Confirmation samples were collected from the base of the UST excavation and from the stockpiled overburden soil. None of the analytes were detected at concentrations above the laboratory detection limits in the excavation confirmation samples. Based on the findings of this assessment, the following Recognized Environmental Conditions (RECs) were identified for the Property.

- A review of historical records found that the Property was used for agricultural purposes from the early 1940s until the mid-1980s. More specifically, the Property was leased for the cultivation of primroses and other flowers.

- Past hazardous materials business plans (HMBPs) depicted an old wash rack, identified as a sump/clarifier, on the Property until the early 2000s. No documentation regarding the removal of the sump/clarifier was identified.

- A sump located to the eastern side of 435 Serramonte Boulevard was observed at the time of our site reconnaissance.

- The presence and operation of a former underground waste oil tank at the Property.

ENGEO has performed a phase I environmental site assessment in general conformance with the scope and limitations of ASTM E1527 of the Property. Based on the findings of this assessment, ENGEO recommends the following:

- A phase II environmental assessment, including the recovery of soil and soil vapor samples, should be conducted to address potential subsurface impairments associated with the past agricultural use and past and current automotive-related uses of the Property.

- The hazardous materials that exist onsite should be properly disposed of by a licensed contractor.

1.0 INTRODUCTION

ENGEO conducted a phase I environmental site assessment for the proposed CarMax dealership (Property), located at 435, 445, and 455 Serramonte Boulevard in Colma, California (Figures 1 and 2). The Property is approximately 8.8 acres in area and is identified as APN 011-341-340 and 011-341-350 (Figure 3).

Current development includes three large industrial buildings, constructed in the 1980s and 1990s, with appurtenant parking lots and landscaping. The buildings have the following current or past uses:

- 455 Serramonte Boulevard: vacant former Jeep, Chrysler, and Plymouth service center building.
- 445 Serramonte Boulevard: vacant former Hyundai service center building.
- 435 Serramonte Boulevard: existing automotive repair shop (AW Collision).

1.1 SITE LOCATION

The Property is located at 435, 445 and 455 Serramonte Boulevard in Colma, California (Figures 1 and 2). The Property is approximately 8.8 acres in area and is identified as APN 011-341-340 and 011-341-350 (Figure 3).

1.2 SITE AND VICINITY CHARACTERISTICS

According to published topographic maps, the Property slopes in elevation from southwest to northeast. The elevation ranges from 175 feet at the southwest area of the site to approximately 215 feet at the northeast area of the site based on regional topography (datum: NAVD88). A review of the 1991 Wagner et al. Geologic Map found that the Property is primarily underlain by continental and marine deposits (Q_c).

Geocheck – The Physical Setting Source Summary of the Environmental Resources Data report (Appendix A) identified four Federal United States Geological Survey (USGS) wells and two State wells within 1 mile of the Property. Well number USGS40000184685 is mapped approximately 0.5 mile south-southeast of the Property. Groundwater measurements ranged between 201 to 218 feet below the ground surface between 1986 and 1991 for this well.

We also reviewed the Department of Water Resources On-line Water Data Library for depth to water in the vicinity of the Property. Three inactive observation wells were identified within 1 mile of the Property. The following information was obtained regarding local groundwater conditions:

TABLE 1.2-1
Local Groundwater Conditions

Well ID	Proximity to Property	Reported Depth to Groundwater	Date of Readings
376669N1224483W001	~0.45 mile west-northwest	224.76 to 255.61	2011 to 2014
376521N1224321W001	~0.85 mile south-southwest	187.82 to 200.31	2011 to 2014
376852N1224702W001	~0.9 mile northwest	219.6 to 289.1	2011 to 2014

The site-specific depth to groundwater and direction of groundwater flow was not determined as part of this assessment. Fluctuations in groundwater levels may occur seasonally and over a period of years due to variations in precipitation, temperature, irrigation and other factors.

We reviewed the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) website and map database to determine if historic oil and/or gas wells were located within the Property. No wells were mapped within 1 mile of the Property.

1.3 CURRENT USE OF PROPERTY/DESCRIPTION OF SITE IMPROVEMENTS

Review of historical records indicates that the approximately 8.8-acre Property consisted of agricultural land that had been previously leased for the cultivation of primroses and other flowers; several acres of the Property were used for nursery facilities. Current development includes three large industrial buildings, constructed in the 1980s and 1990s, with appurtenant parking lots and landscaping. The buildings have the following current or past uses:

- 455 Serramonte Boulevard: vacant former Jeep, Chrysler, and Plymouth service center building.
- 445 Serramonte Boulevard: vacant former Hyundai service center building.
- 435 Serramonte Boulevard: existing automotive repair shop (AW Collision).

1.4 CURRENT USE OF ADJOINING PROPERTIES

The Property is bounded by Serramonte Boulevard to the north, a casino to the east, the Home of Peace Cemetery to the south and an Acura dealership and service center to the west.

1.5 PURPOSE OF PHASE I ENVIRONMENTAL SITE ASSESSMENT

This assessment was performed at the request of CenterPoint Integrated Solutions, LLC for the purpose of environmental due diligence. The objective of this phase I environmental site assessment is to identify Recognized Environmental Conditions (RECs) associated with the Property. As defined in the ASTM Standard Practice E 1527-13, an REC is “the presence or likely presence of any hazardous substances or petroleum products in, on, or at on a property: (1) due to 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."

1.6 DETAILED SCOPE OF SERVICES

The scope of services performed included the following:

- A review of publicly available and practically reviewable standard local, state, tribal, and federal environmental record sources.
- A review of publicly available and practically reviewable standard historical sources, aerial photographs, fire insurance maps and physical setting sources.
- A reconnaissance of the Property to review site use and current conditions. The reconnaissance was conducted to check for the storage, use, production or disposal of hazardous or potentially hazardous materials.
- Interviews with owners/occupants and public sector officials.
- Preparation of this report with our findings, opinions, and conclusions.

1.7 SIGNIFICANT ASSUMPTIONS OR DEVIATIONS FROM ASTM STANDARD PRACTICE

The interior of the storage unit located south of 445 and 455 Serramonte Boulevard was inaccessible at the time of our site reconnaissance due to the UST removal activity taking place onsite.

1.8 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

The professional staff at ENGEO strives to perform its services in a proper and professional manner with reasonable care and competence, but is not infallible. The recommendations and conclusions presented in this report were based on the findings of our study, which were developed solely from the contracted services. The findings of the report are based in part on contracted database research, out-of-house reports and personal communications. The opinions formed by ENGEO are based on the assumed accuracy of the relied upon data in conjunction with our relevant professional experience related to such data interpretation. ENGEO assumes no liability for the validity of the materials relied upon in the preparation of this report.

This document must not be subject to unauthorized reuse; that is, reuse without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time. The findings from a phase I environmental site assessment are valid for one year after completion of the report. Updates of portions of the assessment may be necessary after a period of 180 days after completion.

This phase I environmental site assessment is not intended to represent a complete soil or groundwater characterization, nor define the depth or extent of soil or groundwater contamination. It is intended to provide an evaluation of potential environmental concerns associated with the use of the Property. A more extensive assessment that would include a subsurface exploration with laboratory testing of soil and groundwater samples could provide more definitive information concerning site-specific conditions. If additional assessment activities are considered for the Property and if other entities are retained to provide such services, ENGEO cannot be held responsible for any and all claims arising from or resulting from the performance of such services by other persons or entities. ENGEO can also not be held responsible from any and all claims arising or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

1.9 SPECIAL TERMS AND CONDITIONS

ENGEO has prepared this report for the exclusive use of our client, CenterPoint Integrated Solutions, LLC, along with CarMax Auto Superstores, Inc. It is recognized and agreed that ENGEO has assumed responsibility only for undertaking the study for the client. The responsibility for disclosures or reports to a third party and for remedial or mitigative action shall be solely that of the Client.

Laboratory testing of soil or groundwater samples was not within the scope of the contracted services. The assessment did not include an asbestos survey, an evaluation of lead-based paint, an inspection of light ballasts for polychlorinated biphenyls (PCBs), a radon evaluation, or a mold survey.

This report is based upon field and other conditions discovered at the time of preparation of ENGEO's assessment. Visual observations referenced in this report are intended only to represent conditions at the time of the reconnaissance. ENGEO would not be aware of site contamination, such as dumping and/or accidental spillage, that occurred subsequent to the reconnaissance conducted by ENGEO personnel.

2.0 USER-PROVIDED INFORMATION

2.1 PROPERTY RECORDS

2.1.1 Title Report/Ownership

The Title Report lists recorded land title detail, ownership fees, leases, land contracts, easements, liens, deficiencies, and other encumbrances attached to or recorded against a subject property. Laws and regulations pertaining to land trusts vary from state to state and the detail of information presented in a Title Report can vary greatly by jurisdiction. As a result, ENGEO utilizes a Title Report, when provided to us, as a supplement to other historical record sources.

A Preliminary Title Report prepared by Chicago Title Company and dated March 17, 2015, was provided for our review. The title for the Property is vested in The Congregation Emanu-el, a Corporation. No references to environmental liens, deed restrictions or other potential environmental issues were noted. The report is included in Appendix D.

2.1.2 Environmental Liens and Activity Use Limitations

No references to environmental liens, deed restrictions or other potential environmental issues were noted in the Preliminary Title Report.

2.2 USER KNOWLEDGE OF PROPERTY

Mr. Keith Henderson, a representative of CarMax, completed an environmental site assessment questionnaire pertaining to applicable environmental information regarding the Property. In the questionnaire, Mr. Henderson mentioned that he is unaware of commonly known, reasonably ascertainable, or specialized knowledge indicative of releases or threatened releases material to the potential presence of Recognized Environmental Conditions. Mr. Henderson has indicated that the purchase price of the Property is reflective of fair market value of the Property.

The questionnaire is presented in its entirety in Appendix G.

3.0 RECORDS REVIEW

3.1 PREVIOUS ENVIRONMENTAL REPORTS

No previous environmental reports were provided for our review prior to the publication of this report.

3.2 HISTORICAL RECORD SOURCES

The purpose of the historical record review is to develop a history of the previous uses or occupancies of the Property and surrounding area in order to identify those uses or occupancies that are likely to have led to recognized environmental conditions on the Property.

3.2.1 Historical Topographic Maps

Historical USGS topographic maps were reviewed to determine if discernible changes in topography or improvements pertaining to the Property had been recorded. The following maps were provided to us through an EDR Historical Topographic Map Report. (Appendix C).

TABLE 3.2.1-1
Historical Topographic Maps

Quad	Year	Series	Scale
San Mateo	1899	15	1:62500
San Mateo	1915	15	1:62500
San Mateo	1947	15	1:50000
San Francisco South	1950	7.5	1:24000
San Francisco South	1956	7.5	1:24000
San Francisco South	1968. Photo revised from 1956	7.5	1:24000
San Francisco South	1973. Photo revised from 1956	7.5	1:24000
San Francisco South	1980. Photo revised from 1956	7.5	1:24000
San Francisco South	1993	7.5	1:24000
San Francisco South	1995	7.5	1:24000

1899 – The Property is shown as part of the developed urban township of Colma. No development is shown across the area of the present-day Property. Lake Merced is mapped northwest of the Property. San Bruno Mountain and the City of South San Francisco are to the east and southeast of the Property, respectively. The Southern Pacific Railroad is mapped east of the Property.

1915 Map - The Property and its vicinity is not shown on this Map.

1947 Map – The Property conditions appear similar to the previous maps. The surrounding area appears to be predominantly cemeteries and memorial parks. Many roadways of the Town of Colma are depicted, including Market Street and Serra Boulevard. Daly City and South San Francisco are mapped north and southeast of the Property, respectively.

1950 and 1956 Maps – Conditions at the Property appear similar to those depicted in the 1947 Map, with the exception of an unimproved roadway connecting El Camino Real and Hillside Boulevard. The Home of Peace Cemetery and the Salem Cemetery are mapped south and north of the Property, respectively. Colma Creek is depicted southwest of the Property. El Camino Real and Hillside Boulevard are mapped west and east of the Property, respectively. A small structure is evident on the parcel west of the Property. The surrounding area predominantly consists of cemeteries and memorial parks, including Serbian Cemetery, Hills of Eternity, Memorial Park, Greenlawn Cemetery, and Salem Cemetery. Military Reservations are evident northeast of the Property.

1968 Map – Conditions at the Property appear similar to those depicted in the 1956 Map. Cypress Hills Golf Course and the town hall are depicted east and west of the Property.

1973 Map – Conditions at the Property appear similar to those depicted in the 1968 Map. Development is evident west-southwest of the Property. Several schools, including Colma School, Thornton School, and Jefferson school are evident north of the Property.

1980 Map – A medium-sized structure is visible in the current location of 455 Serramonte Boulevard. It is believed to be a nursery facility for the cultivation of primroses and other flowers. The surrounding area conditions appear similar to the previous maps.

1993 and 1995 Maps – Three large footprint structures are mapped on the Property in their current configurations. Four additional structures are evident on the adjacent parcel west of the Property and Serramonte Boulevard is mapped north of the Property.

3.2.2 Aerial Photographs

The following aerial photographs, provided by EDR, were reviewed for information regarding past conditions and land use at the Property and in the immediate vicinity. These photographs are presented in Appendix E.

TABLE 3.2.2-1
Aerial Photographs

Flyer	Year	Scale
USGS	1943	1” = 500’
USGS	1946	1” = 500’
USGS	1956	1” = 500’
USGS	1968	1” = 500’
USGS	1974	1” = 500’
USGS	1982	1” = 500’
USGS/DOQQ	/DOQQ acquisition date 1993	1” = 500’
USGS	1998	1” = 500’
USDA/NAIP	2006	1” = 500’
USGS	2010	1” = 500’
USDA/NAIP	2012	1” = 500’

1943 and 1946 Photographs – With the exception of several small structures located on the western portion of the Property, the Property is predominantly agricultural land. The Property is bound by Salem Cemetery and Home of Peace Cemetery located north and south of the Property, respectively. Olivet Memorial Park and agricultural land are shown northeast of the Property. El Camino Real and Hillside Boulevard are noted west and east of the Property, respectively. A small structure appears to be located on the parcel west of the Property.

1956 Photograph - The Property and surrounding area conditions appear to be similar to those depicted in the previous photographs.

1968 Photograph– The structures on the Property are no longer evident in the 1968 photograph. The Property continues to be bound by cemeteries and memorial parks.

1974 Photograph – A large-footprint structure is evident on the western portion of the Property.

1982 Photograph – Two additional large-footprint structures are evident adjacent to the existing structure. Surrounding conditions appear unchanged. According to a draft EIR (1986) provided by the Town of Colma Planning Department, the three structures located on the Property are nursery facilities for the cultivation of primroses and other flowers.

1993 and 1998 Photographs – The structures that had previously occupied the Property have been demolished and three new structures with associated paved parking are now evident. The Property appears to be in the current development configuration.

2006 through 2012 Photographs – Property conditions appear similar to those depicted in the 1998 photograph. The Cypress Lawn Hillside Gardens are now evident northeast of the Property.

3.2.3 Fire Insurance Maps

EDR prepared a Sanborn Fire insurance map search for the Property and surrounding properties. EDR reported that no maps were available for the Property and surrounding properties. The Sanborn Map Report is presented in Appendix B.

3.2.4 City Directory

City Directories, published since the 18th century for major towns and cities, list the name of the resident or business associated with each address. A city directory search conducted by EDR is located in Appendix F.

The following listings were identified for 435, 445 and 455 Serramonte Boulevard:

TABLE 3.2.4-1

Address	Use
435 Serramonte Boulevard	• Serramonte Auto Plaza Body Shop (2013, 2008, 1999) • Karen Rogers, Serramonte Auto Plaza Body Shop (2003) • Regal Auto Body Shop, Serramonte Service Body (1992)
445 Serramonte Boulevard	• Serramonte Nissan Service & Parts (1995) • Serramonte Chrysler (1992)
455 Serramonte Boulevard	• Serramonte Auto Plaza Service (2013) • Serramonte Chrysler Plymouth (2003) • Serramonte Chrysler Plymouth, Serramonte Mitsubishi (1999) • Bay Area Rentals (1995) • Snappy Car Rental (1992)

Numerous listings in the vicinity of the Property are associated with residential, commercial, and light industrial uses.

3.3 ENVIRONMENTAL RECORD SOURCES

EDR performed a search of federal, tribal, state, and local databases regarding the Property and nearby properties. Details regarding the databases searched by EDR are provided in Appendix A. A list of the facilities documented by EDR within the approximate minimum search distance of the Property is provided below.

3.3.1 Standard Environmental Records

3.3.1.1 Subject Property

The Property is listed on the following Federal ASTM Standard sources.

TABLE 3.3.1.1-1

Facility	Street	Databases
	445 SERRAMONTE BLVD	ERNS
SERRAMONTE AUTO PLAZA BODY SHOP	435 SERRAMONTE BLVD	RCRA-SQG

3.3.1.2 Other Properties

The following includes facilities listed within the appropriate ASTM search distances of the Property on Standard Environmental Records source.

TABLE 3.3.1.2-1

Facility	Street	Databases
HOME OF PEACE CEMETERY	239 EL CAMINO REAL	RCRA-SQG
PRICE DEALERSHIP	485 SERRAMONTE	LUST
SERBIAN CEMETERY	1801 HILLSIDE	LUST
ABBEY HOMESTEAD NURSERY	1899 HILLSIDE	LUST
TROYS AUTO BODY	1901 HILLSIDE BLVD	RCRA-SQG
G AND M AUTO BODY SERRAMONTE	620 SERRAMONTE BLVD	RCRA-SQG
NISSAN SERRAMONTE	650 SERRAMONTE	SLIC
OLIVET MEMORIAL PARK	1601 HILLSIDE	LUST
SATURN OF COLMA	707 SERRAMONTE BLVD	RCRA-SQG, SLIC, LUST
F ST LIFT STATION	0 F	LUST
HILLSIDE CLASS III DISPOSAL SITE	#1 SANDFILL ROAD (1500 HILLSIDE BLVD)	LF
LEXUS OF SERRAMONTE	700 SERRAMONTE BLVD	RCRA-SQG, LUST

Facility	Street	Databases
SERRAMONTE FORD	530 COLLINS	RCRA-SQG, LUST
BLUES ROOFING	600 COLLINS	LUST
CYPRESS LAWN CEMETERY	300 EL CAMINO REAL	LUST
VW AUTO REPAIR	1715 OLD MISSION	LUST
G & M AUTO BODY	780 SERRAMONTE BLVD	LUST
OTTOBONI PROPERTY	417 F	SLIC, LUST
G. NANO (POSSIBLE NAME: GRACIANO'S NURSERY)	SECOND AVENUE & CASTLE STREET	ENVIROSTOR

3.3.2 Additional Environmental Records

3.3.2.1 Subject Property

The Property is listed on the following Additional Environmental Record sources:

TABLE 3.3.2.1-1

Facility	Street	Databases
SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZA	445 AND 455 SERRAMONTE BLVD	HAZNET
SERRAMONTE CHRYSLER LINCOLN	455 SERRAMONTE	FINDS, RCRA-NLR, HAZNET, BI SAN MATEO
SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZA	445 AND 455 SERRAMONTE BLVD	HAZNET
	455 SERRAMONTE BLVD	EDR GAS STATIONS
SERRAMONTE NISSAN/ISUZU	445 SERRAMONTE BLVD	EMI, BI SAN MATEO, SWEEPS UST
LEXUS OF SERRAMONTE	445 SERRAMONTE BLVD	HAZNET
	445 SERRAMONTE BLVD	CHMIRS
	445 SERRAMONTE BLVD	CHMIRS
SERRAMONTE HONDA	445 SERRAMONTE BLVD	HAZNET
SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZU	445 AND 455 SERRAMONTE BLVD	HAZNET
SERRAMONTE NISSAN	445 SERRAMONTE BOULEVARD	FINDS, RCRA-NLR
ACURA OF SERRAMONTE	445 SERRAMONTE BLVD	HAZNET
SERRAMONTE NISSAN/NISSAN	445 SERRAMONTE BLVD	HAZNET
SERRAMONTE NISSAN/ISUZU	445 SERRAMONTE BOULEVARD	HAZNET
SERRAMONTE AUTO PLAZA BODY SHOP	435 SERRAMONTE BLVD	FINDS, HAZNET, EMI, BI SAN MATEO
	435 SERRAMONTE BLVD	EDR GAS STATIONS

3.3.2.2 Other Properties

The following includes facilities listed within the appropriate ASTM search distances of the Property on the Additional Environmental Record source.

TABLE 3.3.2.2-1

Facility	Street	Databases
PRE DELIVERY INSPECTION CENTER	465 SERRAMONTE BLVD	BI SAN MATEO, SWEEPS UST
SERRAMONTE ACURA	475 SERRAMONTE	BI SAN MATEO
HOME OF PEACE CEMETERY	239 EL CAMINO REAL	FINDS, HAZNET, SWEEPS UST
MARCELLINI BROS INC	1767 HILLSIDE	BI SAN MATEO
PRICE DEALERSHIP	485 SERRAMONTE	BI SAN MATEO, SWEEPS UST, HIST CORTESE
CYPRESS HILLS GOLF COURSE	1777 HILLSIDE BLVD	HIST UST
SERBIAN CEMETERY	1801 HILLSIDE	BI SAN MATEO, SWEEPS UST, HIST CORTESE
ABBEY HOMESTEAD NURSERY	1899 HILLSIDE	BI SAN MATEO, HIST CORTESE
TROYS AUTO BODY	1901 HILLSIDE BLVD	FINDS, BI SAN MATEO
	1901 HILLSIDE BLVD	EDR GAS STATIONS
TOWN OF COLMA	1198 EL CAMINO REAL	SWEEPS UST
WOODLAWN MEMORIAL PARK ASSOCIA	222 EL CAMINO REAL	HIST UST
HOME OF PEACE CEMETERY	1299 EL CAMINO REAL	BI SAN MATEO, NPDES
ETERNAL HOME CEMETERY	1051 EL CAMINO REAL	BI SAN MATEO
MEMORIAL PARK, GREEK ORTHODOX	1148 EL CAMINO REAL	BI SAN MATEO
CYPRESS GOLF COURSE	2001 HILLSIDE	FID, CHMIRS, BI SAN MATEO, SWEEPS UST
G AND M AUTO BODY SERRAMONTE	620 SERRAMONTE BLVD	HAZNET
NISSAN SERRAMONTE	650 SERRAMONTE	BI SAN MATEO
OLIVET MEMORIAL PARK	1601 HILLSIDE	BI SAN MATEO, HIST CORTESE
SATURN OF COLMA	707 SERRAMONTE BLVD	FINDS, EMI, BI SAN MATEO
HILLSIDE CLASS III DISPOSAL SITE	#1 SANDFILL ROAD (1500 HILLSIDE BLVD)	FINANCIAL ASSURANCE 1
LEXUS OF SERRAMONTE	700 SERRAMONTE	HIST CORTESE, FNDS, EMI, BI SAN MATEO, SWEEPS UST
PRECISION ROOFING INC	1773 MISSION	BI SAN MATEO, SWEEPS UST, HIST CORTESE
SERRAMONTE FORD	530 COLLINS	FINDS, EMI, BI SAN MATEO, HIST CORTESE

Facility	Street	Databases
BLUES ROOFING	600 COLLINS	BI SAN MATEO, SWEEPS UST, HIST CORTESE
CYPRESS LAWN CEMETERY	300 EL CAMINO REAL	SWEEPS UST, HIST CORTESE
VW AUTO REPAIR	1715 OLD MISSION	HIST CORTESE, BI SAN MATEO
G & M AUTO BODY	780 SERRAMONTE BLVD	HIST UST, EMI, BI SAN MATEO, HIST CORTESE, ENF
OTTOBONI PROPERTY	417 F	BI SAN MATEO, SWEEPS UST, HIST CORTESE

The following summarizes relevant Property-related information:

- The EDR gas stations listing for 435 and 455 Serramonte Boulevard are associated with auto service shops.

HAZNET listings for the Property are associated with the disposal of the following waste:

- 435 Serramonte Boulevard
  - Unidentified waste (2013, 2012, 2005)
  - Unspecified solvent mixture (2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993)
  - Aqueous solution with total organic residues less than 10 percent (2010, 2008, 1999, 1996, 1995)
  - Unspecified oil-containing waste (2008, 1998)

- 445 Serramonte Boulevard
  - Unspecified oil-containing waste (2011, 2010, 2009, 2007, 2006, 2004, 2003, 2002, 2001)
  - Other organic solids (2011)
  - Unspecified organic liquid mixture (2010)
  - Aqueous solution with total organic residues less than 10 percent (2003, 2001, 1998, 1997, 1996)
  - Hydrocarbon solvents (1995)
  - Liquids with halogenated organic compounds >-1,000 mg/L (1995)

- 455 Serramonte Boulevard
  - Unspecified oil-containing waste (2011, 2007, 2006)
  - Other organic solids (2011)
  - Aqueous solution with total organic residues less than 10 percent (1999, 1998, 1996)
  - Liquids with halogenated organic compounds >-1,000 mg/L (1996)

The HAZNET listings above are not likely to represent an environmental concern. The SWEEPS UST listing for 445 Serramonte Boulevard is associated with the 2,000-gallon waste oil UST recently removed from the Property. Details regarding the UST are presented in Section 3.4. A copy of the UST Closure Report is presented in Appendix H.

The following summarizes the information for relevant, nearby properties:

- **Price Dealership,** located at 485 Serramonte Boulevard (approximately 0.064 mile west-southwest of the Property), is listed as a closed LUST site. The potential media affected on the site is soil and the potential contaminant of concern is gasoline. Site history is not readily available on the GeoTracker. The case received closure on June 11, 2001.

- **VW Auto Repair,** located at 1715 Old Mission (approximately 0.459 mile south of the Property) is listed as a closed LUST site. The potential media affected on the site is soil and the potential contaminants of concern include waste/motor oil. Excavation is listed as the method of remedial action. Site history is not readily available on GeoTracker. The case received closure on July 21, 2000.

- **Cypress Lawn Cemetery,** located at 300 El Camino Real (according to the EDR report, approximately 0.448 mile south of the Property) is listed as a closed LUST site. The potential media affected on the site is "other" groundwater (uses other than drinking water) and the potential contaminant of concern is diesel. Excavation is listed as the method of remedial action. Site history is not readily available on GeoTracker. The case received closure on August 27, 2001.

- **Serbian Cemetery,** located at 180l Hillside (approximately 0.079 mile east-northeast of the Property) is listed as a closed LUST site. The potential media affected on the site is soil and the potential contaminant of concern is gasoline. Excavation is listed as the method of remedial action. Site history is not readily available on GeoTracker. The case received closure on February 17, 2003.

- **F St Lift Station** (approximately 0.386 mile north-northwest of the Property) is listed as a closed LUST site. The potential media affected on the site is soil and the potential contaminant of concern is diesel. Site history is not readily available on GeoTracker. The case received closure on January 6, 2000.

- **Olivet Memorial Park,** located at 160l Hillside (approximately 0.353 mile north-northwest of the Property) is listed as a closed LUST site. The potential media affected on the site is soil and the potential contaminant of concern is gasoline. Excavation is listed as the method of remedial action. Site history is not readily available on GeoTracker. The case received closure on October 12, 1994.

- **Serramonte Nissan**, located at 650 Serramonte Boulevard (approximately 0.35 mile west-southwest of the Property) is listed as a cleanup program site under open site assessment. The potential media affected on the site is soil and the potential contaminant of concern is total petroleum hydrocarbons as oil (TPH-oil). According to a letter from San Mateo County (dated March 4, 2015), because the source of contamination does not appear to be an identifiable UST, this site will be opened under San Mateo County's Voluntary Cleanup Program.

Based on the distances to the identified database sites, regional topographic gradient, and the EDR findings, we believe the above-stated sites do not pose an environmental risk to the Property.

Properties that are on the "Orphan Summary" list appear to be either located beyond the ASTM recommended radius search criteria or are believed to not pose an environmental risk to the Property.

3.4 REGULATORY AGENCY FILES AND RECORDS

The following agencies were contacted pertaining to possible past development and/or activity at the Property.

- Town of Colma Building Department
- Town of Colma Planning Department
- Colma Fire Protection District
- San Mateo County Fire Department
- San Mateo County Department of Environmental Health
- San Mateo County Assessor's Office
- California Regional Water Quality Control Board
- Department of Toxic Substances Control

Town of Colma Building Department – The Town of Colma Building Department was contacted regarding files related to the Property. On April 23, 2015, we were provided with the following property-related information:

- 435 Serramonte Boulevard
  - Building Permit (02/02/2012): Demolition permit for removal of 2nd floor/stairs and the changes to the floor level due to the removal of the 2nd floor.
  - Building Permit (03/12/09): Fire alarm for central station service.
  - Building Permit (02/20/09): Install and relocate fire sprinkler heads.
  - Building Permit (02/28/08): Fire Sprinklers.

- 445 Serramonte Boulevard
  - Building Permit (01/06/2014): Remove and mount new panel antennas. Remove and install new equipment cabinets.
  - Building Permit (03/24/2014): Sign for "Hyundai". One Pylon sign, one directional sign and three wall signs.
  - Building Permit (04/18/2014): Remove and replace three panel antennas for Sprint.
  - Building Permit (05/20/2013): Construct two walls, electrical work for 12 new lifts and other misc. circuits.
  - Demolition Permit (09/06/2012): Demolition and removal of trailer and connex.
  - Building Permit (01/07/2008): Temporary facilities for Lexus Service Department Partition walls for service writers' area, clean up paint and change out lights.

- Electrical Permit (03/21/2008): Disconnection of 26 lifts and re-installation of 26 lifts. The permit did not identify the lifts being installed were underground or aboveground hydraulic lifts. However, there was no evidence observed at the time of our site reconnaissance that would lead us to believe underground lifts were used in the past.
- Building Permit (09/27/2004): Fire alarm- Provide fire sprinkler monitoring.
- Building Permit (04/03.1987): Install Hoists- 24 automotive lifts.
- Building Permit (04/09/1987): Install S/F wall, Lincoln Mercury Sign, Sterling S/F wall, Serramonte LM Letters.

- 455 Serramonte Boulevard
  - Building Permit (09/28/2012): Remove and install new panel antennas. Remove and install new equipment cabinets.
  - Building Permit (10/06/2011): Remove and install new panel antennas. Remove and install new equipment cabinets.
  - Building Permit (04/14/2010): Sonic Automotive-tenant improvement- 648 sq. ft.
  - Building Permit (07/13/2009): Structural roof repair and associate service drive repair.
  - Building Permit (03/18/2009): Demolition and removal of "wet" items in (E) service drive- "Storm Damage".
  - Building Permit (03/13/2007): Spray foam over existing roof.
  - Building Permit (11/24/1987): Erecting an 8" diameter, 33' long directional metal sign.
  - Building Permit (02/19/1987): Installation of one 6,000-gallon fuel UST, adjacent to building 3. Installation of two 2,000-gallon USTs for waste oil, near buildings 1 and 7. The 6,000-gallon fuel UST and one of the 2,000-gallon waste oil USTs are located outside of Property boundaries at 465 and 485 Serramonte Boulevard, respectively. One 2,000-galllon waste oil UST is located on the Property between 445 and 455 Serramonte Boulevard. This UST was removed in May 2015. A copy of the UST Closure Report is presented in Appendix H.
  - Building Permit (10/28/1986): Temporary power pole per NEC and PG&E green book
  - Building Permit (09/02/1986): Construct 61,000 sq. ft. dealership.
  - Building Permit (09/30/1986): Construct 5,174 sq. ft. pre-engineered building.

Town of Colma Planning Department – The Town of Colma Planning Department was contacted regarding files related to the Property. On April 30, 2015, we were informed of the following planning files for the original entitlements for the Property (all circa 1986):

- Draft EIR: Serramonte Boulevard Extension and 20-acre Commercial Development (1986). The summary states that approximately 14.5 of the 20.5 acres of commercial development will be occupied by automotive sales and service uses.
- A file on the extension of Serramonte Boulevard.
- An entitlements file approving the Project.
- A 1995/1996 Use permit for the Sprint telecommunications installation on one of the buildings.

Colma Fire Protection District – The Colma Fire Protection District was contacted regarding files related to the Property. We spoke with the Captain of Fire Inspections on April 30, 2015. He

informed us that the inspections were predominantly related to building code violations and that no violations were related to the 2,000-gallon UST located on the Property. During our conversation, he informed us of a reported 20-gallon release of diesel fuel from a damaged fuel tank at 445 Serramonte Boulevard that occurred in 2014. The release was contained, and less than 1 liter of diesel fuel was reportedly discharged to an onsite storm drain.

On May 8, 2015, Colma Fire Protection District's Chief Inspector informed us that the 2,000-gallon UST was removed on May 7, 2015. He and a representative from the San Mateo County Department of Environmental Health (SMCDEH) Department were onsite to observe the removal of the tank. According to the Colma Fire Chief Inspector, the UST still contained approximately 120 gallons of waste oil. Confirmation samples were collected from the base of the UST excavation and from the stockpiled overburden soil. None of the analytes were detected at concentrations above the laboratory detection limits in the excavation confirmation samples. No further actions were recommended with respect to the USTs. A copy of the UST Closure Report is presented in Appendix H.

San Mateo County Fire Department – The San Mateo County Fire Department was contacted regarding files related to the Property. A representative informed us that the department did not have any Property-related documents on file.

San Mateo County Department of Environmental Health – The San Mateo County Department of Environmental Health was contacted regarding files related to the Property. The files generally consisted of the following:

- Permits
  - Issued for (1) the storage of hazardous material, and (2) generation and recycling of waste oil/solvents.
  - Issued for a 2,000-gallon waste oil UST located at 445/455 Serramonte Boulevard. The UST was installed in 1986 and was in the process of being removed at the time of our site reconnaissance, April 30, 2015.
  - Issued to upgrade the UST monitoring system (1998-1999). Inspections were completed throughout the years and monitoring system certifications were issued in 2010 and 2012.
  - Temporary UST closure permit (10/31/12 and 7/24/13). In 2012, the county was notified that the 2,000-gallon UST located at 445/4555 Serramonte Boulevard will no longer be used to store waste oil (February).

- Notice of Violations and Notice to Comply letters issued by the county typically consisted of minor violations that do not lead us to believe that the Property is impacted.
  - Violations generally included occupants' failure to label the hazardous material stored onsite, claim financial responsibility for the UST, provide documentation of employee training and perform internal inspections on a regular basis.
  - 435 Serramonte Blvd - Notice to remove the material that is being stored over the sump located on the eastern side of the building (2014).

- Hazardous Materials Business Plans (HMBP), Hazardous Chemical Inventory, and Hazardous Waste Manifests.
  - Materials stored onsite generally consist of acetylene gas, oxygen gas, anti-freeze/coolant, used motor oil, waster thinner/solvents, used oil/gasoline and transmission filters, argon/CO2 gas, nitrogen, automatic transmission fluid, and paint waste. The materials listed above were stored in drums, containers, and above-ground storage tanks.
  - A 1992 HMBP identified a small structure (leased from Dealership) and an old wash rack (sump/clarifier) located adjacent to the UST. The small structure and old wash rack were no longer evident in the 2001 HMBP. Information regarding the removal of the washrack was not identified.

- Hazardous Materials Business Plan Inspection Reports and UST Inspection Report (2007-2014)
  - The following minor violations related to the HMBP report were noted over the years: failure to provide proof of employee training, failure to re-submit chemical inventory to the county, failure to submit updated HMBPs.
  - The following violations were reported in the UST inspections: housekeeping issues mainly pertaining to on-top and around the tank and failure to keep the spill bucket free of oil.

- Waste Tire Surveys and Inspections (2004-2015)
  - A letter notifying the county of a 20-gallon release of diesel from a damaged trailer truck saddle tank on 445 Serramonte Boulevard. The release was contained and less than 1 liter entered the storm drain onsite (2014).

San Mateo County Assessor's Office – The San Mateo County Assessor's Office website was viewed for information regarding addresses associated with the Property. Information on the website confirmed that the Property is identified by Assessor's Parcel Numbers (APN) 011-341-340 and 011-341-350.

California Regional Water Quality Control Board – The California Regional Water Quality Control Board's online database, GeoTracker, was reviewed for files relating to the Property and surrounding properties. There were no records for the Property listed in the GeoTracker database.

Department of Toxic Substances Control – We reviewed the EnviroStor Database maintained by the Department of Toxic Substances Control (DTSC) for files relating to the Property. There were no records for the Property listed in the EnviroStor database.

4.0 SITE RECONNAISSANCE

4.1 METHODOLOGY

ENGEO conducted a reconnaissance of the Property on April 30, 2015. The reconnaissance was performed by Kelsey Gerhart, a Staff Engineer of ENGEO. The Property was viewed for hazardous materials storage, superficial staining or discoloration, debris, stressed vegetation, or other conditions that may be indicative of potential sources of soil or groundwater contamination. The Property was also checked for evidence of fill/ventilation pipes, ground subsidence, or other evidence of existing or preexisting USTs. Photographs taken during the site reconnaissance are presented in Figure 4.

4.2 GENERAL SITE SETTING

Current development includes three large industrial buildings, constructed in the 1980s and 1990s, with appurtenant parking lots and landscaping. The buildings have the following current or past uses:

- 455 Serramonte Boulevard: vacant former Jeep, Chrysler, and Plymouth service center building.
- 445 Serramonte Boulevard: vacant former Hyundai service center building.
- 435 Serramonte Boulevard: existing automotive repair shop (AW Collision).

4.3 EXTERIOR OBSERVATIONS

Structures. Three automotive service shops, asphalt paved parking areas, and landscaping are present on the Property.

Hazardous Substances and Petroleum Products in Connection with Identified Uses. Drums of hazardous substances and petroleum products in connection with automotive services were observed in exterior locations of AW Collision (435 Serramonte). Such substances observed at the time of the reconnaissance include waste oil, waste anti-freeze, tire degreasers, acid wheel cleaner, and other unidentified substances.

Storage Tanks. One 2,000-gallon UST containing waste oil was being removed by Golden Gate Tank Removal at time of the reconnaissance.

Odors. No odors indicative of hazardous materials or petroleum material impacts were noted at the time of the reconnaissance.

Pools of Potentially Hazardous Liquid. No pools of potentially hazardous liquid were observed within the Property at the time of our reconnaissance.

Drums. Several steel drums varying in size were identified outside of 435 Serramonte Boulevard at the time of the reconnaissance.

Hazardous Substance and Petroleum Product Containers. Hazardous substance and petroleum product containers were observed outside of 435 Serramonte Boulevard at the time of our reconnaissance.

Polychlorinated Biphenyls (PCBs). Pad-mounted transformers were observed on the Property during the reconnaissance. No signs of leaks were observed.

Pits, Ponds and Lagoons. No pits, ponds or lagoons were observed within the Property at the time of our reconnaissance. However, a sump was observed on the eastern side of AW Collision (435 Serramonte) during our site reconnaissance.

Stained Soil/Pavement. No stained soil was observed within the Property at the time of our reconnaissance; however, sporadic stained pavement was observed throughout the parking lot. The stains appear to be associated with leaky vehicles utilizing the parking lot and service center garage entrances.

Stressed Vegetation. No signs of stressed vegetation were observed on the Property at the time of our reconnaissance.

Solid Waste/Debris A minimal amount of solid waste and debris was observed at the Property during our reconnaissance .

Wastewater. No wastewater conveyance systems were observed at the Property during the reconnaissance. Storm drain catch basins were observed throughout the Property parking lot.

Wells. No domestic or agricultural irrigation wells were observed at the Property during the reconnaissance.

Septic Systems. No septic systems were found within the Property during our reconnaissance.

4.4 INTERIOR OBSERVATIONS

The interior of 435, 445, and 455 Serramonte Boulevard were observed on April 30, 2015. The three structures had been, or are currently utilized, as automotive service centers. The interior of the buildings predominantly consist of office and customer service space, warehouse space, and an automotive service area.

435 Serramonte Boulevard – Occupied by AW Collision: The building consists of a reception area, a service area, and several internal structures utilized for painting vehicles. Standard materials utilized in an automotive service shop, such as coolant and anti-freeze, hydraulic oil, cylinder of compressed gas and acetylene, paint, etc., along with minor surface staining were observed at the time of our reconnaissance. In general, the hazardous materials observed onsite

were not properly stored in secondary containment. The exterior of the building was utilized as a cleaning and buffing area with tire degreasers, acid wheel cleaner, etc., resting on shelves outside of the structure. A sump was observed on the eastern side of the building toward the back of the structure; two unidentified small steel drums were resting on top of the grate covering the sump at the time of our reconnaissance.

445 Serramonte Boulevard – Vacant Hyundai Auto Service Center: The structure consists of an office and customer lounge, a drive-thru service center, two separate service areas and warehouse space. A kitchenette and restrooms are located above the service centers. Automotive service materials such as brake fluid, motor oil, coolant, waste oil, transmission fluid, acrylic paint, gear axle lubricant, car parts were observed onsite at the time of our site reconnaissance. The service center has a pump that extends from the wall, allowing waste oil and used coolant to be transported and stored in an adjacent warehouse room. Surface staining and minor leaks were observed in the service centers and warehouse space. According to a representative onsite, the automotive service center was vacated in February 2015.

455 Serramonte Boulevard – Vacant Auto Service Center: The structure consists of an office and customer lounge, a kitchenette and restrooms, automotive service areas, and warehouse space. The warehouse appeared to have been vacated by the previous occupant, with the exception of trash/debris sporadically located throughout the space. No drums were observed onsite at the time of our reconnaissance. Surface staining was observed in the automotive service areas and warehouse space.

4.5 ASBESTOS-CONTAINING MATERIALS AND LEAD-BASED PAINT

An asbestos and lead-based paint survey was not conducted as part of this assessment. A preliminary visual asbestos and lead-based paint survey was performed concurrent to this assessment. We understand that an asbestos survey has been recommended prior to significant building renovation or demolition.

4.6 INDOOR AIR QUALITY

An evaluation of indoor air quality, mold, or radon was not included as part of the contracted scope of services. The California Department of Health Services has conducted studies of radon risks throughout the state, sorted by zip code. Results of the studies indicate that 29 tests were conducted within the Property zip code, with none of the tests exceeding the current EPA action level of 4 picocuries per liter [pCi/L][1]).

According to ASTM E2600-10 (Tier 1) (*Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*), hydrocarbons and volatile organic compounds (VOCs) have been used at the Property.

[1] California Department of Health Services – Division of Drinking Water and Environmental Management – Radon (http://www.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf).

5.0 INTERVIEWS

Mr. Keith Henderson, a representative of CarMax, completed an environmental site assessment questionnaire pertaining to applicable environmental information regarding the Property. In the questionnaire, Mr. Henderson mentioned that he is unaware of commonly known, reasonably ascertainable, or specialized knowledge indicative of releases or threatened releases material to the potential presence of Recognized Environmental Conditions. Mr. Henderson has indicated that the purchase price of the Property is reflective of fair market value of the Property. The questionnaire is presented in its entirety in Appendix G.

Ms. Elena Gary (the owner's representative) completed a key-site manager questionnaire pertaining to the Property. In the questionnaire, Ms. Gary indicated that the Property is currently use as auto repair shops, and was previously used as farmland. She indicated that there was a tank on the Property which had been removed. The questionnaire is presented in its entirety in Appendix G.

6.0 EVALUATION

6.1 FINDINGS

The site reconnaissance and records review did not find documentation of soil, soil gas, or groundwater impairments associated with the Property. A review of regulatory databases maintained by county, state, tribal, and federal agencies found no documentation of hazardous materials violations or discharge on the Property, with the exception of a 20-gallon release of diesel fuel from damaged fuel tank at 445 Serramonte Boulevard that occurred in 2014. The release was contained and less than 1 liter of diesel fuel was reportedly discharged to an onsite storm drain.

A 2,000-gallon UST containing waste oil was installed in June 1986. The UST is located between 445 and 455 Serramonte Boulevard. According to Colma Fire District's Chief Inspector, the UST was removed on May 7, 2015. A representative from the Colma Fire District and a representative from the San Mateo County Department of Environmental Health (SMCDEH) Department were onsite to observe the removal of the tank. According to the Colma Fire Chief Inspector, the UST still contained approximately 120 gallons of waste oil. Confirmation samples were collected from the base of the UST excavation and from the stockpiled overburden soil. None of the analytes were detected at concentrations above the laboratory detection limits in the excavation confirmation samples. No further actions were recommended with respect to the USTs. A copy of the UST Closure Report is presented in Appendix H.

Based on the findings of this assessment, the following Recognized Environmental Conditions (RECs) were identified for the Property:

- A review of historical records found that the Property was used for agricultural purposes from the early 1940s until the mid-1980s. More specifically, the Property was leased for the cultivation of primroses and other flowers.

- Past hazardous materials business plans (HMBPs) depicted an old wash rack, identified as a sump/clarifier, on the Property until the early 2000s. No documentation regarding the removal of the sump/clarifier was identified.

- A sump located to the eastern side of 435 Serramonte Boulevard was observed at the time of our site reconnaissance.

- The presence and operation of a former underground waste oil tank at the Property.

6.2 OPINIONS AND DATA GAPS

It is our opinion that the findings of this study are based on a sufficient level of information obtained during our contracted scope of services to render a conclusion as to whether additional appropriate investigation is required to identify the presence or likely presence of a REC. The following data gaps were identified:

- The interior of the storage unit located south of 445 and 455 Serramonte Boulevard was inaccessible at the time of our site reconnaissance due to the UST removal activity taking place onsite.

- No Information regarding the former wash rack located between 445 and 455 Serramonte Boulevard was identified in the records search.

- The Public Works and Engineering Department for both the town of Colma and San Mateo County were contacted regarding information related to the use and drainage of the sump located at 435 Serramonte Boulevard. We did not receive a response prior to publication of this report.

6.3 CONCLUSIONS

Review of historical records indicates that the approximately 8.8-acre Property consisted of agricultural land that had been previously leased for the cultivation of primroses and other flowers; several acres of the Property were used for nursery facilities. Current development includes three large industrial buildings constructed in the 1980s and 1990s, with appurtenant parking lots and landscaping. The buildings have the following current or past uses:

- 455 Serramonte Boulevard: vacant former Jeep, Chrysler, and Plymouth service center building.

- 445 Serramonte Boulevard: vacant former Hyundai service center building.

- 435 Serramonte Boulevard: existing automotive repair shop (AW Collision).

This assessment included a review of local, state, tribal, and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources. A reconnaissance of the Property was conducted to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials and interviews with persons knowledgeable about current and past site use.

The site reconnaissance and records review did not find documentation of soil, soil gas, or groundwater impairments associated with the Property.

A review of regulatory databases maintained by county, state, tribal, and federal agencies found documentation of minor hazardous materials violations or discharge on the Property, including a 20-gallon release of diesel fuel from damaged fuel tank at 445 Serramonte Boulevard that occurred in 2014. The release was contained, and less than 1 liter of diesel fuel was reportedly discharged to an onsite storm drain.

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- A sump located to the eastern side of 435 Serramonte Boulevard was observed at the time of our site reconnaissance.

- The presence and operation of a former underground waste oil tank at the Property.

ENGEO has performed a phase I environmental site assessment in general conformance with the scope and limitations of ASTM E1527 of the Property. Based on the findings of this assessment, ENGEO recommends the following:

- A phase II environmental assessment, including the recovery of soil and soil vapor samples, should be conducted to address potential subsurface impairments associated with the past agricultural use and past and current automotive-related uses of the Property.

- The hazardous materials that exist onsite should be properly disposed of by a licensed contractor.

SELECTED REFERENCES

California Department of Water Resources (http://wdl.water.ca.gov).

California Department of Conservation, Department of Oil, Gas and Geothermal Resources Website; Oil and Gas Maps, (http://www.consrv.ca.gov/dog/maps/pages/index_map.aspx).

California Department of Health Services – Division of Drinking Water and Environmental Management – Radon (http://ww2.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf)

Town of Colma, California website (http://www.colma.ca.gov/)

San Mateo County website (http://www.smcgov.org/)

EnviroStor Website, Department of Toxic Substances Control, http://www.envirostor.dtsc.ca.gov/public//

GeoTracker Website, State Water Resources Control Board, (http://geotracker.swrcb.ca.gov/)

Golden Gate Tank Removal, Inc., Underground Storage Tank Closure Report, 445 Serramonte Boulevard, Colma, California, May 21, 2015.

Google Maps (http://maps.google.com)

United States Environmental Protection Agency Indoor Air Quality Website (http://www.cdph.ca.gov/HealthInfo/environhealth/Documents/Radon/CaliforniaRadonDatabase.pdf)

Wagner et al., 1991, Geologic Map of the San Francisco-San Jose Quadrangle, California, 1:250,000.

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Figure 3 – Assessor's Parcel Map
Figure 4 - Site Photographs

FIGURES

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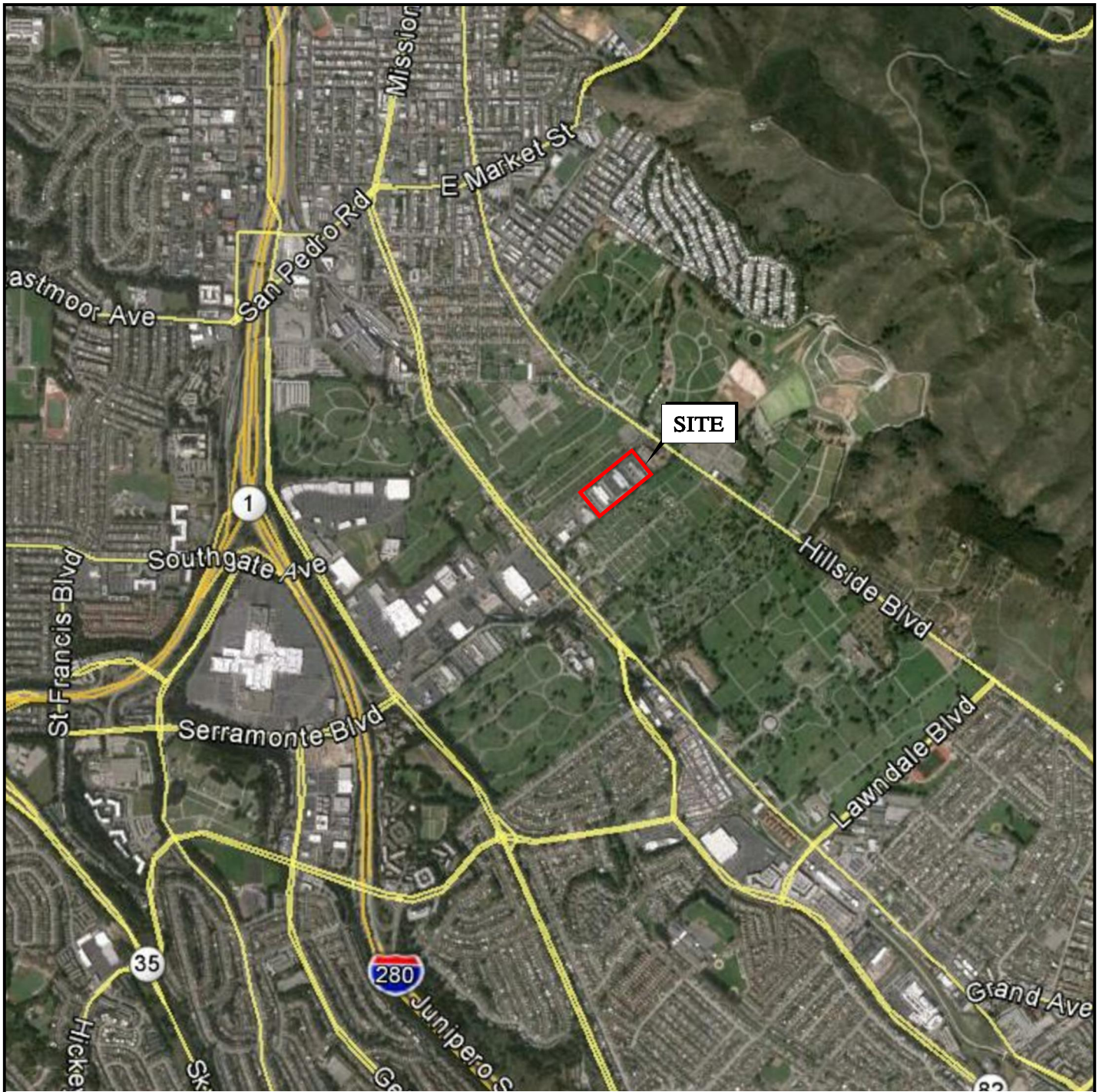

N

0 FEET 2000

0 METERS 1000

BASE MAP SOURCE: GOOGLE EARTH PRO

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VICINITY MAP

CARMAX COLMA

COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000		FIGURE NO.
SCALE: AS SHOWN		1
DRAWN BY: LL	CHECKED BY: AU	

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N

0 FEET 150
0 METERS 75

BASE MAP SOURCE: GOOGLE EARTH PRO

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SITE PLAN
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO. 2
SCALE: AS SHOWN	
DRAWN BY: LL	CHECKED BY: AU

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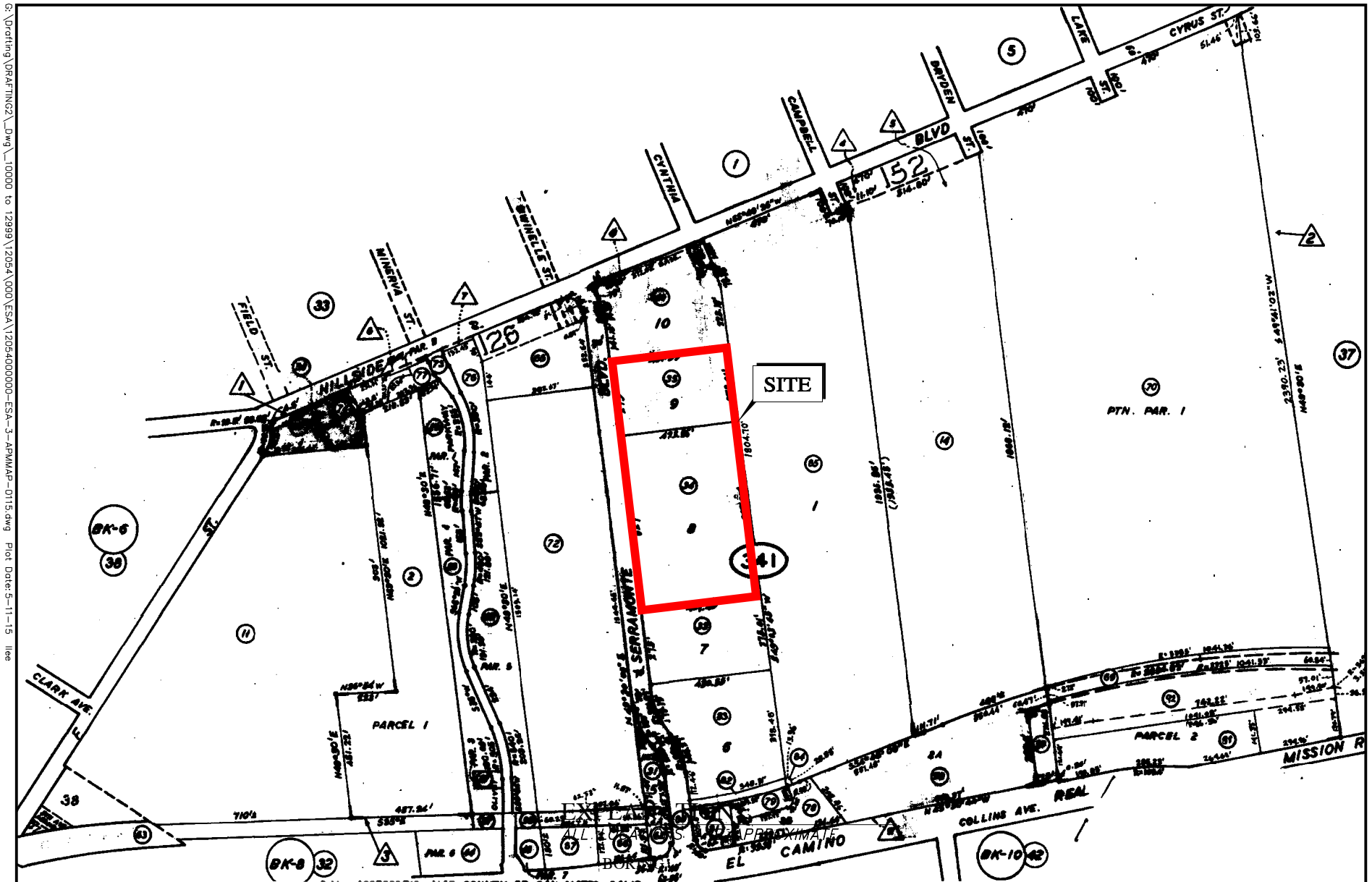

BASE MAP SOURCE: COUNTY ASSESSOR'S OFFICE

0 FEET 500
0 METERS 250

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ASSESSOR'S PARCEL MAP
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO. 3
SCALE: AS SHOWN	
DRAWN BY: LL	CHECKED BY: ARU

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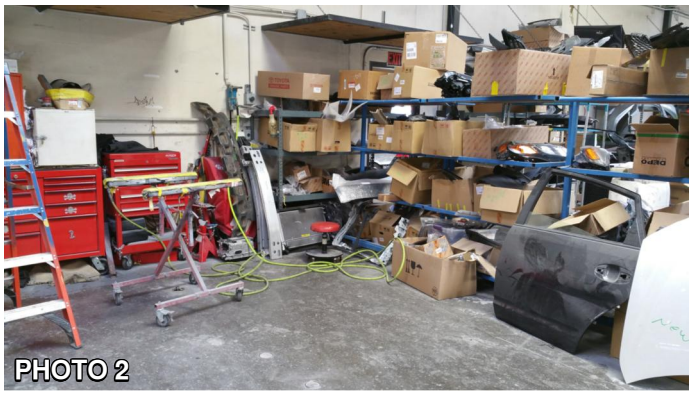
435 SERRAMONTE BOULEVARD - AW COLLISION



435 SERRAMONTE BOULEVARD - STORAGE OBSERVED IN THE SERVICE AREA

435 SERRAMONTE BOULEVARD - DRUMS OBSERVED IN THE PAINT STORAGE AREA

435 SERRAMONTE BOULEVARD - OUTSIDE STORAGE LOCATED ON THE EASTERN SIDE OF THE BUILDING

435 SERRAMONTE BOULEVARD - MATERIALS USED FOR THE AUTO SERVICES PROVIDED ON THE EASTERN SIDE OF THE BUILDING

435 SERRAMONTE BOULEVARD - SUMP OBSERVED ON EASTERN SIDE OF THE BUILDING

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SITE PHOTOGRAPHS
435 SERRAMONTE BOULEVARD
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO. 4A
SCALE: NO SCALE	
DRAWN BY: LL	CHECKED BY: ARU

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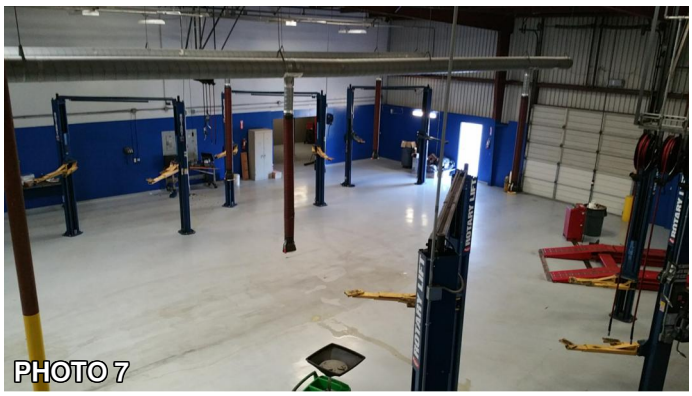
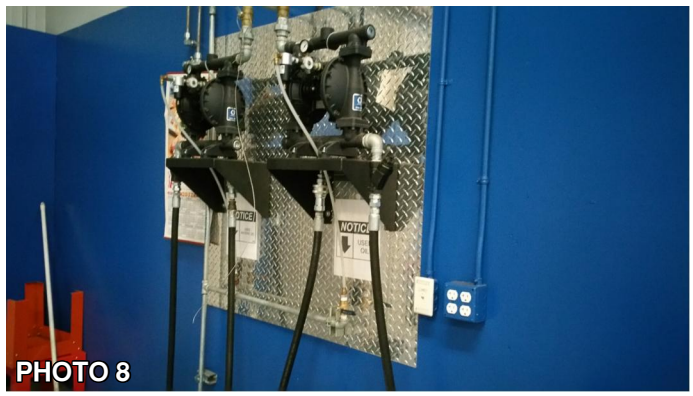


445 SERRAMONTE BOULEVARD - ABOVE GROUND HYDRAULIC LIFTS LOCATED IN THE AUTO SERVICE AREA



445 SERRAMONTE BOULEVARD - PUMPS LOCATED IN THE SERVICE AREA USED TO MOVE AND STORE USED OIL AND USED ANTI-FREEZE IN THE NEXT ROOM

445 SERRAMONTE BOULEVARD - STORAGE FOR THE USED OIL AND USED ANTI-FREEZE PUMPED OUT OF THE SERVICE AREA

445 SERRAMONTE BOULEVARD - AUTO SERVICE AREA

445 SERRAMONTE BOULEVARD - SMALL SPILLS AND STAINING OBSERVED IN THE AUTO SERVICE AREA

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SITE PHOTOGRAPHS
445 SERRAMONTE BOULEVARD
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO
SCALE: NO SCALE	4B
DRAWN BY: LL / CHECKED BY: ARU	

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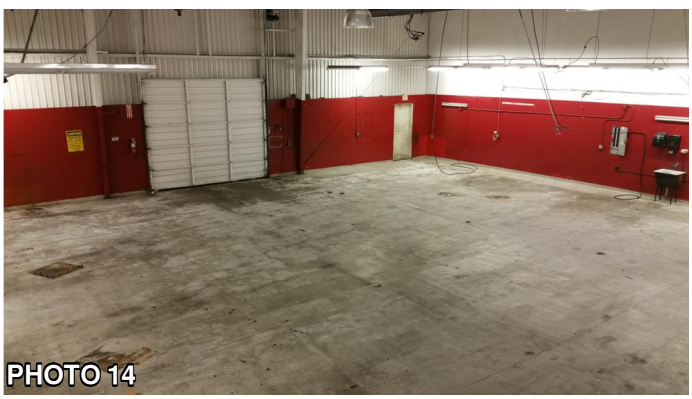
445 SERRAMONTE BOULEVARD - WAREHOUSE SPACE

455 SERRAMONTE BOULEVARD - FORMERLY OCCUPIED BY A JEEP, CHRYSLER, AND PLYMOUTH SERVICE CENTER



455 SERRAMONTE BOULEVARD - AUTO SERVICE AREA

455 SERRAMONTE BOULEVARD - DRIVE-THRU SERVICE AREA

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SITE PHOTOGRAPHS
455 SERRAMONTE BOULEVARD
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO
SCALE: NO SCALE	4C
DRAWN BY: LL / CHECKED BY: ARU	

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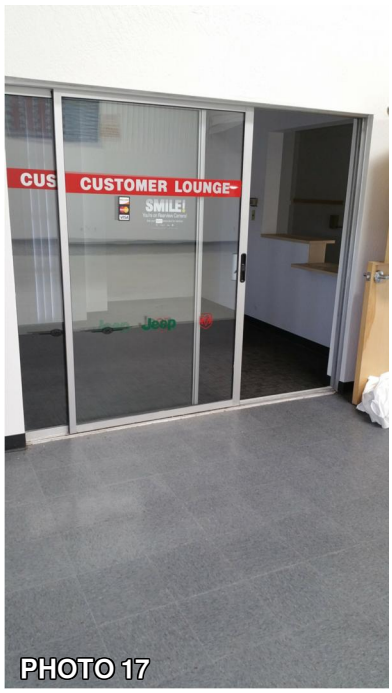
455 SERRAMONTE BOULEVARD -
VACANT WAREHOUSE SPACE



455 SERRAMONTE BOULEVARD - CUSTOMER LOUNGE

BETWEEN 445 AND 455 SERRAMONTE BOULEVARD -
ACTIVITIES RELATED TO THE REMOVAL OF THE
UNDERGROUND STORAGE TANK

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SITE PHOTOGRAPHS
455 SERRAMONTE BOULEVARD
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO
SCALE: NO SCALE	4D
DRAWN BY: LL / CHECKED BY: ARU	

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APPENDIX A

ENVIRONMENTAL DATA RESOURCES, INC.

Radius Map Report

APPENDIX A

CarMax Colma
435, 445 and 455 Serramonte Blvd.
Daly City, CA 94014

Inquiry Number: 04270024.2r
April 21, 2015

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Physical Setting Source Map	A-8
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Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

435, 445 AND 455 SERRAMONTE BLVD.
DALY CITY, CA 94014

COORDINATES

Latitude (North):	37.6789000 - 37˚ 40' 44.04''
Longitude (West):	122.4542000 - 122˚ 27' 15.12''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	548129.4
UTM Y (Meters):	4170124.5
Elevation:	199 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	37122-F4 SAN FRANCISCO SOUTH, CA
Most Recent Revision:	1999

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120520
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
435, 445 AND 455 SERRAMONTE BLVD.
DALY CITY, CA 94014

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	SERRAMONTE AUTO PLAZ	435 SERRAMONTE BLVD	RCRA-SQG, FINDS		TP
A2	SERRAMONTE MITSUBISH	445 AND 455 SERRAMON	HAZNET		TP
A3	SERRAMONTE AUTO PLAZ	435 SERRAMONTE BLVD	HAZNET		TP
A4	SERRAMONTE NISSAN/IS	445 SERRAMONTE BLVD	SWEEPS UST, San Mateo Co. BI, EMI		TP
A5	SERRAMONTE CHRYSLER	455 SERRAMONTE	RCRA NonGen / NLR, FINDS, San Mateo Co. BI, HAZNET		TP
A6	LEXUS OF SERRAMONTE	445 SERRAMONTE BLVD	HAZNET		TP
A7		445 SERRAMONTE BLVD	CHMIRS		TP
A8	SERRAMONTE OF HONDA	445 SERRAMONTE BLVD	HAZNET		TP
A9		445 SERRAMONTE BLVD	ERNS		TP
A10	SERRAMONTE AUTO PLAZ	435 SERRAMONTE BLVD	San Mateo Co. BI, HAZNET, EMI		TP
A11	SERRAMONTE MITSUBISH	445 AND 455 SERRAMON	HAZNET		TP
A12	SERRAMONTE NISSAN	445 SERRAMONTE BOULE	RCRA NonGen / NLR, FINDS		TP
A13	ACURA OF SERRAMONTE	445 SERRAMONTE BLVD	HAZNET		TP
A14		455 SERRAMONTE BLVD	EDR US Hist Auto Stat		TP
A15	SERRAMONTE NISSAN/NI	445 SERRAMONTE BLVD	HAZNET		TP
A16	SERRAMONTE NISSAN/IS	445 SERRAMONTE BOULE	HAZNET		TP
A17		435 SERRAMONTE BLVD	EDR US Hist Auto Stat		TP
B18	PRE DELIVERY INSPECT	465 SERRAMONTE BLVD	SWEEPS UST, San Mateo Co. BI	Lower	7, 0.001, WSW
B19	SERRAMONTE ACURA	475 SERRAMONTE	San Mateo Co. BI	Lower	144, 0.027, WSW
20	HOME OF PEACE CEMETE	239 EL CAMINO REAL	RCRA-SQG, FINDS, SWEEPS UST, HAZNET	Lower	153, 0.029, SSW
C21	MARCELLINI BROS INC	1767 HILLSIDE	San Mateo Co. BI	Higher	318, 0.060, NNE
D22	PRICE DEALERSHIP	485 SERRAMONTE	HIST CORTESE, LUST, SWEEPS UST, San Mateo Co. BI	Lower	336, 0.064, WSW
D23	PRICE DEALERSHIP	485 SERRAMONTE	LUST	Lower	336, 0.064, WSW
C24	CYPRESS HILLS GOLF C	1777 HILLSIDE BLVD	HIST UST	Higher	341, 0.065, NE
E25	SERBIAN CEMETERY	1801 HILLSIDE	LUST	Higher	417, 0.079, ENE
E26	SERBIAN CEMETARY	1801 HILLSIDE	HIST CORTESE, LUST, SWEEPS UST, San Mateo Co. BI	Higher	417, 0.079, ENE
F27	ABBEY HOMESTEAD NURS	1899 HILLSIDE	HIST CORTESE, LUST, San Mateo Co. BI	Higher	715, 0.135, East
F28	TROYS AUTO BODY	1901 HILLSIDE BLVD	RCRA-SQG, FINDS, San Mateo Co. BI	Higher	742, 0.141, East
F29		1901 HILLSIDE BLVD	EDR US Hist Auto Stat	Higher	742, 0.141, East
G30	TOWN OF COLMA	1198 EL CAMINO REAL	SWEEPS UST	Lower	871, 0.165, WSW
G31	WOODLAWN MEMORIAL PA	222 EL CAMINO REAL	HIST UST	Lower	949, 0.180, WSW
32	HOME OF PEACE CEMETE	1299 EL CAMINO REAL	NPDES, San Mateo Co. BI	Lower	1006, 0.191, SSW
H33	ETERNAL HOME CEMETER	1051 EL CAMINO REAL	San Mateo Co. BI	Lower	1062, 0.201, West
H34	MEMORIAL PARK, GREEK	1148 EL CAMINO REAL	San Mateo Co. BI	Lower	1144, 0.217, WSW
35	CYPRESS GOLF COURSE	2001 HILLSIDE	CA FID UST, SWEEPS UST, CHMIRS, San Mateo Co. BI	Higher	1170, 0.222, East
36	G AND M AUTO BODY SE	620 SERRAMONTE BLVD	RCRA-SQG, HAZNET	Lower	1307, 0.248, SW
37	NISSAN SERRAMONTE	650 SERRAMONTE	SLIC, San Mateo Co. BI	Lower	1765, 0.334, SW
38	OLIVET MEMORIAL PARK	1601 HILLSIDE	HIST CORTESE, LUST, San Mateo Co. BI	Higher	1864, 0.353, NNW
39	SATURN OF COLMA	707 SERRAMONTE BLVD	RCRA-SQG, FINDS, LUST, SLIC, San Mateo Co. BI, EMI	Lower	1889, 0.358, SW

MAPPED SITES SUMMARY

Target Property Address:
435, 445 AND 455 SERRAMONTE BLVD.
DALY CITY, CA 94014

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
40	F ST LIFT STATION	0 F	LUST	Lower	2038, 0.386, NW
41	HILLSIDE CLASS III D	#1 SANDFILL ROAD (15	SWF/LF, Financial Assurance	Higher	2064, 0.391, East
I42	LEXUS OF SERRAMONTE	700 SERRAMONTE	HIST CORTESE	Lower	2085, 0.395, SW
I43	LEXUS OF SERRAMONTE	700 SERRAMONTE BLVD	RCRA-SQG, FINDS, LUST, SWEEPS UST, San Mateo Co....	Lower	2085, 0.395, SW
J44	PRECISION ROOFING IN	1773 MISSION	HIST CORTESE, SWEEPS UST, San Mateo Co. BI	Lower	2159, 0.409, South
K45	SERRAMONTE FORD	530 COLLINS	RCRA-SQG, FINDS, HIST CORTESE, LUST, San Mateo Co....	Lower	2256, 0.427, SW
K46	BLUES ROOFING	600 COLLINS	HIST CORTESE, LUST, SWEEPS UST, San Mateo Co. BI	Lower	2331, 0.441, SW
47	CYPRESS LAWN CEMETER	300 EL CAMINO REAL	HIST CORTESE, LUST, SWEEPS UST	Lower	2365, 0.448, South
J48	VW AUTO REPAIR	1715 OLD MISSION	HIST CORTESE, LUST	Lower	2424, 0.459, South
J49	VW AUTO REPAIR	1715 OLD MISSION	LUST, San Mateo Co. BI	Lower	2424, 0.459, South
50	G & M AUTO BODY	780 SERRAMONTE BLVD	HIST CORTESE, LUST, HIST UST, ENF, San Mateo Co....	Lower	2493, 0.472, SW
51	OTTOBONI PROPERTY	417 F	HIST CORTESE, LUST, SLIC, SWEEPS UST, San Mateo...	Lower	2578, 0.488, WNW
52	G. NANO (POSSIBLE NA	SECOND AVENUE & CAST	ENVIROSTOR	Higher	5113, 0.968, NNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
SERRAMONTE AUTO PLAZ 435 SERRAMONTE BLVD COLMA, CA 94014	RCRA-SQG EPA ID:: CAD982040164 FINDS Registry ID:: 110002412327	CAD982040164
SERRAMONTE MITSUBISH 445 AND 455 SERRAMON COLMA, CA 94014	HAZNET GEPAID: CAC002663085	N/A
SERRAMONTE AUTO PLAZ 435 SERRAMONTE BLVD COLMA, CA 94014	HAZNET GEPAID: CAD982040164	N/A
SERRAMONTE NISSAN/IS 445 SERRAMONTE BLVD COLMA, CA 94014	SWEEPS UST Comp Number: 780047 Status: A Tank Status: A San Mateo Co. BI Facility Id: FA0003550 Facility Id: FA0025413 Facility Id: FA0026687 Facility Id: FA0028175 Facility Id: FA0037652 **Additional key fields are available in the Map Findings section* EMI Facility Id: 12360	N/A
SERRAMONTE CHRYSLER 455 SERRAMONTE COLMA, CA 94014	RCRA NonGen / NLR EPA ID:: CAD983591199 FINDS Registry ID:: 110002850594 San Mateo Co. BI Facility Id: FA0004719 Facility Id: FA0054035 HAZNET GEPAID: CAD983591199	CAD983591199
LEXUS OF SERRAMONTE 445 SERRAMONTE BLVD COLMA, CA 94014	HAZNET GEPAID: CAL000329948	N/A
445 SERRAMONTE BLVD 445 SERRAMONTE BLVD COLMA, CA	CHMIRS OES Incident Number: 14-1058	N/A

EXECUTIVE SUMMARY

SERRAMONTE OF HONDA 445 SERRAMONTE BLVD COLMA, CA 94014	HAZNET GEPAID: CAL000207236	N/A
445 SERRAMONTE BLVD 445 SERRAMONTE BLVD COLMA, CA	ERNS EDR ID:: 1074749	N/A
SERRAMONTE AUTO PLAZ 435 SERRAMONTE BLVD COLMA, CA 94014	San Mateo Co. BI Facility Id: FA0005631 HAZNET GEPAID: CAL000377019 EMI Facility Id: 3201	N/A
SERRAMONTE MITSUBISH 445 AND 455 SERRAMON COLMA, CA 94014	HAZNET GEPAID: CAL000130103	N/A
SERRAMONTE NISSAN 445 SERRAMONTE BOULE COLMA, CA 94014	RCRA NonGen / NLR EPA ID:: CAD983591181 FINDS Registry ID:: 110002850585 Registry ID:: 110057034944	CAD983591181
ACURA OF SERRAMONTE 445 SERRAMONTE BLVD COLMA, CA 94014	HAZNET GEPAID: CAL000191028	N/A
455 SERRAMONTE BLVD 455 SERRAMONTE BLVD DALY CITY, CA 94014	EDR US Hist Auto Stat	N/A
SERRAMONTE NISSAN/NI 445 SERRAMONTE BLVD COLMA, CA 94014	HAZNET GEPAID: CAL000006965	N/A
SERRAMONTE NISSAN/IS 445 SERRAMONTE BOULE COLMA, CA 94014	HAZNET GEPAID: CAD983591181	N/A
435 SERRAMONTE BLVD 435 SERRAMONTE BLVD DALY CITY, CA 94014	EDR US Hist Auto Stat	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State and tribal leaking storage tank lists

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
WMUDS/SWAT ..... Waste Management Unit Database

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
HIST Cal-Sites ..... Historical Calsites Database
SCH ..... School Property Evaluation Program
Toxic Pits ..... Toxic Pits Cleanup Act Sites
CDL ..... Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LIENS ..... Environmental Liens Listing
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
LDS ..... Land Disposal Sites Listing
MCS ..... Military Cleanup Sites Listing
SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

DOT OPS ..... Incident and Accident Data
DOD ..... Department of Defense Sites

EXECUTIVE SUMMARY

FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
NPDES	NPDES Permits Listing
UIC	UIC Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
US AIRS	Aerometric Information Retrieval System Facility Subsystem
MWMP	Medical Waste Management Program Listing
WDS	Waste Discharge System
Financial Assurance	Financial Assurance Information Listing
PROC	Certified Processors Database
HWT	Registered Hazardous Waste Transporter Database
HWP	EnviroStor Permitted Facilities Listing
COAL ASH DOE	Steam-Electric Plant Operation Data
2020 COR ACTION	2020 Corrective Action Program List
PRP	Potentially Responsible Parties
LEAD SMELTERS	Lead Smelter Sites
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List

EXECUTIVE SUMMARY

RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/09/2014 has revealed that there are 3 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TROYS AUTO BODY	***1901 HILLSIDE BLVD***	***E 1/8 - 1/4 (0.141 mi.)***	***F28***	***50***

Lower Elevation	Address	Direction / Distance	Map ID	Page
HOME OF PEACE CEMETE	***239 EL CAMINO REAL***	***SSW 0 - 1/8 (0.029 mi.)***	***20***	***38***
G AND M AUTO BODY SE	***620 SERRAMONTE BLVD***	***SW 1/8 - 1/4 (0.248 mi.)***	***36***	***58***

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 03/11/2015 has revealed that there is

1 ENVIROSTOR site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
G. NANO (POSSIBLE NA Facility Id: 70000094 Status: Inactive - Needs Evaluation	SECOND AVENUE & CAST	NNW 1/2 - 1 (0.968 mi.)	52	103

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, and dated 02/16/2015 has revealed that there is 1 SWF/LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HILLSIDE CLASS III D Regulation Status: Permitted Operational Status: Closed Facility ID: 41-AA-0008	***#1 SANDFILL ROAD (15***	***E 1/4 - 1/2 (0.391 mi.)***	***41***	***74***

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 03/13/2015 has revealed that there are 16 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SERBIAN CEMETERY date9: 2/17/2003 Facility Status: Case Closed	1801 HILLSIDE	ENE 0 - 1/8 (0.079 mi.)	E25	45
SERBIAN CEMETARY Global Id: T0608100765 Global ID: T0608100765 Status: Completed - Case Closed Facility Id: 780018 Facility Status: 9- Case Closed	***1801 HILLSIDE***	***ENE 0 - 1/8 (0.079 mi.)***	***E26***	***46***
ABBEY HOMESTEAD NURS Global Id: T0608100652 Global ID: T0608100652 date9: 12/13/1999 Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 780012 Facility Status: 9- Case Closed	***1899 HILLSIDE***	***E 1/8 - 1/4 (0.135 mi.)***	***F27***	***48***
OLIVET MEMORIAL PARK Global Id: T0608184609 Global Id: T0608100362 Global ID: T0608100362 date9: 10/12/1994 Status: Completed - Case Closed Facility Status: Case Closed Facility Status: Preliminary site assessment workplan submitted Facility Id: 780011 Facility Id: 780026 Facility Status: 9- Case Closed	***1601 HILLSIDE***	***NNW 1/4 - 1/2 (0.353 mi.)***	***38***	***61***

EXECUTIVE SUMMARY

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRICE DEALERSHIP Global Id: T0608100965 Global ID: T0608100965 Status: Completed - Case Closed Facility Id: 780021 Facility Status: 9- Case Closed	***485 SERRAMONTE***	***WSW 0 - 1/8 (0.064 mi.)***	***D22***	***42***
PRICE DEALERSHIP date9: 6/11/2001 Facility Status: Case Closed	485 SERRAMONTE	WSW 0 - 1/8 (0.064 mi.)	D23	44
SATURN OF COLMA Global ID: SL0608189867 Facility Id: 789025 Facility Status: 9- Case Closed	***707 SERRAMONTE BLVD***	***SW 1/4 - 1/2 (0.358 mi.)***	***39***	***68***
F ST LIFT STATION Global Id: T0608101018 Global ID: T0608101018 date9: 1/6/2000 Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 220052 Facility Status: 9- Case Closed	0 F	NW 1/4 - 1/2 (0.386 mi.)	40	73
LEXUS OF SERRAMONTE Global Id: T0608101069 Global ID: T0608101069 date9: 10/12/1994 Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 780016 Facility Status: 9- Case Closed	***700 SERRAMONTE BLVD***	***SW 1/4 - 1/2 (0.395 mi.)***	***I43***	***77***
SERRAMONTE FORD Global Id: T0608100455 Global ID: T0608100455 date9: 9/17/1992 Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 780010 Facility Status: 9- Case Closed	***530 COLLINS***	***SW 1/4 - 1/2 (0.427 mi.)***	***K45***	***84***
BLUES ROOFING Global Id: T0608100777 Global ID: T0608100777 date9: 6/28/1994 Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 780017 Facility Status: 9- Case Closed	***600 COLLINS***	***SW 1/4 - 1/2 (0.441 mi.)***	***K46***	***88***
CYPRESS LAWN CEMETER Global Id: T0608100178 Global ID: T0608100178 date9: 8/27/2001 Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 780008 Facility Status: 9- Case Closed	***300 EL CAMINO REAL***	***S 1/4 - 1/2 (0.448 mi.)***	***47***	***90***

Lower Elevation	Address	Direction / Distance	Map ID	Page
VW AUTO REPAIR date9: 7/21/2000 Facility Status: Case Closed	***1715 OLD MISSION***	***S 1/4 - 1/2 (0.459 mi.)***	***J48***	***93***
VW AUTO REPAIR Global Id: T0608100664 Global ID: T0608100664 Status: Completed - Case Closed Facility Id: 780013 Facility Status: 9- Case Closed	***1715 OLD MISSION***	***S 1/4 - 1/2 (0.459 mi.)***	***J49***	***94***
G & M AUTO BODY Global Id: T0608100516 Global ID: T0608100516 date9: 10/10/1991 Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 780005 Facility Status: 9- Case Closed	***780 SERRAMONTE BLVD***	***SW 1/4 - 1/2 (0.472 mi.)***	***50***	***96***
OTTOBONI PROPERTY Global ID: T0608185252 Facility Id: 789001 Facility Status: 9- Case Closed	***417 F***	***WNW 1/4 - 1/2 (0.488 mi.)***	***51***	***102***

SLIC: SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 03/13/2015 has revealed that there are 3 SLIC sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
NISSAN SERRAMONTE Global Id: T10000006528 Facility Status: Open - Site Assessment	***650 SERRAMONTE***	***SW 1/4 - 1/2 (0.334 mi.)***	***37***	***61***
SATURN OF COLMA Global Id: SL0608189867 Facility Status: Completed - Case Closed	***707 SERRAMONTE BLVD***	***SW 1/4 - 1/2 (0.358 mi.)***	***39***	***68***
OTTOBONI PROPERTY Global Id: T0608185252 Facility Status: Completed - Case Closed	***417 F***	***WNW 1/4 - 1/2 (0.488 mi.)***	***51***	***102***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is

EXECUTIVE SUMMARY

1 CA FID UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CYPRESS GOLF COURSE Facility Id: 41004744 Status: I	***2001 HILLSIDE***	***E 1/8 - 1/4 (0.222 mi.)***	***35***	***56***

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 2 HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CYPRESS HILLS GOLF C Facility Id: 00000005983	1777 HILLSIDE BLVD	NE 0 - 1/8 (0.065 mi.)	C24	45

Lower Elevation	Address	Direction / Distance	Map ID	Page
WOODLAWN MEMORIAL PA Facility Id: 00000011258	222 EL CAMINO REAL	WSW 1/8 - 1/4 (0.180 mi.)	G31	54

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 6 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SERBIAN CEMETARY Comp Number: 780050	***1801 HILLSIDE***	***ENE 0 - 1/8 (0.079 mi.)***	***E26***	***46***
CYPRESS GOLF COURSE Comp Number: 780008 Status: A	***2001 HILLSIDE***	***E 1/8 - 1/4 (0.222 mi.)***	***35***	***56***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRE DELIVERY INSPECT Comp Number: 780049 Status: A Tank Status: A	***465 SERRAMONTE BLVD***	***WSW 0 - 1/8 (0.001 mi.)***	***B18***	***37***
HOME OF PEACE CEMETE Comp Number: 780051 Status: A Tank Status: A	***239 EL CAMINO REAL***	***SSW 0 - 1/8 (0.029 mi.)***	***20***	***38***
PRICE DEALERSHIP Comp Number: 770048 Comp Number: 780048 Status: A Tank Status: A	***485 SERRAMONTE***	***WSW 0 - 1/8 (0.064 mi.)***	***D22***	***42***

EXECUTIVE SUMMARY

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOWN OF COLMA Comp Number: 780059	1198 EL CAMINO REAL	WSW 1/8 - 1/4 (0.165 mi.)	G30	53

Other Ascertainable Records

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 12 HIST CORTESE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SERBIAN CEMETARY Reg Id: 41-0812	***1801 HILLSIDE***	***ENE 0 - 1/8 (0.079 mi.)***	***E26***	***46***
ABBEY HOMESTEAD NURS Reg Id: 41-0686	***1899 HILLSIDE***	***E 1/8 - 1/4 (0.135 mi.)***	***F27***	***48***
OLIVET MEMORIAL PARK Reg Id: 41-0381	***1601 HILLSIDE***	***NNW 1/4 - 1/2 (0.353 mi.)***	***38***	***61***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRICE DEALERSHIP Reg Id: 41-1052	***485 SERRAMONTE***	***WSW 0 - 1/8 (0.064 mi.)***	***D22***	***42***
LEXUS OF SERRAMONTE Reg Id: 41-1169	700 SERRAMONTE	SW 1/4 - 1/2 (0.395 mi.)	I42	77
PRECISION ROOFING IN Reg Id: 41-0016	***1773 MISSION***	***S 1/4 - 1/2 (0.409 mi.)***	***J44***	***83***
SERRAMONTE FORD Reg Id: 41-0479	***530 COLLINS***	***SW 1/4 - 1/2 (0.427 mi.)***	***K45***	***84***
BLUES ROOFING Reg Id: 41-0829	***600 COLLINS***	***SW 1/4 - 1/2 (0.441 mi.)***	***K46***	***88***
CYPRESS LAWN CEMETER Reg Id: 41-0187	***300 EL CAMINO REAL***	***S 1/4 - 1/2 (0.448 mi.)***	***47***	***90***
VW AUTO REPAIR Reg Id: 41-0698	***1715 OLD MISSION***	***S 1/4 - 1/2 (0.459 mi.)***	***J48***	***93***
G & M AUTO BODY Reg Id: 41-0540	***780 SERRAMONTE BLVD***	***SW 1/4 - 1/2 (0.472 mi.)***	***50***	***96***
OTTOBONI PROPERTY Reg Id: 41-0751	***417 F***	***WNW 1/4 - 1/2 (0.488 mi.)***	***51***	***102***

EXECUTIVE SUMMARY

Hazardous Materials Business Plan, Hazardous Waste Generator, Underground Storage tanks

A review of the San Mateo Co. BI list, as provided by EDR, and dated 01/09/2015 has revealed that there are 11 San Mateo Co. BI sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MARCELLINI BROS INC Facility Id: FA0025261	1767 HILLSIDE	NNE 0 - 1/8 (0.060 mi.)	C21	42
SERBIAN CEMETARY Facility Id: FA0015419	***1801 HILLSIDE***	***ENE 0 - 1/8 (0.079 mi.)***	***E26***	***46***
ABBEY HOMESTEAD NURS Facility Id: FA0013998	***1899 HILLSIDE***	***E 1/8 - 1/4 (0.135 mi.)***	***F27***	***48***
TROYS AUTO BODY Facility Id: FA0003657	***1901 HILLSIDE BLVD***	***E 1/8 - 1/4 (0.141 mi.)***	***F28***	***50***
CYPRESS GOLF COURSE Facility Id: FA0018157	***2001 HILLSIDE***	***E 1/8 - 1/4 (0.222 mi.)***	***35***	***56***

Lower Elevation	Address	Direction / Distance	Map ID	Page
PRE DELIVERY INSPECT Facility Id: FA0008168	***465 SERRAMONTE BLVD***	***WSW 0 - 1/8 (0.001 mi.)***	***B18***	***37***
SERRAMONTE ACURA Facility Id: FA0028903	475 SERRAMONTE	WSW 0 - 1/8 (0.027 mi.)	B19	38
PRICE DEALERSHIP Facility Id: FA0005746	***485 SERRAMONTE***	***WSW 0 - 1/8 (0.064 mi.)***	***D22***	***42***
HOME OF PEACE CEMETE Facility Id: FA0008982	***1299 EL CAMINO REAL***	***SSW 1/8 - 1/4 (0.191 mi.)***	***32***	***54***
ETERNAL HOME CEMETER Facility Id: FA0010297	1051 EL CAMINO REAL	W 1/8 - 1/4 (0.201 mi.)	H33	55
MEMORIAL PARK, GREEK Facility Id: FA0018180	1148 EL CAMINO REAL	WSW 1/8 - 1/4 (0.217 mi.)	H34	55

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there is 1 EDR US

EXECUTIVE SUMMARY

Hist Auto Stat site within approximately 0.25 miles of the target property.

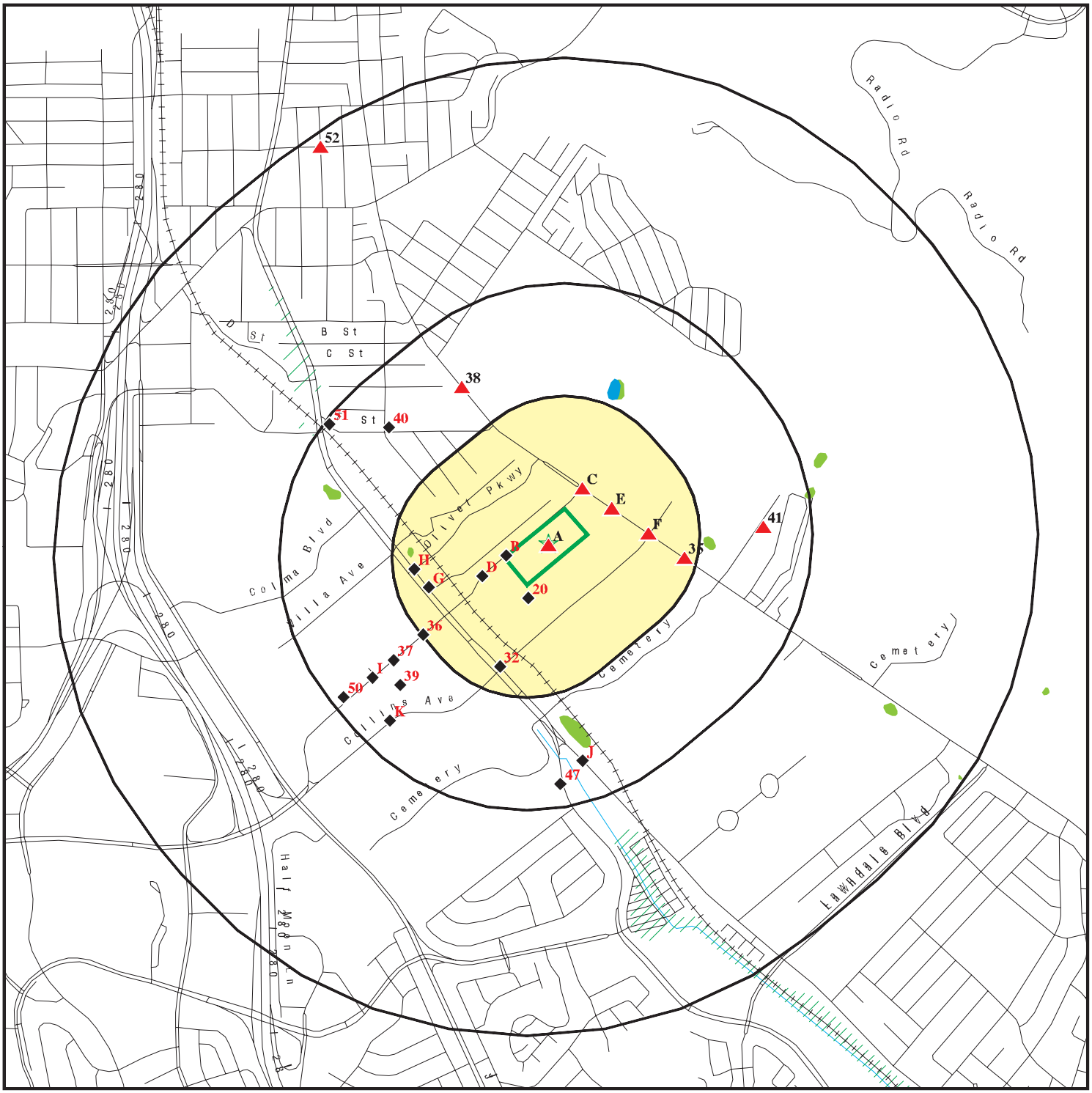
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	1901 HILLSIDE BLVD	E 1/8 - 1/4 (0.141 mi.)	F29	52

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 4 records.

Site Name	Database(s)
SATURN OF COLMA	RGA LUST
SO PACIFIC TRANS CO	CERCLIS
GARDEN VALLEY SITE	VCP, ENVIROSTOR
COLMA HILLSIDE DISPOSAL SITE	ODI

OVERVIEW MAP - 04270024.2R



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: CarMax Colma	CLIENT: Engeo Inc.
ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City CA 94014	CONTACT: Kelsey Gerhart
LAT/LONG: 37.6789 / 122.4542	INQUIRY #: 04270024.2r
	DATE: April 21, 2015 1:49 pm

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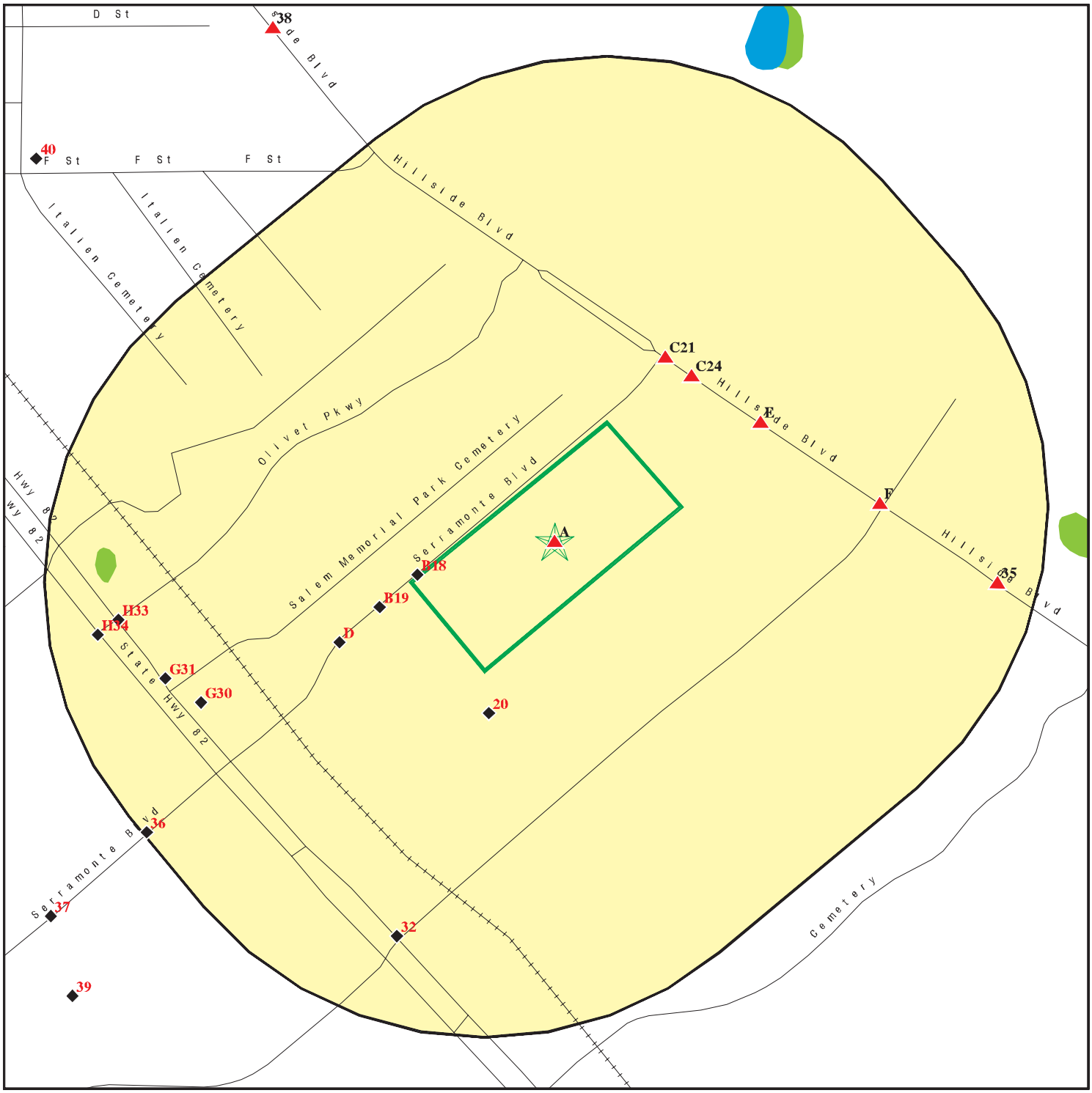
DETAIL MAP - 04270024.2R



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: CarMax Colma	CLIENT: Engeo Inc.
ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City CA 94014	CONTACT: Kelsey Gerhart INQUIRY #: 04270024.2r
LAT/LONG: 37.6789 / 122.4542	DATE: April 21, 2015 1:53 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250	1	1	2	NR	NR	NR	4
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP	1	NR	NR	NR	NR	NR	1
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
LUST	0.500		4	1	11	NR	NR	16

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	3	NR	NR	3
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	1	NR	NR	NR	1
HIST UST	0.250		1	1	NR	NR	NR	2
SWEEPS UST	0.250	1	4	2	NR	NR	NR	7
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP	1	NR	NR	NR	NR	NR	1
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250	2	0	0	NR	NR	NR	2
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP	3	NR	NR	NR	NR	NR	3
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		2	1	9	NR	NR	12
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
San Mateo Co. BI	0.250	3	5	6	NR	NR	NR	14
HAZNET	TP	10	NR	NR	NR	NR	NR	10
EMI	TP	2	NR	NR	NR	NR	NR	2
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250	2	0	1	NR	NR	NR	3
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		26	17	15	24	1	0	83

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1	**SERRAMONTE AUTO PLAZA BODY SHOP**	**RCRA-SQG**	**1000147305**
Target	**435 SERRAMONTE BLVD**	**FINDS**	**CAD982040164**
Property	**COLMA, CA 94014**		

Site 1 of 17 in cluster A

Actual: 199 ft.

RCRA-SQG:

Date form received by agency:	10/20/1992
Facility name:	SERRAMONTE AUTO PLAZA BODY SHOP
Facility address:	435 SERRAMONTE BLVD COLMA, CA 94014
EPA ID:	CAD982040164
Contact:	DAVE CARTER
Contact address:	435 SERRAMONTE BLVD COLMA, CA 94014
Contact country:	US
Contact telephone:	(415) 992-1400
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	SYED AZAM
Owner/operator address:	870 COMMERCIAL ST SAN JOSE, CA 95112
Owner/operator country:	Not reported
Owner/operator telephone:	(408) 436-1400
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported
Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No

SERRAMONTE AUTO PLAZA BODY SHOP (Continued) **1000147305**

User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110002412327

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

A2 Target Property | **SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZA** | **HAZNET** | **S112983679**
445 AND 455 SERRAMONTE BLVD | **N/A**
COLMA, CA 94014

Site 2 of 17 in cluster A

Actual: 199 ft.

HAZNET:

envid:	S112983679
Year:	2011
GEPAID:	CAC002663085
Contact:	SADIE FISCHER
Telephone:	6509941661
Mailing Name:	Not reported
Mailing Address:	700 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 94014
Gen County:	Not reported
TSD EPA ID:	CAT080013352
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	1.56375
Facility County:	San Mateo

envid:	S112983679
Year:	2011
GEPAID:	CAC002663085
Contact:	SADIE FISCHER
Telephone:	6509941661
Mailing Name:	Not reported

SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZA (Continued) **S112983679**

Mailing Address:	700 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 94014
Gen County:	Not reported
TSD EPA ID:	CAD097030993
TSD County:	Not reported
Waste Category:	Other organic solids
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.05
Facility County:	San Mateo

A3 Target Property **SERRAMONTE AUTO PLAZA BODY SHOP INC** **HAZNET** **S113013274**
435 SERRAMONTE BLVD **N/A**
COLMA, CA 94014

Site 3 of 17 in cluster A

Actual: 199 ft.

HAZNET:

envid:	S113013274
Year:	2012
GEPAID:	CAD982040164
Contact:	JESSICA CARAZO OFFICE MANAGER
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	CAD008252405
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Fuel Blending Prior To Energy Recovery At Another Site
Tons:	0.10842
Facility County:	San Mateo

envid:	S113013274
Year:	2012
GEPAID:	CAD982040164
Contact:	JESSICA CARAZO OFFICE MANAGER
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	MOD981123381
TSD County:	Not reported
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.075
Facility County:	San Mateo

envid:	S113013274
Year:	2012
GEPAID:	CAD982040164
Contact:	JESSICA CARAZO OFFICE MANAGER
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD

SERRAMONTE AUTO PLAZA BODY SHOP INC (Continued) **S113013274**

Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	CAD008252405
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Fuel Blending Prior To Energy Recovery At Another Site
Tons:	0.144
Facility County:	San Mateo

envid:	S113013274
Year:	2012
GEPAID:	CAD982040164
Contact:	JESSICA CARAZO OFFICE MANAGER
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.3753
Facility County:	San Mateo

envid:	S113013274
Year:	2012
GEPAID:	CAD982040164
Contact:	JESSICA CARAZO OFFICE MANAGER
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	CAD982444481
TSD County:	San Bernardino
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.504
Facility County:	San Mateo

Click this hyperlink while viewing on your computer to access
50 additional CA_HAZNET: record(s) in the EDR Site Report.

A4 Target Property | **SERRAMONTE NISSAN/ISUZU**
445 SERRAMONTE BLVD
COLMA, CA 94014 | **SWEEPS UST** **S103987431**
San Mateo Co. BI **N/A**
EMI

Site 4 of 17 in cluster A

Actual: 199 ft.

SWEEPS UST:

Status:	Active
Comp Number:	780047
Number:	1
Board Of Equalization:	Not reported
Referral Date:	03-24-94

SERRAMONTE NISSAN/ISUZU (Continued) **S103987431**

Action Date:	03-24-94
Created Date:	06-08-90
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780047-000001
Tank Status:	A
Capacity:	2000
Active Date:	03-24-94
Tank Use:	OIL
STG:	W
Content:	WASTE OIL
Number Of Tanks:	1

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0003550
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0012130
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0003550
Prog Element Code:	STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id:	PR0024398
Description:	STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region:	SAN MATEO
Facility ID:	FA0003550
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0046174
Description:	STORES MV FUELS OR WASTE ONLY

Region:	SAN MATEO
Facility ID:	FA0003550
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0022897
Description:	UNDERGROUND TANK - GENERAL

Region:	SAN MATEO
Facility ID:	FA0025413
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0033888
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0025413
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0033887
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF

Region:	SAN MATEO
Facility ID:	FA0026687
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0038988
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0026687

SERRAMONTE NISSAN/ISUZU (Continued) **S103987431**

Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0038989
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0028175
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0046429
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0028175
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0046430
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0037652
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0054502
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0037652
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0054501
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0040119
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0056084
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0052404
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0072665
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0052404
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0077741
Description: STORES MV FUELS OR WASTE ONLY

EMI:

Year:	2003
County Code:	41
Air Basin:	SF
Facility ID:	12360
Air District Name:	BA
SIC Code:	5511
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0

SERRAMONTE NISSAN/ISUZU (Continued) **S103987431**

Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

A5 Target Property | **SERRAMONTE CHRYSLER LINCOLN**
455 SERRAMONTE
COLMA, CA 94014 | **RCRA NonGen / NLR**
FINDS
San Mateo Co. BI
HAZNET | **1000595207**
CAD983591199

Site 5 of 17 in cluster A

Actual: 199 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/21/1994
Facility name:	SERRAMONTE CHRYSLER LINCOLN
Facility address:	455 SERRAMONTE COLMA, CA 94014
EPA ID:	CAD983591199
Mailing address:	SERRAMONTE COLMA, CA 94014
Contact:	EWELL CHET
Contact address:	455 SERRAMONTE COLMA, CA 94014
Contact country:	US
Contact telephone:	(415) 991-3400
Contact email:	Not reported
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TOM PRICE
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

SERRAMONTE CHRYSLER LINCOLN (Continued) **1000595207**

Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110002850594

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0004719
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0012139
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0004719
Prog Element Code:	STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id:	PR0004923
Description:	STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region:	SAN MATEO
Facility ID:	FA0054035
Prog Element Code:	GEN <1 TONS HAZ WASTE/YR
Record Id:	PR0074648
Description:	GEN <1 TONS HAZ WASTE/YR

Region:	SAN MATEO
Facility ID:	FA0054035
Prog Element Code:	STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id:	PR0074647
Description:	STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

HAZNET:

envid:	1000595207
Year:	1999
GEPAID:	CAD983591199
Contact:	TOM PRICE

SERRAMONTE CHRYSLER LINCOLN (Continued) **1000595207**

Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	.8757
Facility County:	San Mateo

envid:	1000595207
Year:	1998
GEPAID:	CAD983591199
Contact:	TOM PRICE
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD980887418
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	2.2518
Facility County:	San Mateo

envid:	1000595207
Year:	1996
GEPAID:	CAD983591199
Contact:	TOM PRICE
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD053044053
TSD County:	Not reported
Waste Category:	Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method:	Transfer Station
Tons:	.0664
Facility County:	San Mateo

envid:	1000595207
Year:	1996
GEPAID:	CAD983591199
Contact:	TOM PRICE
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD980887418
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Recycler

SERRAMONTE CHRYSLER LINCOLN (Continued) **1000595207**

Tons:	3.2526
Facility County:	San Mateo

envid:	1000595207
Year:	1996
GEPAID:	CAD983591199
Contact:	TOM PRICE
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD980887418
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	1.8973
Facility County:	San Mateo

Click this hyperlink while viewing on your computer to access
12 additional CA_HAZNET: record(s) in the EDR Site Report.

A6
Target
Property

LEXUS OF SERRAMONTE **HAZNET** **S113151716**
445 SERRAMONTE BLVD **N/A**
COLMA, CA 94014

Site 6 of 17 in cluster A

Actual:
199 ft.

HAZNET:

envid:	S113151716
Year:	2010
GEPAID:	CAL000329948
Contact:	RAY CHIN
Telephone:	6509882189
Mailing Name:	Not reported
Mailing Address:	700 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported
TSD EPA ID:	CAT080012602
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	2.73135
Facility County:	San Mateo

envid:	S113151716
Year:	2010
GEPAID:	CAL000329948
Contact:	RAY CHIN
Telephone:	6509882189
Mailing Name:	Not reported
Mailing Address:	700 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported
TSD EPA ID:	CAD044003556
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste

LEXUS OF SERRAMONTE (Continued) **S113151716**

Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	2.14755
Facility County:	San Mateo

envid:	S113151716
Year:	2010
GEPAID:	CAL000329948
Contact:	RAY CHIN
Telephone:	6509882189
Mailing Name:	Not reported
Mailing Address:	700 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported
TSD EPA ID:	CAT080013352
TSD County:	Not reported
Waste Category:	Unspecified organic liquid mixture
Disposal Method:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.119
Facility County:	San Mateo

envid:	S113151716
Year:	2010
GEPAID:	CAL000329948
Contact:	RAY CHIN
Telephone:	6509882189
Mailing Name:	Not reported
Mailing Address:	700 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported
TSD EPA ID:	CAT080013352
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.417
Facility County:	San Mateo

envid:	S113151716
Year:	2009
GEPAID:	CAL000329948
Contact:	RAY CHIN
Telephone:	6509882189
Mailing Name:	Not reported
Mailing Address:	445 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD044003556
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	1.2927
Facility County:	San Mateo

LEXUS OF SERRAMONTE (Continued) **S113151716**

Click this hyperlink while viewing on your computer to access additional CA_HAZNET: detail in the EDR Site Report.

A7
Target Property
Actual: 199 ft.

445 SERRAMONTE BLVD
COLMA, CA

CHMIRS **S116777624**
N/A

Site 7 of 17 in cluster A

CHMIRS:

OES Incident Number:	14-1058
OES notification:	02/21/2014
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Yes
Waterway:	Storm Drain
Spill Site:	Merchant/Business
Cleanup By:	No
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Type:	PETROLEUM
Measure:	Gal(s)
Other:	Not reported
Date/Time:	1600
Year:	2014
Agency:	ERTS
Incident Date:	2/20/2014
Admin Agency:	Not reported
Amount:	Not reported

(Continued) **S116777624**

Contained:	Yes
Site Type:	Storm Drain
E Date:	Not reported
Substance:	Diesel
Quantity Released:	20
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	No
#2 Pipeline:	No
#3 Pipeline:	No
#1 Vessel >= 300 Tons:	No
#2 Vessel >= 300 Tons:	No
#3 Vessel >= 300 Tons:	No
Evacs:	No
Injuries:	Collision
Fatals:	No
Comments:	Not reported
Description:	RP states that a big rigs saddle tank was damaged resulting in the release of approx. 20 gal of diesel onto the ground and less than 1 liter entered a storm drain. Release is contained and cleanup is underway.

A8 Target Property | **SERRAMONTE OF HONDA**
445 SERRAMONTE BLVD
COLMA, CA 94014 | **HAZNET** | **S113105429**
N/A

Site 8 of 17 in cluster A

Actual: 199 ft.

HAZNET:

envid:	S113105429
Year:	2003
GEPAID:	CAL000207236
Contact:	RANDALL HOUGH/SERVICE MANAGER
Telephone:	6509857221
Mailing Name:	Not reported
Mailing Address:	600 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported
TSD EPA ID:	CA0000084517
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	0.08
Facility County:	San Mateo

envid:	S113105429
Year:	2002
GEPAID:	CAL000207236
Contact:	RANDALL HOUGH/SERVICE MANAGER
Telephone:	6509857221
Mailing Name:	Not reported
Mailing Address:	600 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported

SERRAMONTE OF HONDA (Continued) **S113105429**

TSD EPA ID:	CA0000084517
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	0.06
Facility County:	San Mateo

envid:	S113105429
Year:	2001
GEPAID:	CAL000207236
Contact:	RANDALL HOUGH/SERVICE MANAGER
Telephone:	6509857221
Mailing Name:	Not reported
Mailing Address:	600 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported
TSD EPA ID:	CA0000084517
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	0.06
Facility County:	San Mateo

A9 **ERNS** **2014074749**
Target Property **445 SERRAMONTE BLVD** **N/A**
COLMA, CA

Site 9 of 17 in cluster A

Actual: 199 ft.

Click this hyperlink while viewing on your computer to access additional ERNS detail in the EDR Site Report.

A10 **SERRAMONTE AUTO PLAZA BODY SHO** **San Mateo Co. BI** **S103659489**
Target Property **435 SERRAMONTE BLVD** **HAZNET** **N/A**
COLMA, CA 94014 **EMI**

Site 10 of 17 in cluster A

Actual: 199 ft.

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0005631
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0012127
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0005631
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0004909
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF

Region:	SAN MATEO
Facility ID:	FA0005631
Prog Element Code:	RECYCLER
Record Id:	PR0043450
Description:	RECYCLER

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

HAZNET:

envid:	S103659489
Year:	2013
GEPAID:	CAL000377019
Contact:	JOSEPH SHAHBAZI
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	02-IV-99-10
TSD County:	Not reported
Waste Category:	Not reported
Disposal Method:	Not reported
Tons:	0.075
Facility County:	Not reported

envid:	S103659489
Year:	2013
GEPAID:	CAL000377019
Contact:	JOSEPH SHAHBAZI
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	02-IV-99-10
TSD County:	Not reported
Waste Category:	Not reported
Disposal Method:	Energy Recovery At This Site--Use As Fuel(Includes On-Site Fuel Blending)
Tons:	Not reported
Facility County:	Not reported

envid:	S103659489
Year:	2013
GEPAID:	CAL000377019
Contact:	JOSEPH SHAHBAZI
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	CAT080013352
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons:	0.1251
Facility County:	Not reported

envid:	S103659489
Year:	2013
GEPAID:	CAL000377019
Contact:	JOSEPH SHAHBAZI
Telephone:	6509921400
Mailing Name:	Not reported

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	CAD044429835
TSD County:	Los Angeles
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.1251
Facility County:	Not reported

envid:	S103659489
Year:	2013
GEPAID:	CAL000377019
Contact:	JOSEPH SHAHBAZI
Telephone:	6509921400
Mailing Name:	Not reported
Mailing Address:	435 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	San Mateo
TSD EPA ID:	CAD982444481
TSD County:	San Bernardino
Waste Category:	Not reported
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.252
Facility County:	Not reported

Click this hyperlink while viewing on your computer to access additional CA_HAZNET: detail in the EDR Site Report.

EMI:

Year:	1987
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1990
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	4
Reactive Organic Gases Tons/Yr:	4
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1995
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1996
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1997
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	2
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1998
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1999
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2000
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2001
County Code:	41
Air Basin:	SF

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2002
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2003
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2004
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

Total Organic Hydrocarbon Gases Tons/Yr:	1.244
Reactive Organic Gases Tons/Yr:	1.1206436
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2005
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.244
Reactive Organic Gases Tons/Yr:	1.1206436
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2006
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.244
Reactive Organic Gases Tons/Yr:	1.1206436
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2007
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.244
Reactive Organic Gases Tons/Yr:	1.1206436
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2008
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.918
Reactive Organic Gases Tons/Yr:	.8510686
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2009
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.071
Reactive Organic Gases Tons/Yr:	0.99185500000000004
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2010
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1.071
Reactive Organic Gases Tons/Yr:	0.99185500000000004
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2011
County Code:	41
Air Basin:	SF
Facility ID:	3201

SERRAMONTE AUTO PLAZA BODY SHO (Continued) **S103659489**

Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.849
Reactive Organic Gases Tons/Yr:	0.776959
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2012
County Code:	41
Air Basin:	SF
Facility ID:	3201
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.849
Reactive Organic Gases Tons/Yr:	0.776959
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

A11 Target Property | **SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZA** | **HAZNET** | **S113073822**
445 AND 455 SERRAMONTE BLVD | **N/A**
COLMA, CA 94014

Site 11 of 17 in cluster A

Actual: 199 ft.

HAZNET:

envid:	S113073822
Year:	2007
GEPAID:	CAL000130103
Contact:	DOUGLAS DAVIS
Telephone:	7045662400
Mailing Name:	Not reported
Mailing Address:	1500 COLLINS AVE
Mailing City,St,Zip:	COLMA, NC 94014
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.5
Facility County:	San Mateo

envid:	S113073822
Year:	2006
GEPAID:	CAL000130103
Contact:	RON BISTOLFO/EHS DIRECTOR

SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZA (Continued) **S113073822**

Telephone:	7045662400
Mailing Name:	Not reported
Mailing Address:	6415 IDLEWILD RD STE 109
Mailing City,St,Zip:	CHARLOTTE, NC 282120000
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Recycler
Tons:	0.25
Facility County:	San Mateo

envid:	S113073822
Year:	2006
GEPAID:	CAL000130103
Contact:	RON BISTOLFO/EHS DIRECTOR
Telephone:	7045662400
Mailing Name:	Not reported
Mailing Address:	6415 IDLEWILD RD STE 109
Mailing City,St,Zip:	CHARLOTTE, NC 282120000
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Recycler
Tons:	0.5
Facility County:	San Mateo

envid:	S113073822
Year:	2006
GEPAID:	CAL000130103
Contact:	RON BISTOLFO/EHS DIRECTOR
Telephone:	7045662400
Mailing Name:	Not reported
Mailing Address:	6415 IDLEWILD RD STE 109
Mailing City,St,Zip:	CHARLOTTE, NC 282120000
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.5
Facility County:	San Mateo

envid:	S113073822
Year:	2006
GEPAID:	CAL000130103
Contact:	RON BISTOLFO/EHS DIRECTOR
Telephone:	7045662400
Mailing Name:	Not reported
Mailing Address:	6415 IDLEWILD RD STE 109
Mailing City,St,Zip:	CHARLOTTE, NC 282120000
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste

SERRAMONTE MITSUBISHI-DODGE NISSAN-ISUZA (Continued) **S113073822**

Disposal Method: Recycler
Tons: 0.2
Facility County: San Mateo

Click this hyperlink while viewing on your computer to access
31 additional CA_HAZNET: record(s) in the EDR Site Report.

A12 Target Property **SERRAMONTE NISSAN**
445 SERRAMONTE BOULEVARD
COLMA, CA 94014

RCRA NonGen / NLR **1000595206**
FINDS **CAD983591181**

Site 12 of 17 in cluster A

Actual: 199 ft.

RCRA NonGen / NLR:
Date form received by agency: 12/21/1994
Facility name: SERRAMONTE NISSAN
Facility address: 445 SERRAMONTE BOULEVARD
COLMA, CA 94014
EPA ID: CAD983591181
Mailing address: SERRAMONTE BOULEVARD
COLMA, CA 94014
Contact: CHET EWELL
Contact address: 445 SERRAMONTE BOULEVARD
COLMA, CA 94014
Contact country: US
Contact telephone: (415) 991-3400
Contact email: Not reported
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: THOMAS A PRICE
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No

SERRAMONTE NISSAN (Continued) **1000595206**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110002850585

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Registry ID: 110057034944

Environmental Interest/Information System
STATE MASTER

A13 **ACURA OF SERRAMONTE** **HAZNET** **S113100209**
Target **445 SERRAMONTE BLVD** **N/A**
Property **COLMA, CA 94014**

Site 13 of 17 in cluster A

Actual:
199 ft.

HAZNET:
envid: S113100209
Year: 2004
GEPAID: CAL000191028
Contact: RON BISTOLFO/EHS DIRECTOR
Telephone: 6502222419
Mailing Name: Not reported
Mailing Address: 6415 IDLEWILD RD STE 109
Mailing City,St,Zip: CHARLOTTE, NC 282100000
Gen County: Not reported
TSD EPA ID: CAL000161743
TSD County: Not reported
Waste Category: Unspecified oil-containing waste
Disposal Method: Recycler
Tons: 0.91
Facility County: San Mateo

envid: S113100209
Year: 2003
GEPAID: CAL000191028

ACURA OF SERRAMONTE (Continued) **S113100209**

Contact:	RON BISTOLFO/EHS DIRECTOR
Telephone:	6502222419
Mailing Name:	Not reported
Mailing Address:	6415 IDLEWILD RD STE 109
Mailing City,St,Zip:	CHARLOTTE, NC 282100000
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Recycler
Tons:	0.47
Facility County:	San Mateo

envid:	S113100209
Year:	2002
GEPAID:	CAL000191028
Contact:	RON BISTOLFO/EHS DIRECTOR
Telephone:	6502222419
Mailing Name:	Not reported
Mailing Address:	6415 IDLEWILD RD STE 109
Mailing City,St,Zip:	CHARLOTTE, NC 282100000
Gen County:	Not reported
TSD EPA ID:	CAL000161743
TSD County:	Not reported
Waste Category:	Unspecified oil-containing waste
Disposal Method:	Recycler
Tons:	0.37
Facility County:	San Mateo

envid:	S113100209
Year:	2001
GEPAID:	CAL000191028
Contact:	RON BISTOLFO/EHS DIRECTOR
Telephone:	6502222419
Mailing Name:	Not reported
Mailing Address:	6415 IDLEWILD RD STE 109
Mailing City,St,Zip:	CHARLOTTE, NC 282100000
Gen County:	Not reported
TSD EPA ID:	CAT080014079
TSD County:	Not reported
Waste Category:	Unspecified solvent mixture
Disposal Method:	Transfer Station
Tons:	0.18
Facility County:	San Mateo

A14 **EDR US Hist Auto Stat** **1015504454**
Target Property **455 SERRAMONTE BLVD** **N/A**
DALY CITY, CA 94014

Site 14 of 17 in cluster A

Actual: 199 ft.

EDR Historical Auto Stations:

Name:	SERRAMONTE AUTO PLAZA
Year:	2005
Address:	455 SERRAMONTE BLVD

Name:	SERRAMONTE AUTO PLAZA SERVICE
Year:	2009

(Continued) **1015504454**

Address: 455 SERRAMONTE BLVD

Name: SERRAMONTE AUTO PLAZA SERVICE
Year: 2011
Address: 455 SERRAMONTE BLVD

Name: SERRAMONTE AUTO PLAZA SERVICE
Year: 2012
Address: 455 SERRAMONTE BLVD

A15 Target Property | **SERRAMONTE NISSAN/NISSAN**
445 SERRAMONTE BLVD
COLMA, CA 94014 | **HAZNET** | **S113024110**
N/A

Site 15 of 17 in cluster A

Actual: 199 ft.

HAZNET:

envid: S113024110
Year: 1998
GEPAID: CAL000006965
Contact: PRICE TOM
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 750 SERRAMONTE BLVD
Mailing City,St,Zip: DALY CITY, CA 940143226
Gen County: Not reported
TSD EPA ID: CAD982446874
TSD County: Not reported
Waste Category: Aqueous solution with total organic residues less than 10 percent
Disposal Method: Transfer Station
Tons: .4170
Facility County: San Mateo

envid: S113024110
Year: 1995
GEPAID: CAL000006965
Contact: PRICE TOM
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 750 SERRAMONTE BLVD
Mailing City,St,Zip: DALY CITY, CA 940143226
Gen County: Not reported
TSD EPA ID: CAD009452657
TSD County: Not reported
Waste Category: Hydrocarbon solvents (benzene, hexane, Stoddard, Etc.)
Disposal Method: Recycler
Tons: .4587
Facility County: San Mateo

A16 Target Property | **SERRAMONTE NISSAN/ISUZU**
445 SERRAMONTE BOULEVARD
COLMA, CA 94014 | **HAZNET** | **S113017638**
N/A

Site 16 of 17 in cluster A

Actual: 199 ft.

HAZNET:

envid:	S113017638
Year:	1998
GEPAID:	CAD983591181
Contact:	THOMAS A PRICE
Telephone:	4159913400
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD980887418
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	1.6680
Facility County:	San Mateo

envid:	S113017638
Year:	1997
GEPAID:	CAD983591181
Contact:	THOMAS A PRICE
Telephone:	4159913400
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD980887418
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Transfer Station
Tons:	.8340
Facility County:	San Mateo

envid:	S113017638
Year:	1996
GEPAID:	CAD983591181
Contact:	THOMAS A PRICE
Telephone:	4159913400
Mailing Name:	Not reported
Mailing Address:	750 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143226
Gen County:	Not reported
TSD EPA ID:	CAD980887418
TSD County:	Not reported
Waste Category:	Aqueous solution with total organic residues less than 10 percent
Disposal Method:	Recycler
Tons:	.9174
Facility County:	San Mateo

envid:	S113017638
Year:	1996
GEPAID:	CAD983591181
Contact:	THOMAS A PRICE

SERRAMONTE NISSAN/ISUZU (Continued) **S113017638**

Telephone: 4159913400
Mailing Name: Not reported
Mailing Address: 750 SERRAMONTE BLVD
Mailing City,St,Zip: COLMA, CA 940143226
Gen County: Not reported
TSD EPA ID: CAD053044053
TSD County: Not reported
Waste Category: Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method: Transfer Station
Tons: .0664
Facility County: San Mateo

envid: S113017638
Year: 1995
GEPAID: CAD983591181
Contact: THOMAS A PRICE
Telephone: 4159913400
Mailing Name: Not reported
Mailing Address: 750 SERRAMONTE BLVD
Mailing City,St,Zip: COLMA, CA 940143226
Gen County: Not reported
TSD EPA ID: CAD053044053
TSD County: Not reported
Waste Category: Liquids with halogenated organic compounds >= 1,000 Mg./L
Disposal Method: Transfer Station
Tons: .0996
Facility County: San Mateo

Click this hyperlink while viewing on your computer to access
10 additional CA_HAZNET: record(s) in the EDR Site Report.

A17 **EDR US Hist Auto Stat** **1015494774**
Target Property **435 SERRAMONTE BLVD** **N/A**
DALY CITY, CA 94014

Site 17 of 17 in cluster A

Actual: 199 ft.

EDR Historical Auto Stations:

Name: SERRAMONTE AUTO PLAZA BODY SHOP
Year: 1999
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE AUTO PLAZA BODY SHOP
Year: 2000
Address: 435 SERRAMONTE BLVD

Name: SRMNT AUTO PLAZA BODY SHOP
Year: 2002
Address: 435 SERRAMONTE BLVD

Name: SRMNT AUTO PLAZA BODY SHOP
Year: 2003
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE BODY SHOP
Year: 2005
Address: 435 SERRAMONTE BLVD

(Continued) **1015494774**

Name: SERRAMONTE BODY SHOP
Year: 2006
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE BODY SHOP
Year: 2007
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE BODY SHOP
Year: 2008
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE BODY SHOP
Year: 2009
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE AUTO PLAZA BODY SHP
Year: 2010
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE AUTO PLAZA BODY SHOP
Year: 2011
Address: 435 SERRAMONTE BLVD

Name: SERRAMONTE AUTO PLAZA BODY SHOP
Year: 2012
Address: 435 SERRAMONTE BLVD

B18 **PRE DELIVERY INSPECTION CENTER** **SWEEPS UST** **S106930859**
WSW **465 SERRAMONTE BLVD** **San Mateo Co. BI** **N/A**
< 1/8 **COLMA, CA 94014**
0.001 mi.
7 ft. **Site 1 of 2 in cluster B**

Relative:
Lower

Actual:
179 ft.

SWEEPS UST:
Status: Active
Comp Number: 780049
Number: 9
Board Of Equalization: Not reported
Referral Date: 03-24-94
Action Date: 03-24-94
Created Date: 06-08-90
Owner Tank Id: 2
SWRCB Tank Id: 41-000-780049-000001
Tank Status: A
Capacity: 6000
Active Date: 03-24-94
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 1

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0008168
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0038987

PRE DELIVERY INSPECTION CENTER (Continued) **S106930859**

Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0008168
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0024401
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0008168
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022899
Description: UNDERGROUND TANK - GENERAL

B19
WSW
< 1/8
0.027 mi.
144 ft.

SERRAMONTE ACURA
475 SERRAMONTE
COLMA, CA 94014

San Mateo Co. BI **S106798239**
N/A

Site 2 of 2 in cluster B

Relative:
Lower

Actual:
170 ft.

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0028903
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0048742
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0028903
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0048741
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0028903
Prog Element Code: 2352
Record Id: PR0075954
Description: TIER I: TANK STOR CAP =>1,320 & <5,000 GAL

20
SSW
< 1/8
0.029 mi.
153 ft.

HOME OF PEACE CEMETERY
239 EL CAMINO REAL
COLMA, CA 94014

RCRA-SQG **1000197815**
FINDS **CAD982497729**
SWEEPS UST
HAZNET

Relative:
Lower

Actual:
163 ft.

RCRA-SQG:
Date form received by agency: 02/02/1990
Facility name: HOME OF PEACE CEMETERY
Facility address: 239 EL CAMINO REAL
COLMA, CA 94014
EPA ID: CAD982497729
Mailing address: EL CAMINO REAL
COLMA, CA 94014
Contact: ENVIRONMENTAL MANAGER
Contact address: 239 EL CAMINO REAL
COLMA, CA 94014

HOME OF PEACE CEMETERY (Continued) **1000197815**

Contact country: US
Contact telephone: (415) 755-4700
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: THE CONGREGATION EMANUEL
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110002832114

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource

HOME OF PEACE CEMETERY (Continued) **1000197815**

Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

SWEEPS UST:

Status:	Not reported
Comp Number:	780051
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780051-000002
Tank Status:	Not reported
Capacity:	500
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	LEADED
Number Of Tanks:	1

Status:	Active
Comp Number:	780051
Number:	1
Board Of Equalization:	Not reported
Referral Date:	10-20-93
Action Date:	10-20-93
Created Date:	06-15-90
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780051-000001
Tank Status:	A
Capacity:	550
Active Date:	06-15-90
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	1

HAZNET:

envid:	1000197815
Year:	2002
GEPAID:	CAD982497729
Contact:	JUDITH A EDMONSON
Telephone:	6507554700
Mailing Name:	Not reported
Mailing Address:	1299 EL CAMINO REAL
Mailing City,St,Zip:	COLMA, CA 940140000
Gen County:	Not reported
TSD EPA ID:	CAD059494310
TSD County:	Not reported
Waste Category:	Laboratory waste chemicals
Disposal Method:	Treatment, Tank

HOME OF PEACE CEMETERY (Continued) **1000197815**

Tons: 0.01
Facility County: San Mateo

envid: 1000197815
Year: 2002
GEPAID: CAD982497729
Contact: JUDITH A EDMONSON
Telephone: 6507554700
Mailing Name: Not reported
Mailing Address: 1299 EL CAMINO REAL
Mailing City,St,Zip: COLMA, CA 940140000
Gen County: Not reported
TSD EPA ID: CAD059494310
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: Transfer Station
Tons: 0
Facility County: San Mateo

envid: 1000197815
Year: 2002
GEPAID: CAD982497729
Contact: JUDITH A EDMONSON
Telephone: 6507554700
Mailing Name: Not reported
Mailing Address: 1299 EL CAMINO REAL
Mailing City,St,Zip: COLMA, CA 940140000
Gen County: Not reported
TSD EPA ID: CAD059494310
TSD County: Not reported
Waste Category: Off-specification, aged or surplus inorganics
Disposal Method: Treatment, Tank
Tons: 0
Facility County: San Mateo

envid: 1000197815
Year: 2002
GEPAID: CAD982497729
Contact: JUDITH A EDMONSON
Telephone: 6507554700
Mailing Name: Not reported
Mailing Address: 1299 EL CAMINO REAL
Mailing City,St,Zip: COLMA, CA 940140000
Gen County: Not reported
TSD EPA ID: CAD059494310
TSD County: Not reported
Waste Category: Pesticides and other waste associated with pesticide production
Disposal Method: Transfer Station
Tons: 0.06
Facility County: San Mateo

C21 NNE < 1/8 0.060 mi. 318 ft. | **MARCELLINI BROS INC 1767 HILLSIDE COLMA, CA 94014** | **San Mateo Co. BI** | **S103892249 N/A**

Site 1 of 2 in cluster C

Relative: Higher

Actual: 236 ft.

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0025261
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0033573
Description:	STORES MV FUELS OR WASTE ONLY

D22 WSW < 1/8 0.064 mi. 336 ft. | **PRICE DEALERSHIP 485 SERRAMONTE COLMA, CA 94014** | **HIST CORTESE LUST SWEEPS UST San Mateo Co. BI** | **S103661693 N/A**

Site 1 of 2 in cluster D

Relative: Lower

Actual: 162 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-1052

LUST:

Region:	STATE
Global Id:	T0608100965
Latitude:	37.677126
Longitude:	-122.456647
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	06/11/2001
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-1052
LOC Case Number:	780021
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100965
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100965
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS

PRICE DEALERSHIP (Continued) **S103661693**

City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608100965
Status: Completed - Case Closed
Status Date: 06/11/2001

Global Id: T0608100965
Status: Open - Case Begin Date
Status Date: 08/26/1997

Regulatory Activities:
Global Id: T0608100965
Action Type: Other
Date: 08/26/1997
Action: Leak Discovery

Global Id: T0608100965
Action Type: ENFORCEMENT
Date: 09/23/1997
Action: Notice of Responsibility - #1

Global Id: T0608100965
Action Type: Other
Date: 09/10/1997
Action: Leak Reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 780021
Facility Status: 9- Case Closed
Global ID: T0608100965
APN Number: 011341830
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

SWEEPS UST:
Status: Active
Comp Number: 770048
Number: 1
Board Of Equalization: Not reported
Referral Date: 05-13-94
Action Date: 05-13-94
Created Date: 05-05-94
Owner Tank Id: UNK
SWRCB Tank Id: 41-000-780048-000001
Tank Status: A
Capacity: 2000
Active Date: 05-05-94
Tank Use: OIL
STG: W
Content: WASTE OIL

PRICE DEALERSHIP (Continued) **S103661693**

Number Of Tanks: 1

Status: Active
Comp Number: 780048
Number: 1
Board Of Equalization: Not reported
Referral Date: 05-18-94
Action Date: 05-18-94
Created Date: 03-24-94
Owner Tank Id: UNK
SWRCB Tank Id: 41-000-780048-000001
Tank Status: A
Capacity: 2000
Active Date: 03-24-94
Tank Use: OIL
STG: W
Content: WASTE OIL
Number Of Tanks: 1

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0005746
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0033799
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0005746
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0004919
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0005746
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022853
Description: UNDERGROUND TANK - GENERAL

D23 **PRICE DEALERSHIP** **LUST** **S104493580**
WSW **485 SERRAMONTE** **N/A**
< 1/8 **COLMA, CA 94014**
0.064 mi.
336 ft. **Site 2 of 2 in cluster D**

Relative:
Lower

Actual:
162 ft.

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 780021
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported

PRICE DEALERSHIP (Continued) **S104493580**

Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

C24
NE
< 1/8
0.065 mi.
341 ft.

CYPRESS HILLS GOLF COURSE **HIST UST** **U001594026**
1777 HILLSIDE BLVD **N/A**
COLMA, CA 94015

Site 2 of 2 in cluster C

Relative:
Higher

Actual:
239 ft.

HIST UST:

Region:	STATE
Facility ID:	00000005983
Facility Type:	Other
Other Type:	GOLF COURSE
Contact Name:	DAVID G. NEWMAN
Telephone:	4153425514
Owner Name:	CYPRESS HILLS GOLF COURSE, INC
Owner Address:	1000 SOUTH AMPHLETT BLVD.
Owner City,St,Zip:	SAN MATEO, CA 94002
Total Tanks:	0002
Tank Num:	001
Container Num:	1
Year Installed:	Not reported
Tank Capacity:	00002000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor, Pressure Test
Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor, Pressure Test

E25
ENE
< 1/8
0.079 mi.
417 ft.

SERBIAN CEMETERY **LUST** **S102436681**
1801 HILLSIDE **N/A**
COLMA, CA 94014

Site 1 of 2 in cluster E

Relative:
Higher

Actual:
248 ft.

LUST REG 2:

Region:	2
Facility Id:	Not reported
Facility Status:	Case Closed
Case Number:	780018
How Discovered:	OM
Leak Cause:	Unknown
Leak Source:	Unknown
Date Leak Confirmed:	Not reported
Oversight Program:	LUST

SERBIAN CEMETERY (Continued) **S102436681**

Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: 1/1/1965

E26 **SERBIAN CEMETARY** **HIST CORTESE** **S102436682**
ENE **1801 HILLSIDE** **LUST** **N/A**
< 1/8 **COLMA, CA 94014** **SWEEPS UST**
0.079 mi. **San Mateo Co. BI**
417 ft. **Site 2 of 2 in cluster E**

Relative:
Higher

Actual:
248 ft.

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0812

LUST:
Region: STATE
Global Id: T0608100765
Latitude: 37.679978
Longitude: -122.450651
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 02/17/2003
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0812
LOC Case Number: 780018
File Location: Local Agency Warehouse
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100765
Contact Type: Regional Board Caseworker
Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608100765
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

SERBIAN CEMETARY (Continued) **S102436682**

Status History:

Global Id:	T0608100765
Status:	Completed - Case Closed
Status Date:	02/17/2003
Global Id:	T0608100765
Status:	Open - Verification Monitoring
Status Date:	08/17/1993
Global Id:	T0608100765
Status:	Open - Case Begin Date
Status Date:	08/17/1993

Regulatory Activities:

Global Id:	T0608100765
Action Type:	ENFORCEMENT
Date:	01/11/1994
Action:	Notice of Responsibility - #1
Global Id:	T0608100765
Action Type:	ENFORCEMENT
Date:	02/17/2003
Action:	Closure/No Further Action Letter - #2
Global Id:	T0608100765
Action Type:	Other
Date:	08/17/1993
Action:	Leak Reported

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	780018
Facility Status:	9- Case Closed
Global ID:	T0608100765
APN Number:	011013010
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

SWEEPS UST:

Status:	Not reported
Comp Number:	780050
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780050-000001
Tank Status:	Not reported
Capacity:	500
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED

SERBIAN CEMETARY (Continued) **S102436682**

Number Of Tanks: 2

Status: Not reported
Comp Number: 780050
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 41-000-780050-000002
Tank Status: Not reported
Capacity: 500
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: Not reported

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0015419
Prog Element Code: GENERATES <27 GAL/YEAR
Record Id: PR0028969
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO
Facility ID: FA0015419
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0038768
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0015419
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022900
Description: UNDERGROUND TANK - GENERAL

F27 **ABBEY HOMESTEAD NURSERY** **HIST CORTESE** **S101308566**
East **1899 HILLSIDE** **LUST** **N/A**
1/8-1/4 **COLMA, CA 94014** **San Mateo Co. BI**
0.135 mi.
715 ft. **Site 1 of 3 in cluster F**

Relative:
Higher

Actual:
252 ft.

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0686

LUST:
Region: STATE
Global Id: T0608100652
Latitude: 37.6710923
Longitude: -122.4350956
Case Type: LUST Cleanup Site
Status: Completed - Case Closed

ABBEY HOMESTEAD NURSERY (Continued) **S101308566**

Status Date:	12/13/1999
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0686
LOC Case Number:	780012
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100652
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100652
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100652
Status:	Completed - Case Closed
Status Date:	12/13/1999

Global Id:	T0608100652
Status:	Open - Case Begin Date
Status Date:	01/13/1993

Regulatory Activities:

Global Id:	T0608100652
Action Type:	Other
Date:	01/13/1993
Action:	Leak Discovery

Global Id:	T0608100652
Action Type:	REMEDIATION
Date:	03/29/1993
Action:	Excavation

Global Id:	T0608100652
Action Type:	ENFORCEMENT
Date:	01/13/1993
Action:	Notice of Responsibility - #1

ABBEY HOMESTEAD NURSERY (Continued) **S101308566**

Global Id: T0608100652
Action Type: Other
Date: 01/13/1993
Action: Leak Reported

Global Id: T0608100652
Action Type: ENFORCEMENT
Date: 12/13/1999
Action: Closure/No Further Action Letter

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 780012
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 780012
Facility Status: 9- Case Closed
Global ID: T0608100652
APN Number: 011341700
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0013998
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022878
Description: UNDERGROUND TANK - GENERAL

F28 **TROYS AUTO BODY** **RCRA-SQG** **1000442045**
East **1901 HILLSIDE BLVD** **FINDS** **CAD981384027**
1/8-1/4 **COLMA, CA 94014** **San Mateo Co. BI**
0.141 mi.
742 ft. **Site 2 of 3 in cluster F**

Relative:
Higher

Actual:
252 ft.

RCRA-SQG:
Date form received by agency: 09/01/1996
Facility name: TROYS AUTO BODY
Facility address: 1901 HILLSIDE BLVD
COLMA, CA 94014
EPA ID: CAD981384027

TROYS AUTO BODY (Continued) **1000442045**

Mailing address: HILLSIDE BLVD
COLMA, CA 94014
Contact: Not reported
Contact address: Not reported
Not reported
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: TROY MICHAEL
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

TROYS AUTO BODY (Continued) **1000442045**

FINDS:

Registry ID: 110002688510

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0003657
Prog Element Code:	GENERATES <27 GAL/YEAR
Record Id:	PR0012117
Description:	GENERATES <27 GAL/YEAR

Region:	SAN MATEO
Facility ID:	FA0003657
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0004904
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF

F29 **EDR US Hist Auto Stat** **1015289674**
East **1901 HILLSIDE BLVD** **N/A**
1/8-1/4 **DALY CITY, CA 94014**
0.141 mi.
742 ft. **Site 3 of 3 in cluster F**

Relative:
Higher

Actual:
252 ft.

EDR Historical Auto Stations:

Name:	TROYS AUTO BODY
Year:	1999
Address:	1901 HILLSIDE BLVD

Name:	TROYS AUTO BODY
Year:	2000
Address:	1901 HILLSIDE BLVD

Name:	TROYS AUTO BODY
Year:	2004
Address:	1901 HILLSIDE BLVD

Name:	TROYS AUTO BODY
Year:	2008
Address:	1901 HILLSIDE BLVD

Name:	TROYS AUTO BODY
Year:	2009
Address:	1901 HILLSIDE BLVD

Name:	TROYS AUTO BODY
Year:	2010

(Continued) **1015289674**

Address: 1901 HILLSIDE BLVD

Name: TROYS AUTO BODY
Year: 2011
Address: 1901 HILLSIDE BLVD

Name: TROYS AUTO BODY
Year: 2012
Address: 1901 HILLSIDE BLVD

G30 **TOWN OF COLMA** **SWEEPS UST** **S106933073**
WSW **1198 EL CAMINO REAL** **N/A**
1/8-1/4 **COLMA, CA 94014**
0.165 mi.
871 ft. **Site 1 of 2 in cluster G**

Relative:
Lower

Actual:
128 ft.

SWEEPS UST:
Status: Not reported
Comp Number: 780059
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 41-000-780059-000001
Tank Status: Not reported
Capacity: 500
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: DIESEL
Number Of Tanks: 2

Status: Not reported
Comp Number: 780059
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 41-000-780059-000002
Tank Status: Not reported
Capacity: 500
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: REG UNLEADED
Number Of Tanks: Not reported

G31 WSW 1/8-1/4 0.180 mi. 949 ft. | **WOODLAWN MEMORIAL PARK ASSOCIA** | **HIST UST** | **U001594014** | **N/A**

222 EL CAMINO REAL
COLMA, CA 94014

Site 2 of 2 in cluster G

Relative: Lower

Actual: 126 ft.

HIST UST:

Region:	STATE
Facility ID:	00000011258
Facility Type:	Other
Other Type:	CEMETERY
Contact Name:	MR. JOHN GRANELLI, SUP.
Telephone:	4157551727
Owner Name:	WOODLAWN MEMORIAL PARK ASSOCIA
Owner Address:	222 EL CAMINO REAL
Owner City,St,Zip:	COLMA, CA 94014
Total Tanks:	0003
Tank Num:	001
Container Num:	#3 (UNL.)
Year Installed:	1979
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	#1 (REG)
Year Installed:	1983
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	#2 (PREM.)
Year Installed:	1974
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

---

32 SSW 1/8-1/4 0.191 mi. 1006 ft. | **HOME OF PEACE CEMETERY** | **NPDES** | **S102267771** | **San Mateo Co. BI** | **N/A**

1299 EL CAMINO REAL
COLMA, CA 94014

Relative: Lower

Actual: 114 ft.

NPDES:

Npdes Number:	CAS000002
Facility Status:	Terminated
Agency Id:	0
Region:	2
Regulatory Measure Id:	441577
Order No:	2009-0009-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported

HOME OF PEACE CEMETERY (Continued) **S102267771**

WDID:	2 41C367905
Program Type:	Construction
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	10/04/2013
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	05/22/2014
Discharge Name:	Home of Peace Cemetery
Discharge Address:	1299 El Camino Real
Discharge City:	COLMA
Discharge State:	California
Discharge Zip:	94014

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0008982
Prog Element Code:	GENERATES <27 GAL/YEAR
Record Id:	PR0012148
Description:	GENERATES <27 GAL/YEAR

Region:	SAN MATEO
Facility ID:	FA0008982
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0004934
Description:	STORES MV FUELS OR WASTE ONLY

H33 **ETERNAL HOME CEMETERY** **San Mateo Co. BI** **S102445098**
West **1051 EL CAMINO REAL** **N/A**
1/8-1/4 **COLMA, CA 94014**
0.201 mi.
1062 ft. **Site 1 of 2 in cluster H**

Relative:
Lower

Actual:
125 ft.

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0010297
Prog Element Code:	GENERATES <27 GAL/YEAR
Record Id:	PR0028172
Description:	GENERATES <27 GAL/YEAR

Region:	SAN MATEO
Facility ID:	FA0010297
Prog Element Code:	BUSINESS PLAN - GENERAL
Record Id:	PR0066840
Description:	BUSINESS PLAN - GENERAL

H34 **MEMORIAL PARK, GREEK ORTHODOX** **San Mateo Co. BI** **S106499262**
WSW **1148 EL CAMINO REAL** **N/A**
1/8-1/4 **COLMA, CA 94014**
0.217 mi.
1144 ft. **Site 2 of 2 in cluster H**

Relative:
Lower

Actual:
122 ft.

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0018180
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0022891
Description:	STORES MV FUELS OR WASTE ONLY

35
East
1/8-1/4
0.222 mi.
1170 ft.

CYPRESS GOLF COURSE
2001 HILLSIDE
COLMA, CA 94014

CA FID UST
SWEEPS UST
CHMIRS
San Mateo Co. BI

S101593978
N/A

Relative:
Higher

Actual:
271 ft.

CA FID UST:

Facility ID:	41004744
Regulated By:	UTNKI
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	4159925155
Mail To:	Not reported
Mailing Address:	2001 HILLSIDE BLVD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	COLMA, 94014
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Inactive

SWEEPS UST:

Status:	Not reported
Comp Number:	780008
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780008-000001
Tank Status:	Not reported
Capacity:	2000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	1

Status:	Active
Comp Number:	780008
Number:	1
Board Of Equalization:	Not reported
Referral Date:	04-26-94
Action Date:	04-26-94
Created Date:	10-13-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	Not reported
Tank Status:	Not reported
Capacity:	Not reported
Active Date:	Not reported
Tank Use:	Not reported
STG:	Not reported
Content:	Not reported
Number Of Tanks:	Not reported

CYPRESS GOLF COURSE (Continued) **S101593978**

CHMIRS:

OES Incident Number:	05-0058
OES notification:	01/03/2005
OES Date:	Not reported
OES Time:	Not reported
Incident Date:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	Not reported
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Reporting Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	2005
Agency:	PG&E
Incident Date:	1/1/200512:00:00 AM
Admin Agency:	San Mateo County Environmental Health
Amount:	Not reported
Contained:	Yes
Site Type:	Other
E Date:	Not reported
Substance:	Mineral Oil
Gallons:	60
Unknown:	0
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	0
Number of Injuries:	0
Number of Fatalities:	0

CYPRESS GOLF COURSE (Continued) **S101593978**

#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported
Injuries:	Not reported
Fatals:	Not reported
Comments:	Not reported
Description:	A transformer failed and spilled oil to the ground.

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0018157
Prog Element Code:	GENERATES <27 GAL/YEAR
Record Id:	PR0025227
Description:	GENERATES <27 GAL/YEAR
Region:	SAN MATEO
Facility ID:	FA0018157
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0004910
Description:	STORES MV FUELS OR WASTE ONLY
Region:	SAN MATEO
Facility ID:	FA0018157
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0022876
Description:	UNDERGROUND TANK - GENERAL

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36 **G AND M AUTO BODY SERRAMONTE** **RCRA-SQG** **1000686690**
SW **620 SERRAMONTE BLVD** **HAZNET** **CAD983640699**
1/8-1/4 **COLMA, CA 94014**
0.248 mi.
1307 ft.

Relative:
Lower

Actual:
123 ft.

RCRA-SQG:

Date form received by agency:	06/23/1992
Facility name:	G AND M AUTO BODY SERRAMONTE
Facility address:	620 SERRAMONTE BLVD COLMA, CA 94014
EPA ID:	CAD983640699
Mailing address:	SERRAMONTE BLVD COLMA, CA 94014
Contact:	SALEH OMRAN
Contact address:	620 SERRAMONTE BLVD COLMA, CA 94014
Contact country:	US
Contact telephone:	(415) 994-1660
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of

G AND M AUTO BODY SERRAMONTE (Continued) **1000686690**

hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	GILBERT RAMIREZ
Owner/operator address:	482 E SAN BRUNO AVE SAN BRUNO, CA 94066
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 872-2750
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

HAZNET:

envid:	1000686690
Year:	1996
GEPAID:	CAD983640699
Contact:	GILBERT RAMIREZ
Telephone:	6508722750
Mailing Name:	Not reported
Mailing Address:	650 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143218
Gen County:	Not reported
TSD EPA ID:	CAD009452657
TSD County:	Not reported
Waste Category:	Unspecified solvent mixture
Disposal Method:	Recycler
Tons:	.1626
Facility County:	San Mateo

envid:	1000686690
Year:	1995
GEPAID:	CAD983640699
Contact:	GILBERT RAMIREZ
Telephone:	6508722750
Mailing Name:	Not reported
Mailing Address:	650 SERRAMONTE BLVD
Mailing City,St,Zip:	COLMA, CA 940143218

G AND M AUTO BODY SERRAMONTE (Continued) **1000686690**

Gen County: Not reported
TSD EPA ID: CAD009452657
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Recycler
Tons: .9379
Facility County: San Mateo

envid: 1000686690
Year: 1994
GEPAID: CAD983640699
Contact: GILBERT RAMIREZ
Telephone: 6508722750
Mailing Name: Not reported
Mailing Address: 650 SERRAMONTE BLVD
Mailing City,St,Zip: COLMA, CA 940143218
Gen County: Not reported
TSD EPA ID: CAD009452657
TSD County: Not reported
Waste Category: Not reported
Disposal Method: Not reported
Tons: .0000
Facility County: San Mateo

envid: 1000686690
Year: 1994
GEPAID: CAD983640699
Contact: GILBERT RAMIREZ
Telephone: 6508722750
Mailing Name: Not reported
Mailing Address: 650 SERRAMONTE BLVD
Mailing City,St,Zip: COLMA, CA 940143218
Gen County: Not reported
TSD EPA ID: CAD009452657
TSD County: Not reported
Waste Category: Not reported
Disposal Method: Recycler
Tons: .0000
Facility County: San Mateo

envid: 1000686690
Year: 1994
GEPAID: CAD983640699
Contact: GILBERT RAMIREZ
Telephone: 6508722750
Mailing Name: Not reported
Mailing Address: 650 SERRAMONTE BLVD
Mailing City,St,Zip: COLMA, CA 940143218
Gen County: Not reported
TSD EPA ID: CAD009452657
TSD County: Not reported
Waste Category: Unspecified solvent mixture
Disposal Method: Not reported
Tons: .1876
Facility County: San Mateo

G AND M AUTO BODY SERRAMONTE (Continued) **1000686690**

Click this hyperlink while viewing on your computer to access
3 additional CA_HAZNET: record(s) in the EDR Site Report.

37
SW
1/4-1/2
0.334 mi.
1765 ft.

NISSAN SERRAMONTE
650 SERRAMONTE
COLMA, CA 94014

SLIC **S117398883**
San Mateo Co. BI **N/A**

Relative:
Lower

Actual:
126 ft.

SLIC:

Region:	STATE
Facility Status:	**Open - Site Assessment**
Status Date:	03/04/2015
Global Id:	T10000006528
Lead Agency:	SAN MATEO COUNTY LOP
Lead Agency Case Number:	789028
Latitude:	37.6754663321312
Longitude:	-122.461273
Case Type:	Cleanup Program Site
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	Not reported
File Location:	Not reported
Potential Media Affected:	Soil
Potential Contaminants of Concern:	Waste Oil / Motor / Hydraulic / Lubricating
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0057197
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0079354
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0057197
Prog Element Code:	STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id:	PR0079353
Description:	STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

38
NNW
1/4-1/2
0.353 mi.
1864 ft.

OLIVET MEMORIAL PARK
1601 HILLSIDE
COLMA, CA 94014

HIST CORTESE **S101438359**
LUST **N/A**
San Mateo Co. BI

Relative:
Higher

Actual:
227 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0381

LUST:

OLIVET MEMORIAL PARK (Continued) **S101438359**

Region:	STATE
Global Id:	T0608184609
Latitude:	37.688162572
Longitude:	-122.45415139
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	05/27/2011
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	Not reported
LOC Case Number:	780026
File Location:	Local Agency
Potential Media Affect:	Aquifer used for drinking water supply, Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Can be extracted from most recent report in Geotracker or at San Mateo County offices if submitted prior to 2005, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608184609
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608184609
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608184609
Status:	Completed - Case Closed
Status Date:	05/27/2011

Global Id:	T0608184609
Status:	Open - Verification Monitoring
Status Date:	10/10/2008

Global Id:	T0608184609
Status:	Open - Case Begin Date
Status Date:	03/30/2004

Global Id:	T0608184609
Status:	Open - Site Assessment
Status Date:	05/10/2004

OLIVET MEMORIAL PARK (Continued) **S101438359**

Global Id: T0608184609
Status: Open - Site Assessment
Status Date: 08/16/2004

Regulatory Activities:

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 01/31/2011
Action: Staff Letter - #20110131

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 03/09/2011
Action: Staff Letter - #20110309

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 05/24/2011
Action: Closure/No Further Action Letter - #20110524

Global Id: T0608184609
Action Type: REMEDIATION
Date: 03/30/2004
Action: Excavation

Global Id: T0608184609
Action Type: Other
Date: 03/30/2004
Action: Leak Discovery

Global Id: T0608184609
Action Type: RESPONSE
Date: 02/28/2011
Action: Well Destruction Workplan

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 02/08/2006
Action: Staff Letter - #20060208

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 02/06/2007
Action: Staff Letter - #20070206B

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 05/19/2005
Action: Notice of Violation - #20050519

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 06/09/2004
Action: Staff Letter - #20040609B

Global Id: T0608184609
Action Type: ENFORCEMENT

OLIVET MEMORIAL PARK (Continued) **S101438359**

Date: 06/09/2004
Action: Staff Letter - #20040609A

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 05/27/2004
Action: Notice of Responsibility - #20040527

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 02/06/2007
Action: Staff Letter - #20070206A

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 12/01/2005
Action: Staff Letter - #20051201

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 10/03/2006
Action: Staff Letter - #20061003

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 08/03/2006
Action: Warning Letter - #20060803

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 08/16/2004
Action: Staff Letter - #20041608

Global Id: T0608184609
Action Type: RESPONSE
Date: 01/26/2006
Action: Electronic Reporting Submittal Due

Global Id: T0608184609
Action Type: RESPONSE
Date: 05/19/2005
Action: Soil and Water Investigation Report

Global Id: T0608184609
Action Type: RESPONSE
Date: 07/15/2004
Action: Unauthorized Release Form

Global Id: T0608184609
Action Type: RESPONSE
Date: 10/25/2004
Action: Soil and Water Investigation Report

Global Id: T0608184609
Action Type: RESPONSE
Date: 05/03/2006
Action: Soil and Water Investigation Workplan

OLIVET MEMORIAL PARK (Continued) **S101438359**

Global Id: T0608184609
Action Type: Other
Date: 04/06/2004
Action: Leak Reported

Global Id: T0608184609
Action Type: RESPONSE
Date: 01/27/2007
Action: Soil and Water Investigation Report

Global Id: T0608184609
Action Type: RESPONSE
Date: 06/05/2007
Action: Soil and Water Investigation Report

Global Id: T0608184609
Action Type: RESPONSE
Date: 08/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608184609
Action Type: RESPONSE
Date: 05/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608184609
Action Type: RESPONSE
Date: 09/03/2006
Action: Soil and Water Investigation Workplan

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 07/21/2009
Action: Staff Letter - #20090721

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 07/09/2009
Action: Notification - Fee Title Owners Notice

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 04/21/2009
Action: LOP Case Closure Summary to RB - #20090421

Global Id: T0608184609
Action Type: ENFORCEMENT
Date: 08/17/2009
Action: Staff Letter - #20090817

Global Id: T0608184609
Action Type: RESPONSE
Date: 05/09/2011
Action: Well Destruction Report

Global Id: T0608184609
Action Type: RESPONSE

OLIVET MEMORIAL PARK (Continued) **S101438359**

Date:	08/18/2004
Action:	Soil and Water Investigation Workplan

Region:	STATE
Global Id:	T0608100362
Latitude:	37.68523
Longitude:	-122.454686
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	10/12/1994
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0381
LOC Case Number:	780011
File Location:	Local Agency Warehouse
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100362
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100362
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100362
Status:	Completed - Case Closed
Status Date:	10/12/1994

Global Id:	T0608100362
Status:	Open - Case Begin Date
Status Date:	06/10/1992

Regulatory Activities:

Global Id:	T0608100362
Action Type:	Other
Date:	06/10/1992
Action:	Leak Discovery

OLIVET MEMORIAL PARK (Continued) **S101438359**

Global Id: T0608100362
Action Type: REMEDIATION
Date: 08/13/1992
Action: Excavation

Global Id: T0608100362
Action Type: ENFORCEMENT
Date: 06/11/1992
Action: Notice of Responsibility - #1

Global Id: T0608100362
Action Type: Other
Date: 06/10/1992
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 780011
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

Region: 2
Facility Id: Not reported
Facility Status: Preliminary site assessment workplan submitted
Case Number: 780026
How Discovered: Tank Closure
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: 5/10/2004
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 780011
Facility Status: 9- Case Closed
Global ID: T0608100362
APN Number: 011331180
Case Type: SAN MATEO CO. LUST

OLIVET MEMORIAL PARK (Continued) **S101438359**

EDR Link ID: SAN MATEO CO. LUST

Region: SAN MATEO
Facility ID: 780026
Facility Status: 9- Case Closed
Global ID: T0608184609
APN Number: 011331180
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0018153
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0023951
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0018153
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0004907
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0018153
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022873
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0039534
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0055555
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0039534
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0055554
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

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39 **SATURN OF COLMA** **RCRA-SQG** **1001967690**
SW **707 SERRAMONTE BLVD** **FINDS** **CAR000072066**
1/4-1/2 **COLMA, CA 94014** **LUST**
0.358 mi. **SLIC**
1889 ft. **San Mateo Co. BI**
EMI

Relative:
Lower

Actual:
114 ft.

RCRA-SQG:
Date form received by agency: 04/28/2000
Facility name: COLMA BUICK PONTIAC GMC
Facility address: 707 SERRAMONTE BLVD
COLMA, CA 94014
EPA ID: CAR000072066
Mailing address: 600 SERRAMONTE BLVD
COLMA, CA 94014
Contact: GARY COX

SATURN OF COLMA (Continued) **1001967690**

Contact address: 707 SERRAMONTE BLVD
COLMA, CA 94014
Contact country: US
Contact telephone: (650) 757-4200
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: GOLDEN STATE MOTORS LLC
Owner/operator address: 39800 BALENTINE DR
NEWARK, CA 94560
Owner/operator country: Not reported
Owner/operator telephone: (510) 623-7711
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE WASTE

Violation Status: No violations found

FINDS:

Registry ID: 110002777004

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

SATURN OF COLMA (Continued) **1001967690**

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	789025
Facility Status:	9- Case Closed
Global ID:	SL0608189867
APN Number:	008413030
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

SLIC:

Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	12/02/2005
Global Id:	SL0608189867
Lead Agency:	SAN MATEO COUNTY LOP
Lead Agency Case Number:	789025
Latitude:	37.674266
Longitude:	-122.45998
Case Type:	Cleanup Program Site
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	Not reported
File Location:	Local Agency Warehouse
Potential Media Affected:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0004362
Prog Element Code:	GEN <1 TONS HAZ WASTE/YR
Record Id:	PR0012138
Description:	GEN <1 TONS HAZ WASTE/YR

Region:	SAN MATEO
Facility ID:	FA0004362
Prog Element Code:	STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id:	PR0023737
Description:	STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region:	SAN MATEO
Facility ID:	FA0004362
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0022895
Description:	UNDERGROUND TANK - GENERAL

Region:	SAN MATEO
Facility ID:	FA0026737
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0039522
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0026737

SATURN OF COLMA (Continued) **1001967690**

Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0039521
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0051896
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0071935
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0051896
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0071934
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

EMI:

Year: 1990
County Code: 41
Air Basin: SF
Facility ID: 3667
Air District Name: BA
SIC Code: 5511
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 1993
County Code: 41
Air Basin: SF
Facility ID: 3667
Air District Name: BA
SIC Code: 5511
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 3
Reactive Organic Gases Tons/Yr: 3
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 1995
County Code: 41
Air Basin: SF
Facility ID: 3667
Air District Name: BA
SIC Code: 5511

SATURN OF COLMA (Continued) **1001967690**

Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	4
Reactive Organic Gases Tons/Yr:	3
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1996
County Code:	41
Air Basin:	SF
Facility ID:	3667
Air District Name:	BA
SIC Code:	5511
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	4
Reactive Organic Gases Tons/Yr:	3
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1997
County Code:	41
Air Basin:	SF
Facility ID:	3667
Air District Name:	BA
SIC Code:	5511
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	4
Reactive Organic Gases Tons/Yr:	3
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2001
County Code:	41
Air Basin:	SF
Facility ID:	12457
Air District Name:	BA
SIC Code:	5511
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0

SATURN OF COLMA (Continued) **1001967690**

NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

---

40 NW 1/4-1/2 0.386 mi. 2038 ft.

F ST LIFT STATION
0 F
DALY CITY, CA 94015

LUST **S105427664**
N/A

Relative: Lower

Actual: 191 ft.

LUST:

Region:	STATE
Global Id:	T0608101018
Latitude:	37.682681
Longitude:	-122.460651
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	01/06/2000
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-1108
LOC Case Number:	220052
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608101018
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608101018
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608101018
Status:	Completed - Case Closed
Status Date:	01/06/2000

Global Id:	T0608101018
Status:	Open - Case Begin Date
Status Date:	06/12/1998

F ST LIFT STATION (Continued) **S105427664**

Regulatory Activities:

Global Id:	T0608101018
Action Type:	ENFORCEMENT
Date:	06/25/1998
Action:	Notice of Responsibility - #1
Global Id:	T0608101018
Action Type:	Other
Date:	06/12/1998
Action:	Leak Reported

LUST REG 2:

Region:	2
Facility Id:	Not reported
Facility Status:	Case Closed
Case Number:	220052
How Discovered:	OM
Leak Cause:	Unknown
Leak Source:	Unknown
Date Leak Confirmed:	Not reported
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	Not reported
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	220052
Facility Status:	9- Case Closed
Global ID:	T0608101018
APN Number:	008322230
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

41
East
1/4-1/2
0.391 mi.
2064 ft.

HILLSIDE CLASS III DISPOSAL SITE **SWF/LF** **S102362400**
#1 SANDFILL ROAD (1500 HILLSIDE BLVD) **Financial Assurance** **N/A**
COLMA, CA

Relative:
Higher

Actual:
328 ft.

SWF/LF (SWIS):

Region:	STATE
Facility ID:	41-AA-0008
Lat/Long:	37.683 / -122.444
Owner Name:	Cypress-Amloc Land Company, Inc.
Owner Telephone:	4157556978
Owner Address:	Not reported
Owner Address2:	Jeff Terry - 1 Sandhill Road
Owner City,St,Zip:	Colma, CA 94014-2843
Operational Status:	Closed
Operator:	Cypress-Amloc Land Company, Inc.
Operator Phone:	4157556978

HILLSIDE CLASS III DISPOSAL SITE (Continued) **S102362400**

Operator Address:	Not reported
Operator Address2:	Jeff Terry - 1 Sandhill Road
Operator City,St,Zip:	Colma, CA 94014-2843
Permit Date:	11/28/1995
Permit Status:	Permitted
Permitted Acreage:	Not reported
Activity:	Chipping and Grinding Activity Fac./ Op.
Regulation Status:	Permitted
Landuse Name:	Not reported
GIS Source:	Map
Category:	Composting
Unit Number:	02
Inspection Frequency:	None
Accepted Waste:	Not reported
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	Not reported
SWIS Num:	41-AA-0008
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	Not reported
Actual Throughput with Units:	Not reported
Permitted Capacity with Units:	Not reported
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Not reported
Lat/Long:	37.683 / -122.444

Region:	STATE
Facility ID:	41-AA-0008
Lat/Long:	37.683 / -122.444
Owner Name:	Cypress-Amloc Land Company, Inc.
Owner Telephone:	4157556978
Owner Address:	Not reported
Owner Address2:	Jeff Terry - 1 Sandhill Road
Owner City,St,Zip:	Colma, CA 94014-2843
Operational Status:	Closed
Operator:	Cypress-Amloc Land Company, Inc.
Operator Phone:	4157556978
Operator Address:	Not reported
Operator Address2:	Jeff Terry - 1 Sandhill Road
Operator City,St,Zip:	Colma, CA 94014-2843
Permit Date:	11/28/1995
Permit Status:	Permitted
Permitted Acreage:	42
Activity:	Solid Waste Landfill
Regulation Status:	Permitted
Landuse Name:	Not reported
GIS Source:	Map
Category:	Disposal
Unit Number:	01
Inspection Frequency:	Quarterly
Accepted Waste:	Construction/demolition,Green Materials,Inert,Metals
Closure Date:	12/31/2010
Closure Type:	Estimated
Disposal Acreage:	30
SWIS Num:	41-AA-0008
Waste Discharge Requirement Num:	III

HILLSIDE CLASS III DISPOSAL SITE (Continued) **S102362400**

Program Type:	Financial Assurance Responsibilities
Permitted Throughput with Units:	400
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	2310000
Remaining Capacity:	139331
Remaining Capacity with Units:	Cubic Yards
Lat/Long:	37.683 / -122.444

CA Financial Assurance 2:

Region:	2
SWIS_NO:	41-AA-0008
Closure Approved:	Yes
Closure Inf Coverage Date:	01/01/1901
Closure Plan Coverage:	$920,205.00
Closure Plan Date:	07/17/2003
PostClose Approved:	Yes
PostClose Adequacy Date:	07/17/2003
PostClose Inf Coverage:	$1,883,348.00
PostClose Inf Coverage Date:	06/01/2014
CorActCoverage:	$42,354.00
CorActApproved:	No
CorAct Mec Adequacy Date:	Not reported
CorAct Inf Coverage:	$42,354.00
CorActPlanCoverage:	$0.00
CorAct Plan Date:	Not reported
Lia Coverage:	$0.00
Lia Approved:	No
Review:	06/01/2014
Closure Mechanism A:	Not reported
Closure Mechanism B:	Not reported
Closure Coverage:	$0.00
Closure Adequacy:	Not reported
Closure Approved:	Yes
Closure Inflation Estimate:	$0.00
Closure Inflation Date:	01/01/1901
Closure Plan Coverage:	$920,205.00
Closure Plan Date:	07/17/2003
Post Closure Mechanism A:	TRUST FUND
Post Closure Established A:	08/31/1990
Post Closure Mechanism B:	Not reported
Post Closure Coverate:	$2,058,624.00
Post Closure Adequacy:	Not reported
Post Closure Approved:	Yes
Post Close Inflation Estimate:	$1,883,348.00
Post Closure Inflation Date:	06/01/2014
Post Closure Plan Date:	07/17/2003
Corrective Action Extablished A:	Not reported
Corrective Actiont Coverage:	$42,354.00
Corrective Action Adequacy:	Not reported
Corrective Action Approved:	No
Corrective Action Inflation Estimate:	$42,354.00
Corrective Action Inflationdate:	06/01/2013
Corrective Action Plan Estimate:	$0.00
Corrective Action Plan Date:	Not reported
Liability Mechanism A:	Not reported
Liability Established A:	Not reported
Liability Mechanism B:	Not reported

HILLSIDE CLASS III DISPOSAL SITE (Continued) **S102362400**

Liability Coverage:	$0.00
CostAnniversary:	08/31/2008
ClosureEstablishedA:	Not reported
ClosureEstablishedB:	Not reported
ClosureDisbursement:	0
PostClosureEstablishedB:	Not reported
PostClosureDisbursement:	0
CorrectiveActionMechanismA:	TRUST FUND
CorrectiveActionMechanismB:	Not reported
CorrectiveActionExtablishedB:	Not reported
CorrectiveActiontDisbursement:	0
LiabilityEstabllishedB:	Not reported
LiabilityAdequacy:	Not reported
Liability Approved:	No
Contact:	Not reported

I42
SW
1/4-1/2
0.395 mi.
2085 ft.

LEXUS OF SERRAMONTE
700 SERRAMONTE
COLMA, CA 94015

Site 1 of 2 in cluster I

HIST CORTESE **S100938922**
N/A

Relative:
Lower

Actual:
140 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-1169

I43
SW
1/4-1/2
0.395 mi.
2085 ft.

LEXUS OF SERRAMONTE
700 SERRAMONTE BLVD
COLMA, CA 94014

Site 2 of 2 in cluster I

RCRA-SQG **1000427523**
FINDS **CAD982332561**
LUST
SWEEPS UST
San Mateo Co. BI
EMI

Relative:
Lower

Actual:
140 ft.

RCRA-SQG:

Date form received by agency:	03/27/1990
Facility name:	LEXUS OF SERRAMONTE
Facility address:	700 SERRAMONTE BLVD COLMA, CA 94014
EPA ID:	CAD982332561
Contact:	ENVIRONMENTAL MANAGER
Contact address:	700 SERRAMONTE BLVD COLMA, CA 94015
Contact country:	US
Contact telephone:	(415) 994-2255
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

LEXUS OF SERRAMONTE (Continued) **1000427523**

Owner/Operator Summary:

Owner/operator name:	TOM PRICE
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110006477455

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LEXUS OF SERRAMONTE (Continued) **1000427523**

CRITERIA AND HAZARDOUS AIR POLLUTANT INVENTORY

LUST:

Region:	STATE
Global Id:	T0608101069
Latitude:	37.675182
Longitude:	-122.462117
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	10/12/1994
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-1169
LOC Case Number:	780016
File Location:	Local Agency Warehouse
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608101069
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608101069
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608101069
Status:	Completed - Case Closed
Status Date:	10/12/1994

Global Id:	T0608101069
Status:	Open - Case Begin Date
Status Date:	10/28/1993

Regulatory Activities:

Global Id:	T0608101069
Action Type:	REMEDIATION
Date:	04/11/1994
Action:	Not reported

LEXUS OF SERRAMONTE (Continued) **1000427523**

Global Id: T0608101069
Action Type: ENFORCEMENT
Date: 11/23/1993
Action: Notice of Responsibility - #1

Global Id: T0608101069
Action Type: Other
Date: 10/28/1993
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 780016
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 780016
Facility Status: 9- Case Closed
Global ID: T0608101069
APN Number: 008373200
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

SWEEPS UST:
Status: Not reported
Comp Number: 780030
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 41-000-780030-000002
Tank Status: Not reported
Capacity: 2000
Active Date: Not reported
Tank Use: OIL
STG: WASTE
Content: WASTE OIL
Number Of Tanks: 3

Status: Not reported

LEXUS OF SERRAMONTE (Continued) **1000427523**

Comp Number:	780030
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780030-000003
Tank Status:	Not reported
Capacity:	2000
Active Date:	Not reported
Tank Use:	OIL
STG:	PRODUCT
Content:	MOTOR OIL (N
Number Of Tanks:	Not reported

Status:	Not reported
Comp Number:	780030
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780030-000004
Tank Status:	Not reported
Capacity:	2000
Active Date:	Not reported
Tank Use:	OIL
STG:	WASTE
Content:	WASTE OIL
Number Of Tanks:	Not reported

Status:	Active
Comp Number:	780030
Number:	1
Board Of Equalization:	Not reported
Referral Date:	03-24-94
Action Date:	03-24-94
Created Date:	10-13-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780030-000001
Tank Status:	A
Capacity:	4000
Active Date:	03-24-94
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	1

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0018177
Prog Element Code:	ABOVE GROUND TANK/SPCC
Record Id:	PR0039041
Description:	ABOVE GROUND TANK/SPCC

LEXUS OF SERRAMONTE (Continued) **1000427523**

Region: SAN MATEO
Facility ID: FA0018177
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0025229
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0018177
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0004920
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0018177
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022888
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0047955
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0065550
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0047955
Prog Element Code: STORES HAZ MAT <3,499GAL,27,999LB,13,999FT3
Record Id: PR0065551
Description: STORES HAZ MAT <3,499GAL,27,999LB,13,999CF

Region: SAN MATEO
Facility ID: FA0047955
Prog Element Code: 2352
Record Id: PR0065549
Description: TIER I: TANK STOR CAP =>1,320 & <5,000 GAL

EMI:

Year:	2005
County Code:	41
Air Basin:	SF
Facility ID:	12369
Air District Name:	BA
SIC Code:	5511
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.009
Reactive Organic Gases Tons/Yr:	.009
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2006
County Code:	41
Air Basin:	SF

LEXUS OF SERRAMONTE (Continued) **1000427523**

Facility ID:	12369
Air District Name:	BA
SIC Code:	5511
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.009
Reactive Organic Gases Tons/Yr:	.009
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

J44 **PRECISION ROOFING INC** **HIST CORTESE** **S103892257**
South **1773 MISSION** **SWEEPS UST** **N/A**
1/4-1/2 **COLMA, CA 94014** **San Mateo Co. BI**
0.409 mi.
2159 ft. **Site 1 of 3 in cluster J**

Relative:
Lower

Actual:
90 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0016

SWEEPS UST:

Status:	Not reported
Comp Number:	780004
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780004-000001
Tank Status:	Not reported
Capacity:	1000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	1

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0014031
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0022874
Description:	UNDERGROUND TANK - GENERAL

Region:	SAN MATEO
Facility ID:	FA0018154
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0004921
Description:	STORES MV FUELS OR WASTE ONLY

K45	**SERRAMONTE FORD**	**RCRA-SQG**	**1000353520**
SW	**530 COLLINS**	**FINDS**	**CAD982485526**
1/4-1/2	**COLMA, CA 94014**	**HIST CORTESE**	
0.427 mi.		**LUST**	
2256 ft.	**Site 1 of 2 in cluster K**	**San Mateo Co. BI**	
		EMI	

Relative:
Lower

Actual:
180 ft.

RCRA-SQG:

Date form received by agency:	03/28/1990
Facility name:	SERRAMONTE FORD
Facility address:	530 COLLINS COLMA, CA 94014
EPA ID:	CAD982485526
Mailing address:	999 SERRAMONTE BLVD COLMA, CA 94015
Contact:	ENVIRONMENTAL MANAGER
Contact address:	530 COLLINS COLMA, CA 94014
Contact country:	US
Contact telephone:	(415) 755-7007
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	VERDUCCI FRANK
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No

SERRAMONTE FORD (Continued) **1000353520**

Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

FINDS:

Registry ID: 110001171491

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0479

LUST:
Region: STATE
Global Id: T0608100455
Latitude: 37.672481
Longitude: -122.460509
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 09/17/1992
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0479
LOC Case Number: 780010
File Location: Local Agency
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100455

SERRAMONTE FORD (Continued) **1000353520**

Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Global Id: T0608100455
Contact Type: Regional Board Caseworker
Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Status History:
Global Id: T0608100455
Status: Completed - Case Closed
Status Date: 09/17/1992

Global Id: T0608100455
Status: Open - Case Begin Date
Status Date: 03/13/1991

Regulatory Activities:
Global Id: T0608100455
Action Type: Other
Date: 03/13/1991
Action: Leak Discovery

Global Id: T0608100455
Action Type: ENFORCEMENT
Date: 03/13/1991
Action: Notice of Responsibility - #1

Global Id: T0608100455
Action Type: Other
Date: 03/13/1991
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 780010
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported

SERRAMONTE FORD (Continued) **1000353520**

Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 780010
Facility Status: 9- Case Closed
Global ID: T0608100455
APN Number: 010421190
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0018197
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0038624
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0018197
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0038625
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0018197
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022905
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0053847
Prog Element Code: GEN <1 TONS HAZ WASTE/YR
Record Id: PR0074398
Description: GEN <1 TONS HAZ WASTE/YR

Region: SAN MATEO
Facility ID: FA0053847
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0074397
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

EMI:
Year: 1990
County Code: 41
Air Basin: SF
Facility ID: 5826
Air District Name: BA
SIC Code: 7532
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 2
Reactive Organic Gases Tons/Yr: 2

SERRAMONTE FORD (Continued) **1000353520**

Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

K46 **BLUES ROOFING** **HIST CORTESE** **S102425477**
SW **600 COLLINS** **LUST** **N/A**
1/4-1/2 **COLMA, CA 94014** **SWEEPS UST**
0.441 mi. **San Mateo Co. BI**
2331 ft. **Site 2 of 2 in cluster K**

Relative:
Lower

Actual:
180 ft.

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0829

LUST:
Region: STATE
Global Id: T0608100777
Latitude: 37.6728245
Longitude: -122.4611546
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 06/28/1994
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0829
LOC Case Number: 780017
File Location: Local Agency
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100777
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Global Id: T0608100777
Contact Type: Regional Board Caseworker
Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

BLUES ROOFING (Continued) **S102425477**

Status History:

Global Id:	T0608100777
Status:	Completed - Case Closed
Status Date:	06/28/1994
Global Id:	T0608100777
Status:	Open - Case Begin Date
Status Date:	10/29/1993

Regulatory Activities:

Global Id:	T0608100777
Action Type:	REMEDIATION
Date:	11/30/1993
Action:	Not reported
Global Id:	T0608100777
Action Type:	ENFORCEMENT
Date:	11/23/1993
Action:	Notice of Responsibility - #1
Global Id:	T0608100777
Action Type:	Other
Date:	10/29/1993
Action:	Leak Reported

LUST REG 2:

Region:	2
Facility Id:	Not reported
Facility Status:	Case Closed
Case Number:	780017
How Discovered:	OM
Leak Cause:	Unknown
Leak Source:	Unknown
Date Leak Confirmed:	Not reported
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	Not reported
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	780017
Facility Status:	9- Case Closed
Global ID:	T0608100777
APN Number:	010421090
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

SWEEPS UST:

Status:	Not reported
Comp Number:	780012

BLUES ROOFING (Continued) **S102425477**

Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780012-000001
Tank Status:	Not reported
Capacity:	1000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	1

Status:	Active
Comp Number:	780012
Number:	9
Board Of Equalization:	Not reported
Referral Date:	02-02-94
Action Date:	02-02-94
Created Date:	10-13-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	Not reported
Tank Status:	Not reported
Capacity:	Not reported
Active Date:	Not reported
Tank Use:	Not reported
STG:	Not reported
Content:	Not reported
Number Of Tanks:	Not reported

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0022887
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0025730
Description:	UNDERGROUND TANK - GENERAL

47
South
1/4-1/2
0.448 mi.
2365 ft.

CYPRESS LAWN CEMETERY
300 EL CAMINO REAL
COLMA, CA 94014

HIST CORTESE **S104493563**
LUST **N/A**
SWEEPS UST

Relative:
Lower

Actual:
116 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0187

LUST:

Region:	STATE
Global Id:	T0608100178
Latitude:	37.6772
Longitude:	-122.4586
Case Type:	LUST Cleanup Site

CYPRESS LAWN CEMETERY (Continued) **S104493563**

Status:	Completed - Case Closed
Status Date:	08/27/2001
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0187
LOC Case Number:	780008
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100178
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100178
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100178
Status:	Completed - Case Closed
Status Date:	08/27/2001

Global Id:	T0608100178
Status:	Open - Case Begin Date
Status Date:	03/05/1990

Regulatory Activities:

Global Id:	T0608100178
Action Type:	Other
Date:	03/05/1990
Action:	Leak Discovery

Global Id:	T0608100178
Action Type:	ENFORCEMENT
Date:	03/09/1990
Action:	Notice of Responsibility - #1

Global Id:	T0608100178
Action Type:	Other
Date:	03/05/1990
Action:	Leak Reported

CYPRESS LAWN CEMETERY (Continued) **S104493563**

LUST REG 2:

Region:	2
Facility Id:	Not reported
Facility Status:	Case Closed
Case Number:	780008
How Discovered:	OM
Leak Cause:	Unknown
Leak Source:	Unknown
Date Leak Confirmed:	Not reported
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	Not reported
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	780008
Facility Status:	9- Case Closed
Global ID:	T0608100178
APN Number:	Not reported
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

SWEEPS UST:

Status:	Not reported
Comp Number:	780002
Number:	Not reported
Board Of Equalization:	44-025372
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780002-000001
Tank Status:	Not reported
Capacity:	2000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	3

Status:	Not reported
Comp Number:	780002
Number:	Not reported
Board Of Equalization:	44-025372
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780002-000002
Tank Status:	Not reported
Capacity:	1000
Active Date:	Not reported

CYPRESS LAWN CEMETERY (Continued) **S104493563**

Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	Not reported

Status:	Not reported
Comp Number:	780002
Number:	Not reported
Board Of Equalization:	44-025372
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-780002-000003
Tank Status:	Not reported
Capacity:	1
Active Date:	Not reported
Tank Use:	Not reported
STG:	WASTE
Content:	Not reported
Number Of Tanks:	Not reported

J48 **VW AUTO REPAIR** **HIST CORTESE** **S101303066**
South **1715 OLD MISSION** **LUST** **N/A**
1/4-1/2 **COLMA, CA 94014**
0.459 mi.
2424 ft. **Site 2 of 3 in cluster J**

Relative:
Lower

Actual:
88 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0698

LUST REG 2:

Region:	2
Facility Id:	Not reported
Facility Status:	Case Closed
Case Number:	780013
How Discovered:	OM
Leak Cause:	Unknown
Leak Source:	Unknown
Date Leak Confirmed:	Not reported
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	Not reported
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

J49 South 1/4-1/2 0.459 mi. 2424 ft. | **VW AUTO REPAIR 1715 OLD MISSION COLMA, CA 94014** | **LUST San Mateo Co. BI** | **S106981346 N/A**

Site 3 of 3 in cluster J

Relative: Lower

Actual: 88 ft.

LUST:

Region:	STATE
Global Id:	T0608100664
Latitude:	37.676559
Longitude:	-122.45813
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	07/21/2000
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0698
LOC Case Number:	780013
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Waste Oil / Motor / Hydraulic / Lubricating
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100664
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100664
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100664
Status:	Completed - Case Closed
Status Date:	07/21/2000

Global Id:	T0608100664
Status:	Open - Case Begin Date
Status Date:	12/03/1992

Regulatory Activities:

Global Id:	T0608100664
Action Type:	Other
Date:	01/19/1993
Action:	Leak Discovery

VW AUTO REPAIR (Continued) **S106981346**

Global Id: T0608100664
Action Type: ENFORCEMENT
Date: 01/19/1993
Action: Notice of Responsibility - #1

Global Id: T0608100664
Action Type: Other
Date: 12/03/1992
Action: Leak Reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 780013
Facility Status: 9- Case Closed
Global ID: T0608100664
APN Number: 010142020
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0014191
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022901
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0014579
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0012165
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0014579
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0004951
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0029523
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0050306
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0029523
Prog Element Code: RECYCLER
Record Id: PR0050307
Description: RECYCLER

Region: SAN MATEO
Facility ID: FA0029523
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0050305
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

50 SW 1/4-1/2 0.472 mi. 2493 ft.

G & M AUTO BODY
780 SERRAMONTE BLVD
COLMA, CA 94014

HIST CORTESE
LUST
HIST UST
ENF
San Mateo Co. BI
EMI

1000435319
N/A

Relative: Lower

Actual: 117 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0540

LUST:

Region:	STATE
Global Id:	T0608100516
Latitude:	37.674469
Longitude:	-122.463133
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	10/10/1991
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0540
LOC Case Number:	780005
File Location:	Local Agency
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Waste Oil / Motor / Hydraulic / Lubricating
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100516
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100516
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100516
Status:	Open - Case Begin Date
Status Date:	04/22/1988

Global Id:	T0608100516
Status:	Completed - Case Closed

G & M AUTO BODY (Continued) **1000435319**

Status Date: 10/10/1991

Regulatory Activities:

Global Id: T0608100516
Action Type: Other
Date: 04/22/1988
Action: Leak Discovery

Global Id: T0608100516
Action Type: ENFORCEMENT
Date: 04/22/1988
Action: Notice of Responsibility - #1

Global Id: T0608100516
Action Type: Other
Date: 04/22/1988
Action: Leak Reported

LUST REG 2:

Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 780005
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:

Region: SAN MATEO
Facility ID: 780005
Facility Status: 9- Case Closed
Global ID: T0608100516
APN Number: 008373190
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

HIST UST:

Region: STATE
Facility ID: 00000008226
Facility Type: Other
Other Type: AUTO DEALERSHIP
Contact Name: PAUL MONTALBANO
Telephone: 4159942400
Owner Name: STEWART CHEVROLET CO
Owner Address: 780 SERRAMONTE BLVD.
Owner City,St,Zip: COLMA, CA 94014

G & M AUTO BODY (Continued) **1000435319**

Total Tanks:	0004
Tank Num:	001
Container Num:	1
Year Installed:	1972
Tank Capacity:	00002000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	1972
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	WASTE OIL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	3
Year Installed:	1972
Tank Capacity:	00000500
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor
Tank Num:	004
Container Num:	4
Year Installed:	1980
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

ENF:

Region:	2
Facility Id:	262120
Agency Name:	Stewart Chevrolet
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	All other facilities
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	Not reported
Place Longitude:	Not reported
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported

G & M AUTO BODY (Continued) **1000435319**

NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	AGT
Program Category1:	TANKS
Program Category2:	TANKS
# Of Programs:	1
WDID:	2 41AGT378U
Reg Measure Id:	170055
Reg Measure Type:	Unregulated
Region:	2
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Never Active
Status Date:	02/20/2013
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	241941
Region:	2
Order / Resolution Number:	UNKNOWN
Enforcement Action Type:	13267 Letter
Effective Date:	06/15/2002
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Active
Title:	Enforcement - 2 41AGT378U

G & M AUTO BODY (Continued) **1000435319**

Description:	Notice of Violation with APSA
Program:	AGT
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	$0.00
Initial Assessed Amount:	$0.00
Liability $ Amount:	$0.00
Project $ Amount:	$0.00
Liability $ Paid:	$0.00
Project $ Completed:	$0.00
Total $ Paid/Completed Amount:	$0.00

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0018163
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0012125
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0018163
Prog Element Code:	STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id:	PR0004903
Description:	STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region:	SAN MATEO
Facility ID:	FA0018163
Prog Element Code:	2352
Record Id:	PR0039040
Description:	TIER I: TANK STOR CAP =>1,320 & <5,000 GAL

EMI:

Year:	1995
County Code:	41
Air Basin:	SF
Facility ID:	7348
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1996
County Code:	41
Air Basin:	SF
Facility ID:	7348
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD

G & M AUTO BODY (Continued) **1000435319**

Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1997
County Code:	41
Air Basin:	SF
Facility ID:	7348
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1998
County Code:	41
Air Basin:	SF
Facility ID:	11858
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1999
County Code:	41
Air Basin:	SF
Facility ID:	11858
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0

G & M AUTO BODY (Continued) **1000435319**

SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2000
County Code:	41
Air Basin:	SF
Facility ID:	11858
Air District Name:	BA
SIC Code:	7532
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

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51 **OTTOBONI PROPERTY** **HIST CORTESE** **S103892248**
WNW **417 F** **LUST** **N/A**
1/4-1/2 **COLMA, CA 94014** **SLIC**
0.488 mi. **SWEEPS UST**
2578 ft. **San Mateo Co. BI**

Relative:
Lower

Actual:
148 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0751

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	789001
Facility Status:	9- Case Closed
Global ID:	T0608185252
APN Number:	008144150
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

SLIC:

Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	08/24/2004
Global Id:	T0608185252
Lead Agency:	SAN MATEO COUNTY LOP
Lead Agency Case Number:	789001
Latitude:	37.682668
Longitude:	-122.462791
Case Type:	Cleanup Program Site
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0751
File Location:	Local Agency Warehouse
Potential Media Affected:	Soil

OTTOBONI PROPERTY (Continued) **S103892248**

Potential Contaminants of Concern: Not reported
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

SWEEPS UST:

Status:	Not reported
Comp Number:	780035
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	Not reported
Tank Status:	Not reported
Capacity:	Not reported
Active Date:	Not reported
Tank Use:	Not reported
STG:	Not reported
Content:	Not reported
Number Of Tanks:	0

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0016676
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0022892
Description:	UNDERGROUND TANK - GENERAL

52
NNW
1/2-1
0.968 mi.
5113 ft.

Relative:
Higher

Actual:
226 ft.

G. NANO (POSSIBLE NAME: GRACIANO'S NURSERY) **ENVIROSTOR** **S109548296**
SECOND AVENUE & CASTLE STREET **N/A**
DALY CITY, CA 94014

ENVIROSTOR:

Facility ID:	70000094
Status:	Inactive - Needs Evaluation
Status Date:	05/04/2006
Site Code:	Not reported
Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	0.46
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Not reported
Supervisor:	Denise Tsuji
Division Branch:	Cleanup Berkeley
Assembly:	19
Senate:	11
Special Program:	EPA - PASI
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	EPA Grant
Latitude:	37.69193

G. NANO (POSSIBLE NAME: GRACIANO'S NURSERY) (Continued) **S109548296**

Longitude: -122.4629
APN: 006-234-030
Past Use: NONE
Potential COC: NONE SPECIFIED No Contaminants found
Confirmed COC: 31000-NO
Potential Description: NMA
Alias Name: 006-234-030
Alias Type: APN
Alias Name: CAN000908290
Alias Type: EPA Identification Number
Alias Name: 70000094
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Screening
Completed Date: 05/04/2006
Comments: The site screening was approved by US EPA. No further action is required under CERCLA. However, since no confirmation sampling was taken, the site needs to be re-evaluated under DTSC lead.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 4 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRISBANE	1000344998	SO PACIFIC TRANS CO	E/OLD BAYSHORE RD AT GENEVA	94005	CERCLIS
COLMA	1007443894	COLMA HILLSIDE DISPOSAL SITE	SAND HILL ROAD OFF HILLSIDE BL		ODI
COLMA	S114683177	SATURN OF COLMA	707 SERRAMONTE		RGA LUST
DALY CITY	S115779981	GARDEN VALLEY SITE	2ND AVENUE, 3RD AVENUE	94014	VCP, ENVIROSTOR

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/16/2014	Source: EPA
Date Data Arrived at EDR: 01/08/2015	Telephone: N/A
Date Made Active in Reports: 02/09/2015	Last EDR Contact: 04/08/2015
Number of Days to Update: 32	Next Scheduled EDR Contact: 07/20/2015
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 04/02/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/08/2015
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/07/2014	Telephone: 703-603-8704
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 04/08/2015
Number of Days to Update: 13	Next Scheduled EDR Contact: 07/20/2015
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 04/02/2015
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/08/2015
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 48

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/12/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/12/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/17/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 14

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/17/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 32

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 01/28/2015
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 42

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/10/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 31

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/26/2015
Number of Days to Update: 8

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 07/13/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 36

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 01/29/2015
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 42

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/14/2014
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/12/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/02/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/22/2014
Date Data Arrived at EDR: 12/22/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 38

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/24/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/26/2015
Number of Days to Update: 8

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 04/04/2015
Date Data Arrived at EDR: 04/07/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 6

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: No Update Planned

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 6

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/12/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/03/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/13/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 11

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/10/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 69

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 01/21/2015
Date Data Arrived at EDR: 01/28/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 29

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/28/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/03/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 24

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/10/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 12/30/2014
Date Data Arrived at EDR: 12/31/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/06/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 01/29/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/27/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/09/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/17/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 02/27/2015
Date Data Arrived at EDR: 02/27/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/09/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2015
Date Data Arrived at EDR: 02/27/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 26

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/24/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 45

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/20/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 03/12/2015
Date Data Arrived at EDR: 03/13/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 11

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 04/10/2015
Number of Days to Update: 10

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/31/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 02/18/2015
Date Data Arrived at EDR: 02/20/2015
Date Made Active in Reports: 03/12/2015
Number of Days to Update: 20

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/26/2015
Date Data Arrived at EDR: 01/28/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 29

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 35

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/17/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 03/25/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 34

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/27/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Annually

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 01/16/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/10/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/12/2015
Date Data Arrived at EDR: 01/13/2015
Date Made Active in Reports: 02/03/2015
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/15/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Annually

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/10/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: N/A

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/15/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 02/02/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 25

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/17/2015
Date Data Arrived at EDR: 02/20/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 11

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/24/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/21/2015
Date Data Arrived at EDR: 01/28/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 29

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/21/2015
Date Data Arrived at EDR: 01/28/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 29

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/24/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 7

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 11/20/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 01/07/2015
Number of Days to Update: 44

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 03/03/2015
Date Data Arrived at EDR: 03/05/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 5

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/11/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 24

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/25/2015
Date Made Active in Reports: 03/04/2015
Number of Days to Update: 7

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/25/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 6

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/24/2015
Date Data Arrived at EDR: 02/25/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 6

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 01/16/2015
Date Made Active in Reports: 02/05/2015
Number of Days to Update: 20

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 04/06/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/13/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 11

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 02/10/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 19

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/22/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/19/2014
Number of Days to Update: 37

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/21/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/30/2014
Number of Days to Update: 35

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 04/10/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/20/2015
Date Data Arrived at EDR: 01/21/2015
Date Made Active in Reports: 02/05/2015
Number of Days to Update: 15

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/16/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/04/2015
Number of Days to Update: 33

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/19/2015
Date Data Arrived at EDR: 01/20/2015
Date Made Active in Reports: 02/05/2015
Number of Days to Update: 16

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/20/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/15/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/15/2015
Date Data Arrived at EDR: 01/29/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 40

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/16/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 03/06/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 01/29/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 13

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/27/2015
Number of Days to Update: 12

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 03/20/2015
Date Data Arrived at EDR: 03/24/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 7

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 54

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 04/15/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 7

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 02/27/2015
Date Data Arrived at EDR: 03/06/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 4

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 03/19/2015
Date Data Arrived at EDR: 03/20/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 11

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/12/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 18

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 18

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 18

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 13

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 6

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/28/2015
Date Data Arrived at EDR: 01/29/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 33

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/28/2015
Date Data Arrived at EDR: 01/29/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 28

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/02/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 04/16/2015
Number of Days to Update: 8

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/02/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 04/16/2015
Number of Days to Update: 8

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 03/02/2015
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 7

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/10/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 38

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 03/24/2015
Date Data Arrived at EDR: 03/25/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 6

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 7

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/09/2015
Date Data Arrived at EDR: 01/12/2015
Date Made Active in Reports: 02/03/2015
Number of Days to Update: 22

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/16/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/17/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 7

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/25/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 6

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/24/2015
Date Made Active in Reports: 03/04/2015
Number of Days to Update: 8

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 12/31/2014
Number of Days to Update: 36

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/13/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 11

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/19/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 5

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/20/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 11

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 03/31/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/10/2015
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/01/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/30/2015
Next Scheduled EDR Contact: 07/13/2015
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/09/2015
Next Scheduled EDR Contact: 06/22/2015
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/30/2015
Date Data Arrived at EDR: 02/03/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 24

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 01/27/2015
Date Data Arrived at EDR: 02/19/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 12

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 04/02/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 32

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/27/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/26/2015
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/18/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 04/01/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 12

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/23/2015
Next Scheduled EDR Contact: 07/06/2015
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 02/17/2015
Date Data Arrived at EDR: 02/19/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 12

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2015
Date Data Arrived at EDR: 02/04/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/04/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/16/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/19/2015
Date Made Active in Reports: 04/07/2015
Number of Days to Update: 19

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/13/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CARMAX COLMA
435, 445 AND 455 SERRAMONTE BLVD.
DALY CITY, CA 94014

TARGET PROPERTY COORDINATES

Latitude (North):	37.6789 - 37˚ 40' 44.04''
Longitude (West):	122.4542 - 122˚ 27' 15.12''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	548129.4
UTM Y (Meters):	4170124.5
Elevation:	199 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	37122-F4 SAN FRANCISCO SOUTH, CA
Most Recent Revision:	1999

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

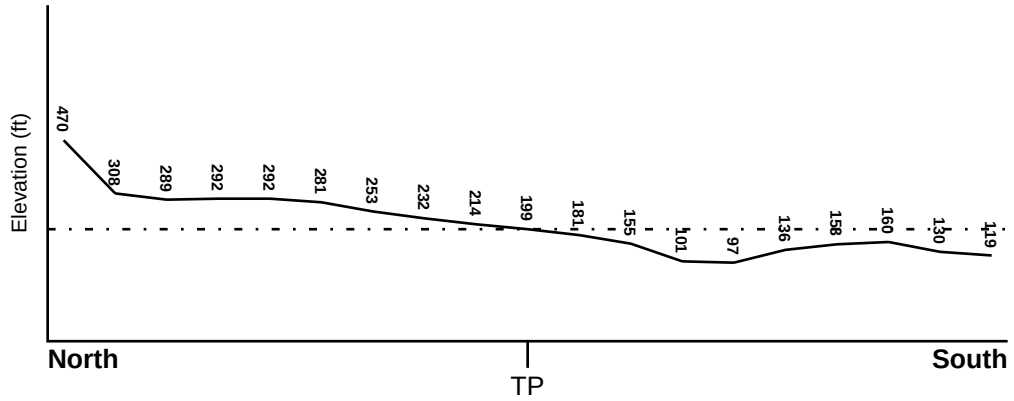
TOPOGRAPHIC INFORMATION

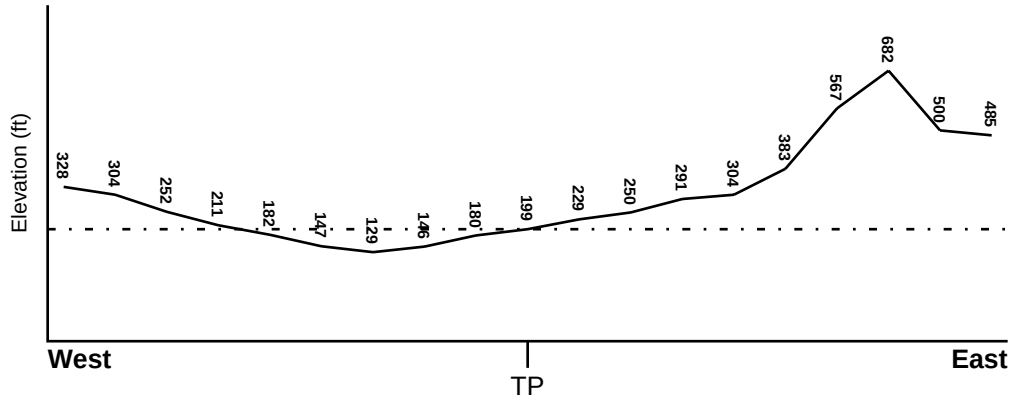
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 199 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN MATEO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	0603160000B - FEMA Q3 Flood data
Additional Panels in search area:	0603170000B - FEMA Q3 Flood data
	0603110025B - FEMA Q3 Flood data
	0603110012B - FEMA Q3 Flood data
	0603170012B - FEMA Q3 Flood data
	0650620001B - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SAN FRANCISCO SOUTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
1	1/8 - 1/4 Mile North	SW
3	1/4 - 1/2 Mile SW	Not Reported
5	1/2 - 1 Mile SSW	SE
6	1/2 - 1 Mile NNW	Not Reported
7	1/2 - 1 Mile WNW	SSW

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
10	1/2 - 1 Mile SW	NE

For additional site information, refer to Physical Setting Source Map Findings.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

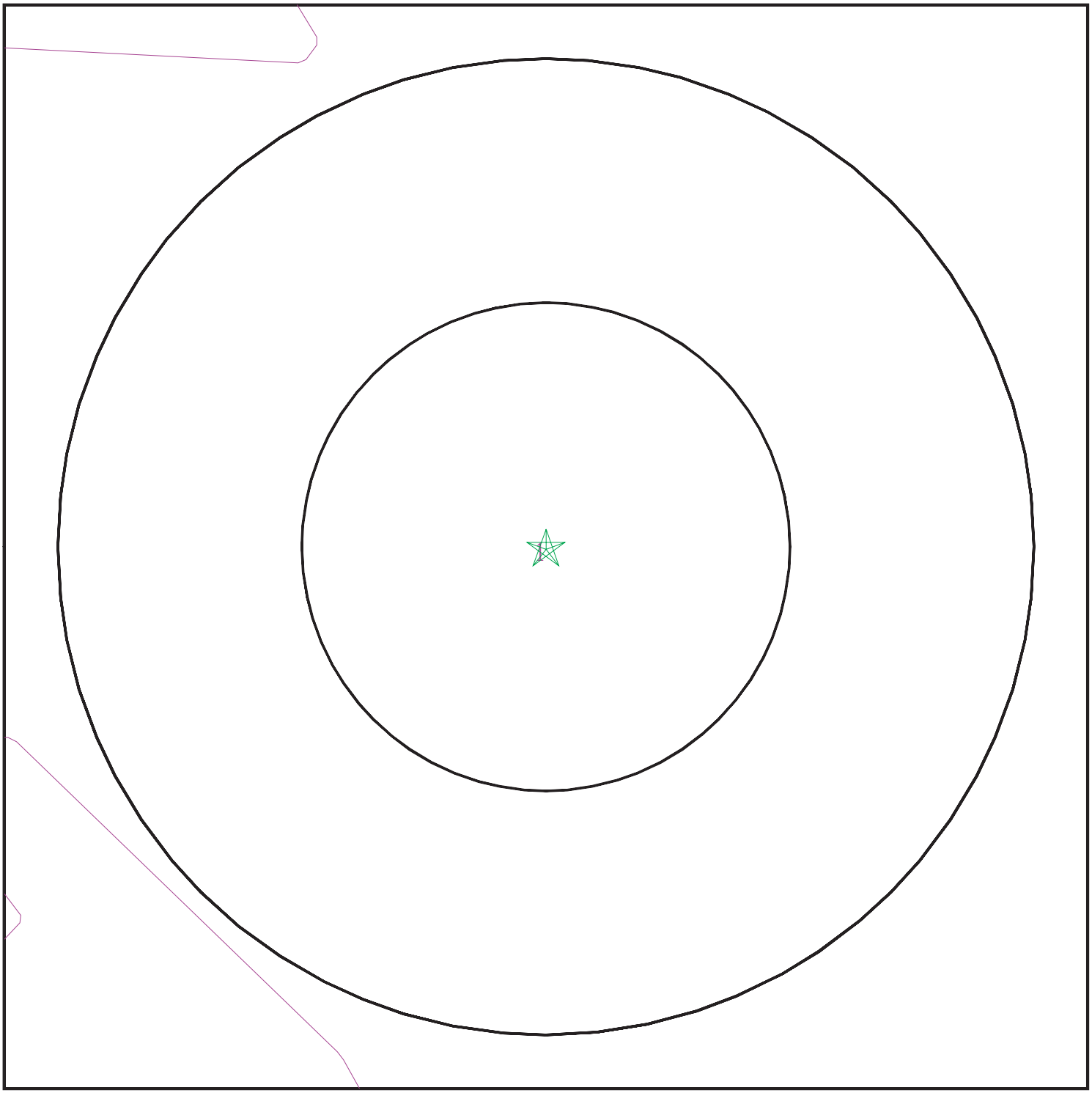
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 04270024.2r



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	CarMax Colma	CLIENT:	Engeo Inc.
ADDRESS:	435, 445 and 455 Serramonte Blvd. Daly City CA 94014	CONTACT:	Kelsey Gerhart
		INQUIRY #:	04270024.2r
LAT/LONG:	37.6789 / 122.4542	DATE:	April 21, 2015 1:53 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Orthents

Soil Surface Texture: variable

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	USGS40000184716	1/4 - 1/2 Mile South
8	USGS40000184685	1/2 - 1 Mile SSE
9	USGS40000184671	1/2 - 1 Mile SSE
11	USGS40000184848	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

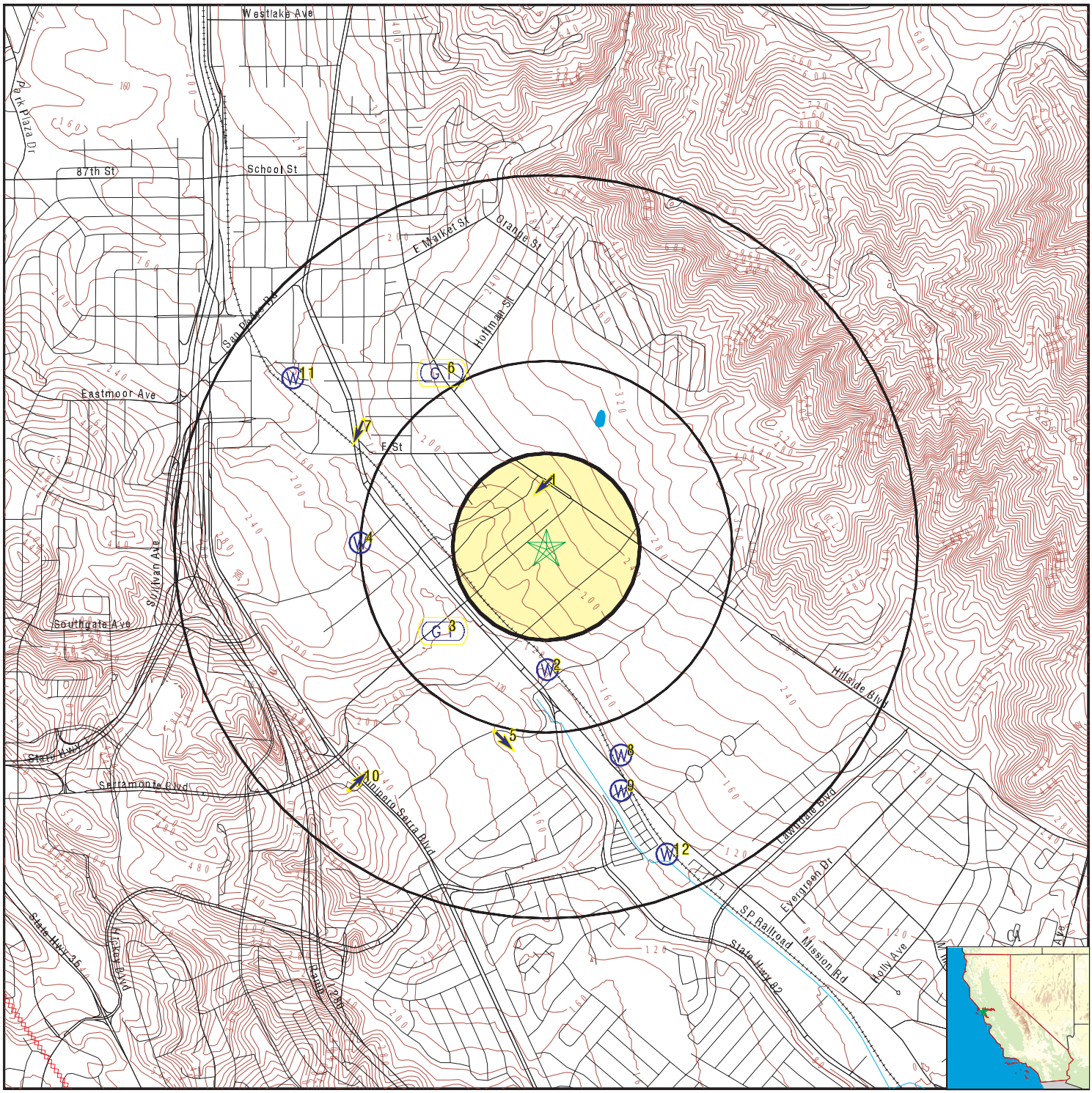
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
4	CADW50000029958	1/2 - 1 Mile West
12	CADW50000029888	1/2 - 1 Mile SSE

PHYSICAL SETTING SOURCE MAP - 04270024.2r



County Boundary
Major Roads
Contour Lines
Earthquake Fault Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location
HD Closest Hydrogeological Data
Oil, gas or related wells

SITE NAME: CarMax Colma	CLIENT: Engeo Inc.
ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City CA 94014	CONTACT: Kelsey Gerhart INQUIRY #: 04270024.2r
LAT/LONG: 37.6789 / 122.4542	DATE: April 21, 2015 1:53 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation			Database	EDR ID Number
1 **North** **1/8 - 1/4 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	780011 SW Not Reported Not Reported 16.18 05/18/1993	**AQUIFLOW**	**55351**

2
South
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000184716**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374027122271101		
Monloc name:	003S005W18F001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18050004	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.6741002
Longitude:	-122.4541394	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19640914	Welldepth:	600
Welldepth units:	ft	Wellholedepth:	617
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

3 **SW** **1/4 - 1/2 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	220014 Not Reported Not Reported Not Reported 11 03/21/1991	**AQUIFLOW**	**64676**

4
West
1/2 - 1 Mile
Lower

CA WELLS **CADW50000029958**

Latitude :	37.679057		
Longitude :	122.46334		
Site code:	376669N1224483W001	Casgem sta:	Not Reported
Local well:	CUP 18 MW 425	Casgem s 1:	Observation
County id:	41		
Basin cd:	2-35	Basin desc:	Westside Basin
Org unit n:	North Central Region Office	Site id:	CADW50000029958

5
SSW
1/2 - 1 Mile
Lower

AQUIFLOW **55361**

Site ID:	780008
Groundwater Flow:	SE
Shallow Water Depth:	44.75
Deep Water Depth:	57.28
Average Water Depth:	Not Reported
Date:	01/17/1990

6
NNW
1/2 - 1 Mile
Higher

AQUIFLOW **55345**

Site ID:	780003
Groundwater Flow:	Not Reported
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	82.85
Date:	06/12/1990

7
WNW
1/2 - 1 Mile
Lower

AQUIFLOW **55367**

Site ID:	780014
Groundwater Flow:	SSW
Shallow Water Depth:	60
Deep Water Depth:	120
Average Water Depth:	Not Reported
Date:	11/18/1993

8
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS40000184685**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374015122265801		
Monloc name:	003S005W18K002M		
Monloc type:	Well		
Monloc desc:	SURVEYED MP ALTITUDE IS CONSIDERED TO BE AT LSD.		
Huc code:	18050004	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.670767
Longitude:	-122.4505283	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	81.69
Vert measure units:	feet	Vertacc measure val:	.01
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	19860515	Welldepth:	688
Welldepth units:	ft	Wellholedepth:	700
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 25

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1991-05-01					
Note: The measurement was discontinued.					
1991-02-05	204.63		1990-12-04	208.08	
1990-11-06	214.04		1990-10-10	213.99	
1990-09-05	216.62		1990-08-01	215.76	
1990-07-02	214.94		1990-06-05	213.97	
1990-05-01	213.00		1990-04-05	205.51	
1990-03-06	204.91		1990-02-07	204.20	
1989-12-07	205.48		1989-11-21	207.29	
1989-10-27	207.68		1989-09-19	209.92	
1989-08-16	217.20		1989-07-07	214.68	
1989-05-31	212.78		1989-04-25	202.60	
1989-03-15	201.61		1989-02-08	202.34	
1989-01-05	203.08		1986-05-15	218	

9
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS40000184671**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374010122265801		
Monloc name:	003S005W18K001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18050004	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.6693782
Longitude:	-122.4505283	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	125
Vert measure units:	feet	Vertacc measure val:	12.
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19600916	Welldepth:	482
Welldepth units:	ft	Wellholedepth:	500
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

10
SW
1/2 - 1 Mile
Higher

AQUIFLOW **55424**

Site ID:	780006
Groundwater Flow:	NE
Shallow Water Depth:	13
Deep Water Depth:	19
Average Water Depth:	Not Reported
Date:	12/06/1995

Map ID Direction Distance Elevation	Database	EDR ID Number
11 **WNW** **1/2 - 1 Mile** **Lower**	**FED USGS**	**USGS40000184848**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-374108122275601		
Monloc name:	003S006W12K001M		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18050005	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	37.6854888
Longitude:	-122.4666394	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	180.00
Vert measure units:	feet	Vertacc measure val:	010
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19590616	Welldepth:	532
Welldepth units:	ft	Wellholedepth:	552
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

12 **SSE** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**CADW50000029888**

Latitude :	37.666899		
Longitude :	122.448271		
Site code:	376521N1224321W001	Casgem sta:	Not Reported
Local well:	CUP 23 MW 440	Casgem s 1:	Observation
County id:	41		
Basin cd:	2-35	Basin desc:	Westside Basin
Org unit n:	North Central Region Office	Site id:	CADW50000029888

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94014	29	0

Federal EPA Radon Zone for SAN MATEO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 94014

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	-0.200 pCi/L	100%	0%	0%
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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APPENDIX B

ENVIRONMENTAL DATA RESOURCES, INC.

Sanborn Map Report

APPENDIX B

CarMax Colma
435, 445 and 455 Serramonte Blvd.
Daly City, CA 94014

Inquiry Number: 4270024.3
April 21, 2015

Certified Sanborn® Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

4/21/15

Site Name:	**Client Name:**
CarMax Colma	Engeo Inc.
435, 445 and 455 Serramonte	2010 Crow Canyon Place
Daly City, CA 94014	San Ramon, CA 94583
EDR Inquiry # 4270024.3	Contact: Kelsey Gerhart

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Engeo Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name:	CarMax Colma
Address:	435, 445 and 455 Serramonte Blvd.
City, State, Zip:	Daly City, CA 94014
Cross Street:	
P.O. #	NA
Project:	CarMax Colma
Certification #	F1BD-47E2-A430

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results
Certification # F1BD-47E2-A430

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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APPENDIX C

ENVIRONMENTAL DATA RESOURCES, INC.

Historical Topographic Map Report

APPENDIX C

CarMax Colma
435, 445 and 455 Serramonte Blvd.
Daly City, CA 94014

Inquiry Number: 4270024.4
April 21, 2015

EDR Historical Topographic Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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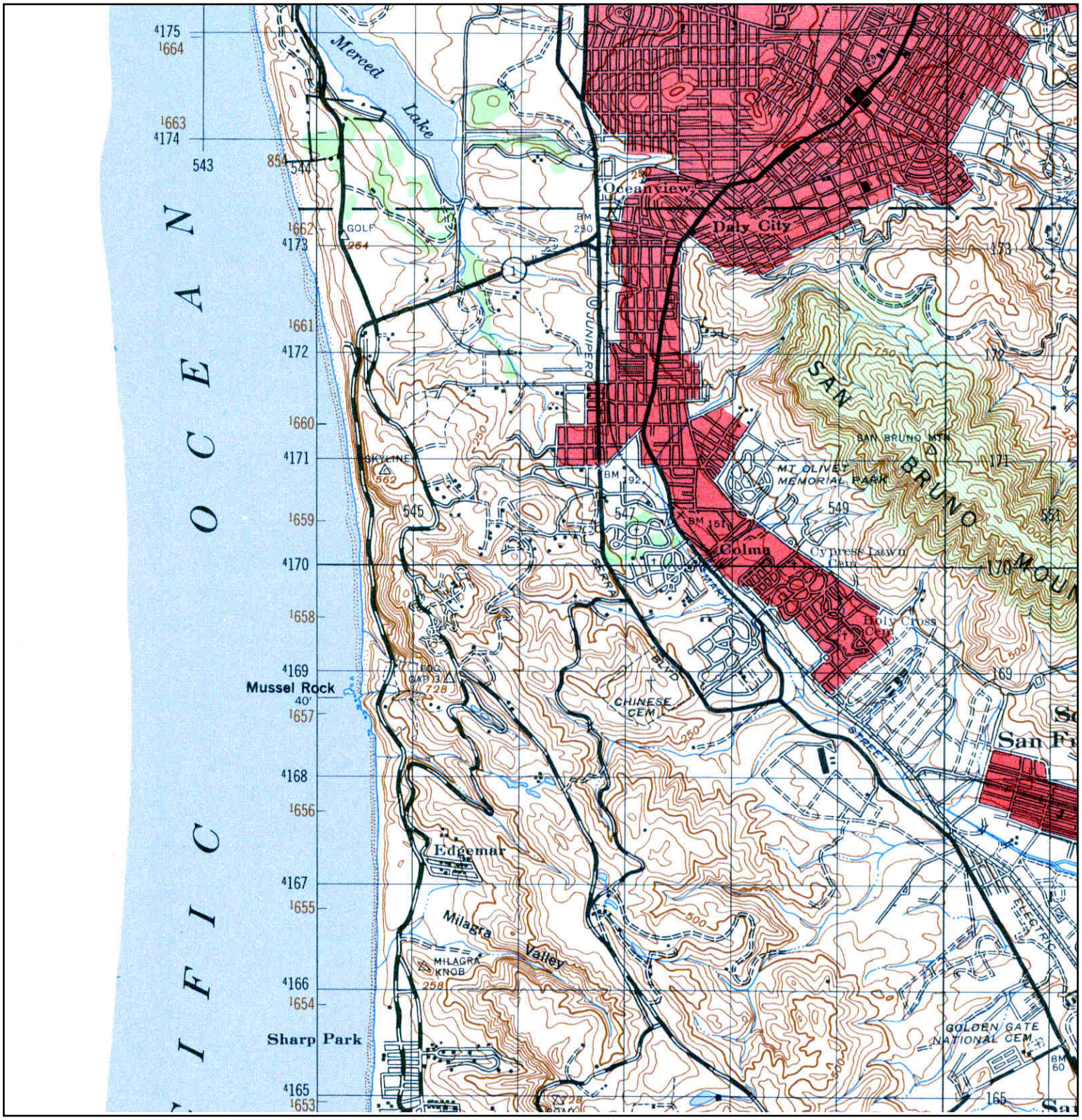
Historical Topographic Map

N	TARGET QUAD NAME: SAN MATEO MAP YEAR: 1899 SERIES: 15 SCALE: 1:62500	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map

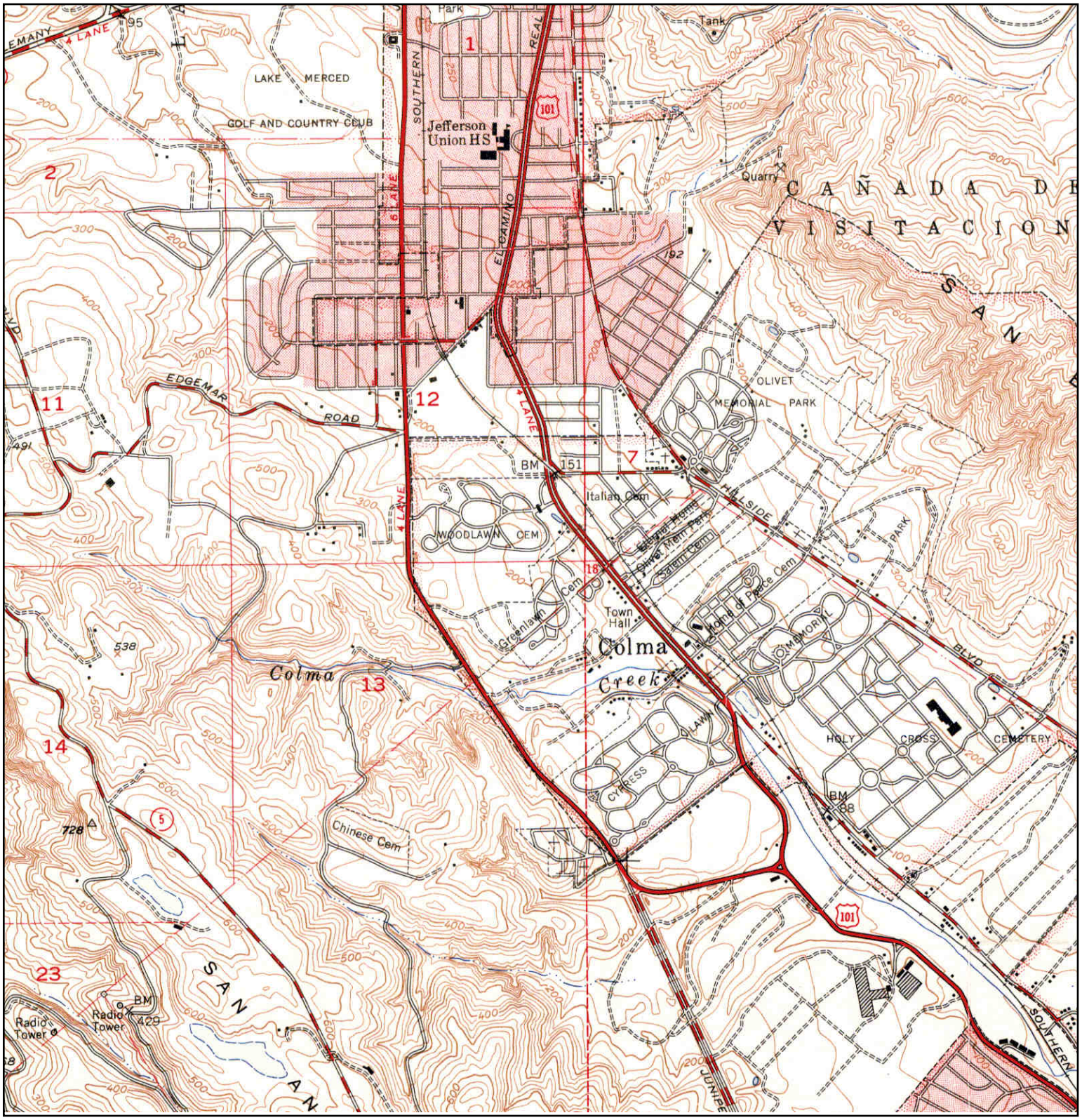
N	TARGET QUAD NAME: SAN MATEO MAP YEAR: 1915 SERIES: 15 SCALE: 1:62500	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



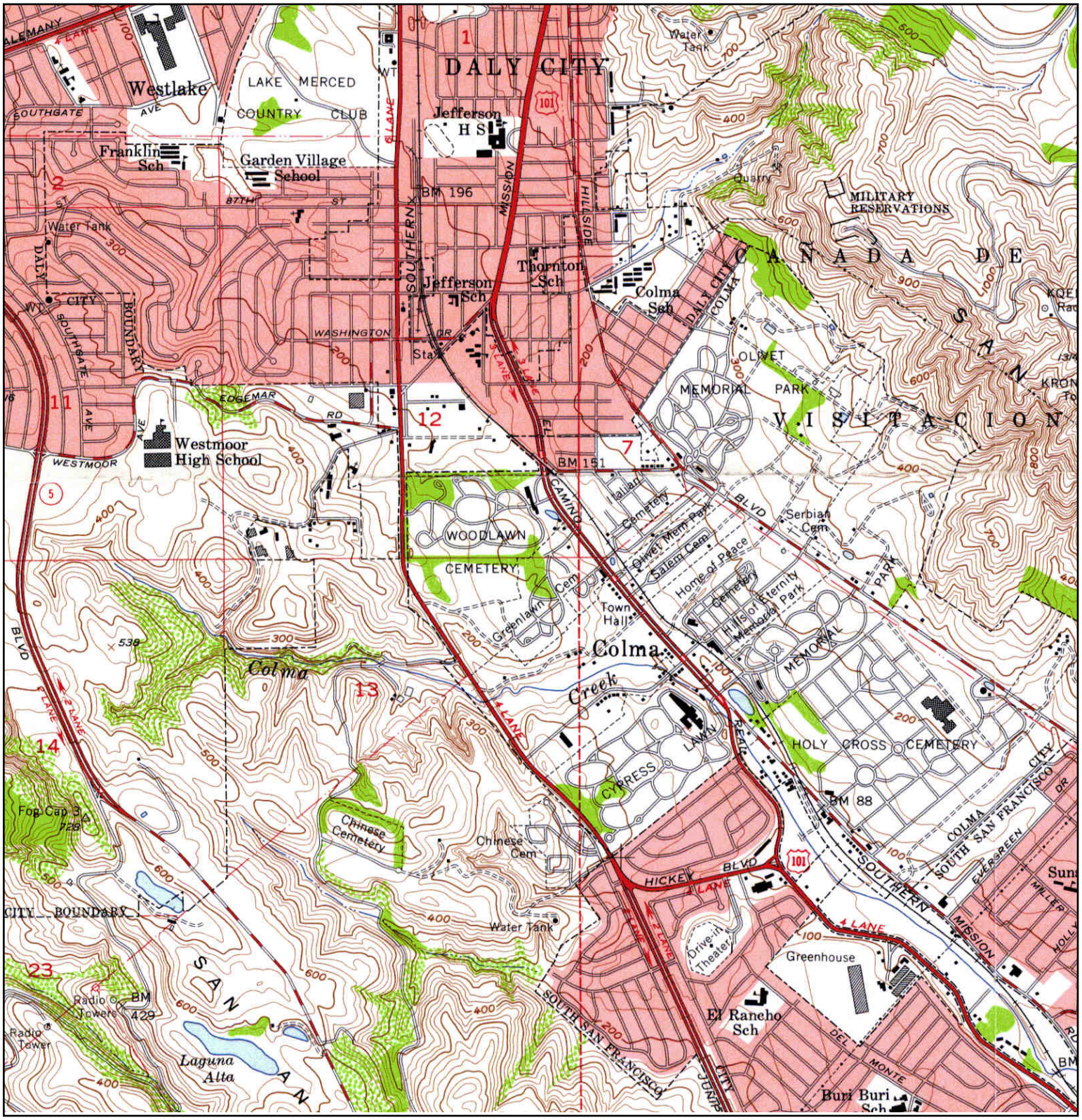
N	TARGET QUAD NAME: SAN MATEO MAP YEAR: 1947 SERIES: 15 SCALE: 1:50000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



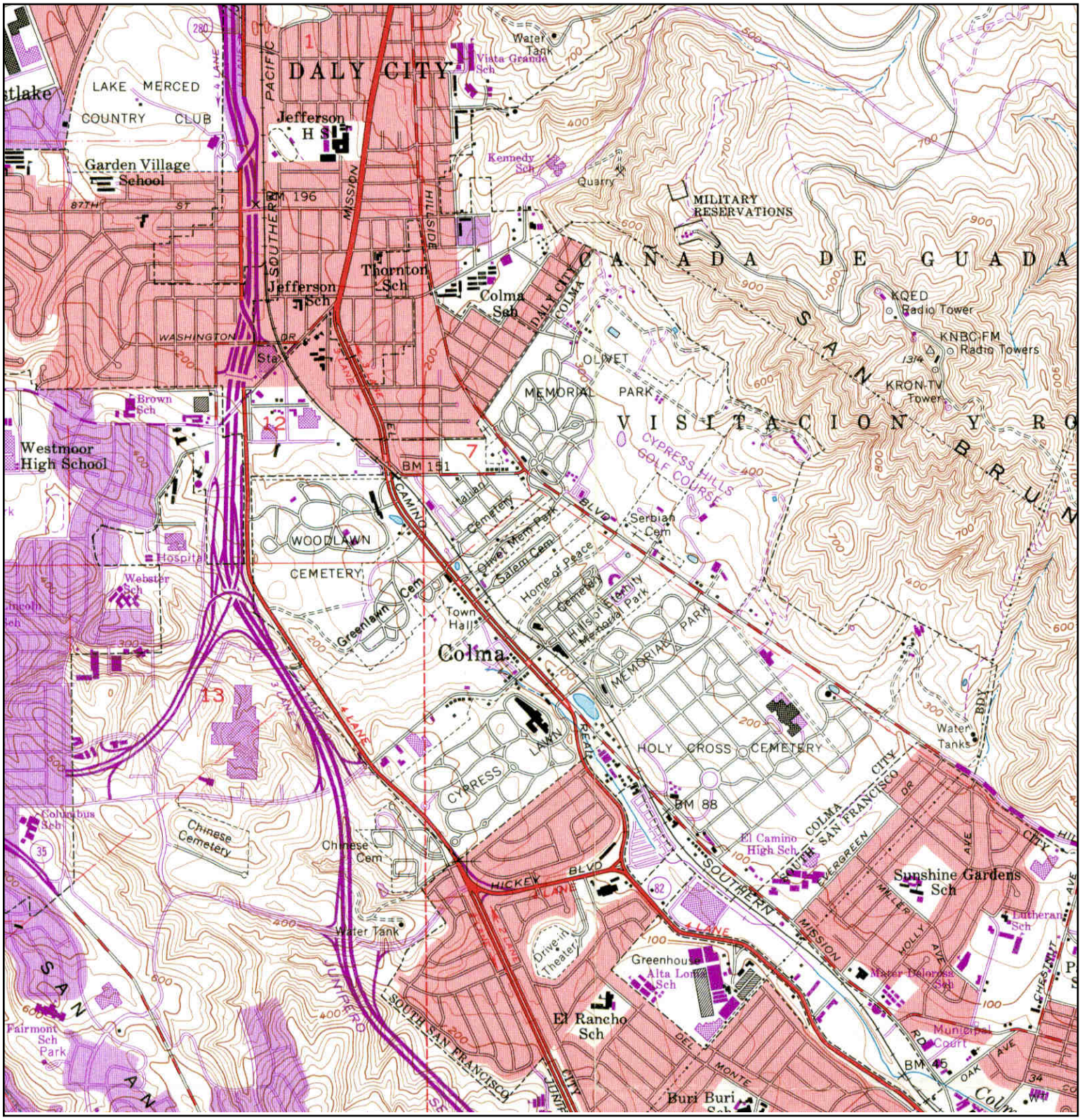
N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



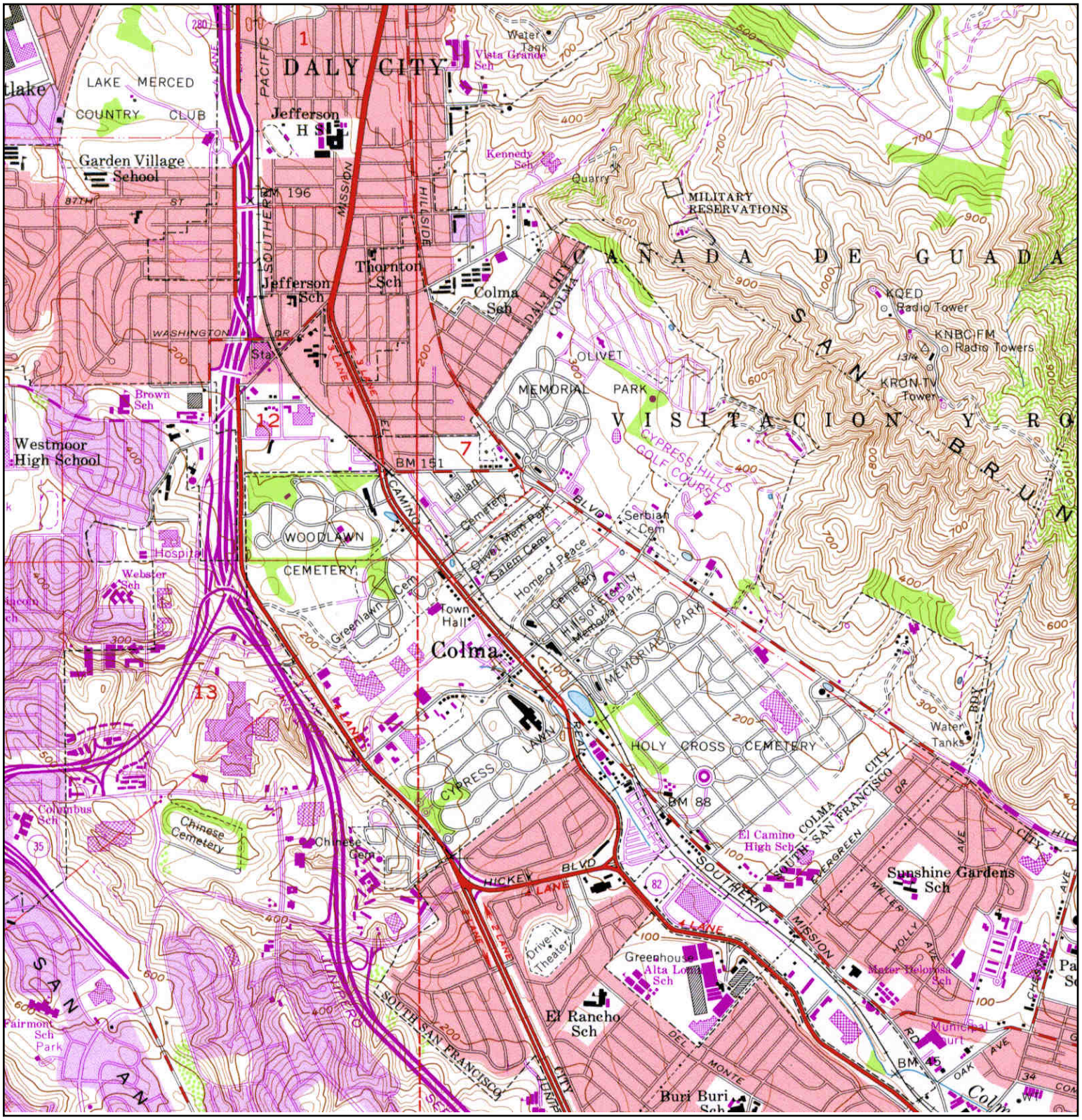
N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1956 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



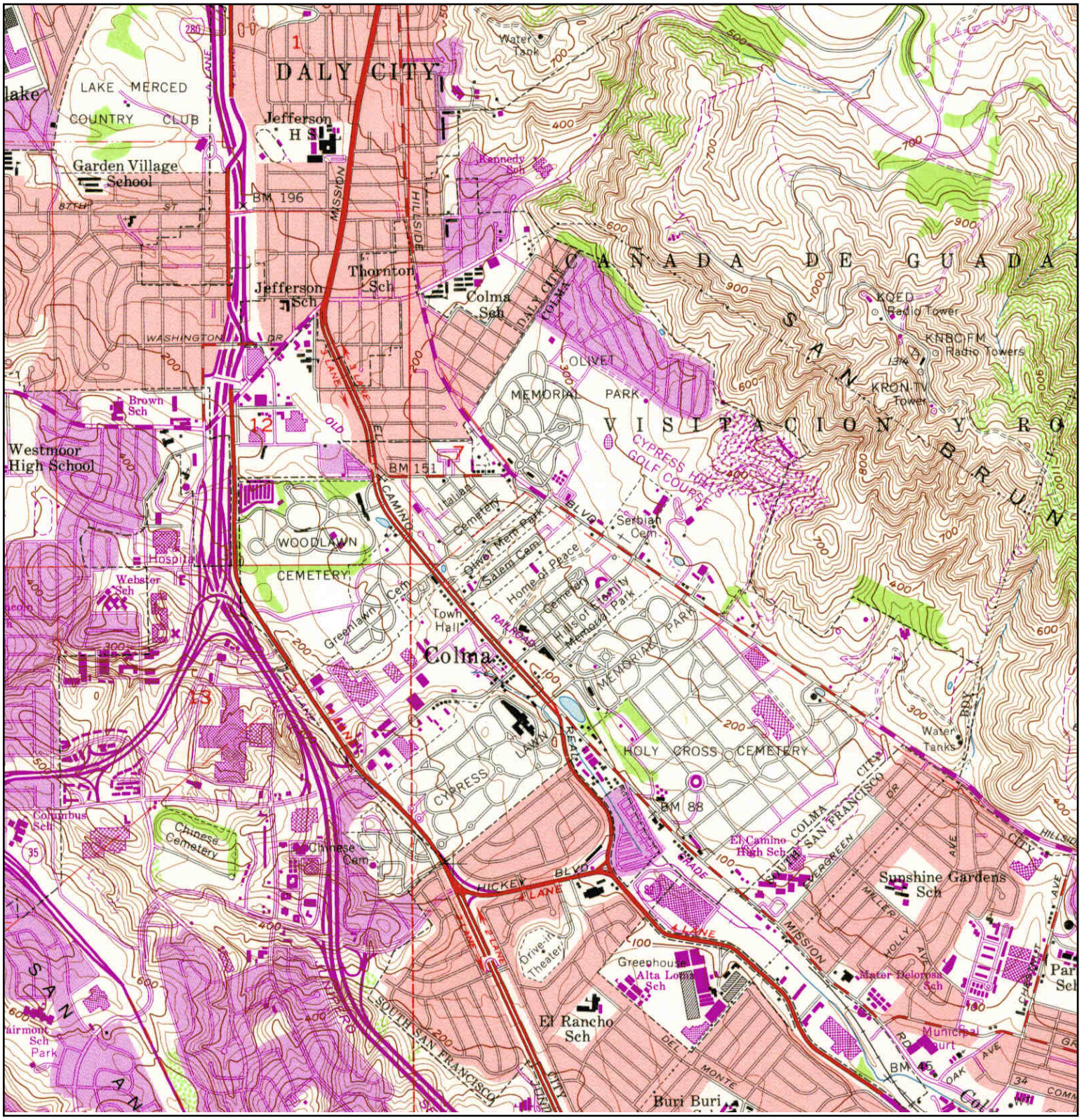
N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1968 PHOTOREVISED FROM :1956 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



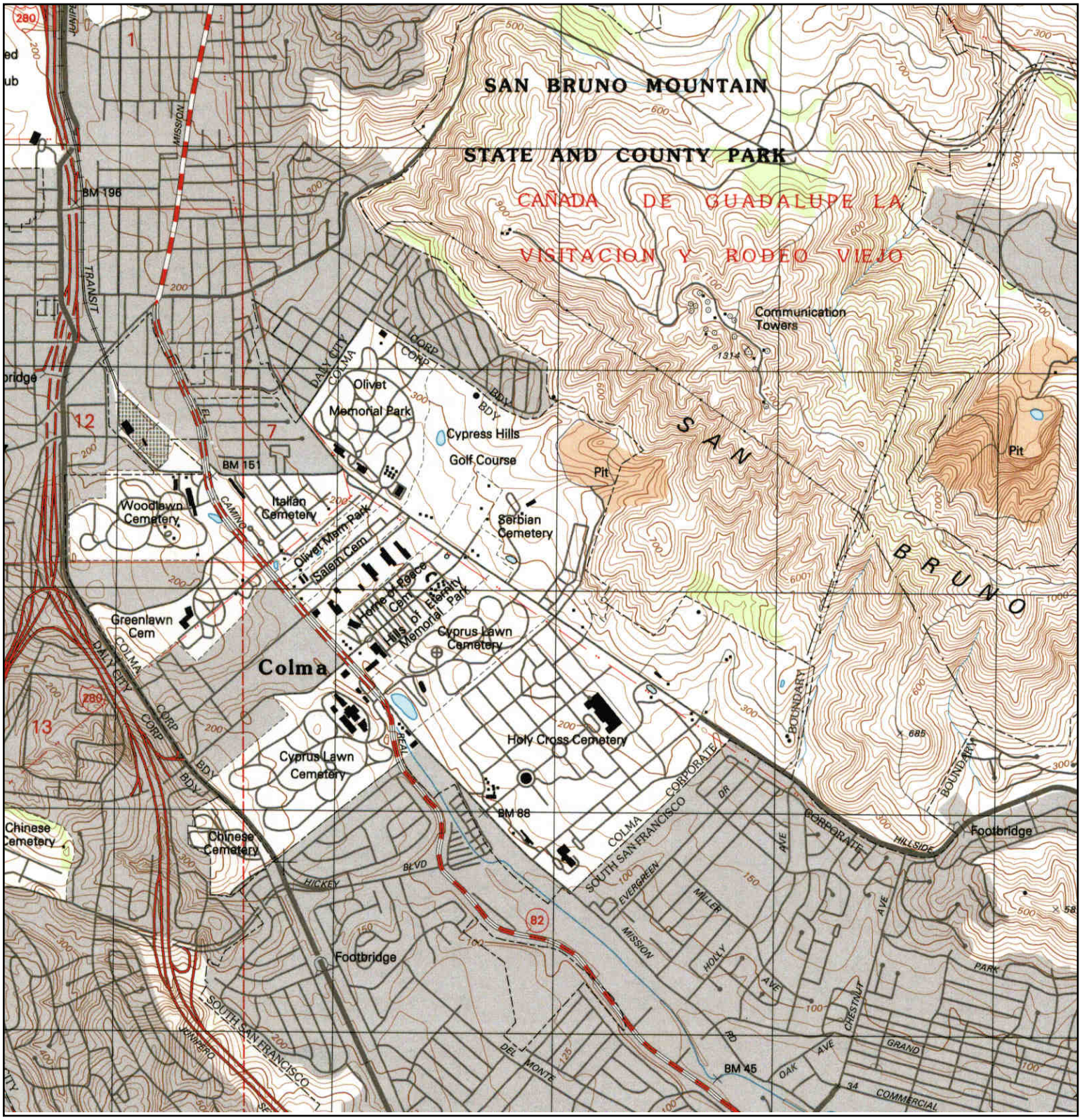
N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1973 PHOTOREVISED FROM :1956 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



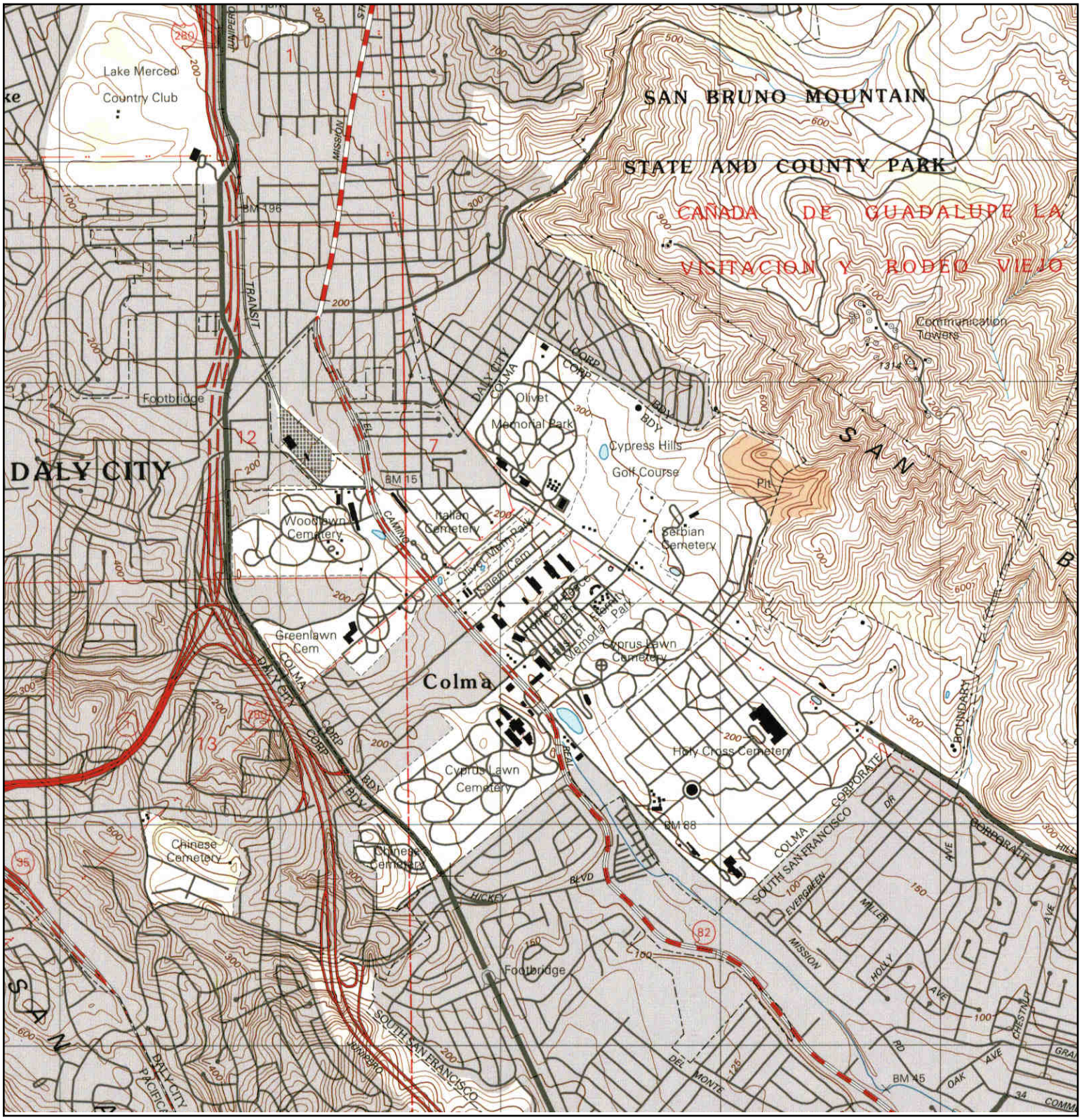
N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1980 PHOTOREVISED FROM :1956 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1993 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

Historical Topographic Map



N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1995 SERIES: 7.5 SCALE: 1:24000	SITE NAME: CarMax Colma ADDRESS: 435, 445 and 455 Serramonte Blvd. Daly City, CA 94014 LAT/LONG: 37.6789 / -122.4542	CLIENT: Engeo Inc. CONTACT: Kelsey Gerhart INQUIRY#: 4270024.4 RESEARCH DATE: 04/21/2015

APPENDIX D

CHICAGO TITLE COMPANY

Preliminary Title Report

APPENDIX D

CHICAGO TITLE COMPANY

PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein, ***Chicago Title Company*** *hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.*

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(ies) of title insurance to be issued hereunder will be policy(ies) of Chicago Title Insurance Company, a Nebraska corporation.

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

Chicago Title Insurance Company

By:

President

Countersigned By:

Authorized Officer or Agent

CHICAGO TITLE INSURANCE COMPANY CORPORATE SEAL

Attest:

Secretary

Visit Us on our Website: www.ctic.com

ISSUING OFFICE: 2150 John Glenn Drive, Suite 400, Concord, CA 94520

FOR SETTLEMENT INQUIRIES, CONTACT:
Chicago Title Company
700 S. Flower St., 8th Floor • Los Angeles, CA 90017
(213)488-4315 • FAX (213)629-3828

Another Prompt Delivery From Chicago Title Company Title Department
Where Local Experience And Expertise Make A Difference

PRELIMINARY REPORT

Update - A

Title Officer: Craig Donner
Title No.: FWTO-4071400286-CD

Escrow Officer: Maggie Watson
E-Mail: maggie.watson@ctt.com
Escrow No.: 29278-57

TO: Chicago Title Company
700 S. Flower St., 8th Floor
Los Angeles, CA 90017
Attn: Maggie Watson

PROPERTY ADDRESS(ES): 435 & 445 Serramonte Boulevard, Colma, CA

EFFECTIVE DATE: March 17, 2015 at 07:30 AM

The form of policy or policies of title insurance contemplated by this report is:

CLTA Standard Coverage Policy 1990

ALTA Loan Policy 2006

1. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

   A Fee

2. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

   The Congregation Emanu-el, a Corporation

3. THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS:

   SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

EXHIBIT "A"

Legal Description

For APN/Parcel ID(s): 011-341-340 and 011-341-350

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF COLMA, COUNTY OF SAN MATEO, STATE OF CALIFORNIA AND IS DESCRIBED AS FOLLOWS:

Lots 8 and 9, as shown on that certain Map entitled, "Subdivision Map of Home of Peace Cemetery Properties, Colma, San Mateo County, California", filed in the Office of the County Recorder of San Mateo County, State of California on November 21, 1986, in Book 115 of Maps, at Pages 61, 62 and 63.

AT THE DATE HEREOF, EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM WOULD BE AS FOLLOWS:

1. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the fiscal year 2015-2016.

2. Prior to close of escrow, please contact the Tax Collector's Office to confirm all amounts owing, including current fiscal year taxes, supplemental taxes, escaped assessments and any delinquencies.

3. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Chapter 3.5 (commencing with Section 75) or Part 2, Chapter 3, Articles 3 and 4, respectively, of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A or as a result of changes in ownership or new construction occurring prior to Date of Policy.

4. Easement(s) for the purpose(s) shown below and rights incidental thereto as delineated or as offered for dedication, on the map of said tract/plat;

Purpose: Drainage
Affects: 10 foot strip in the Southeasterly portion of said Lots
Recording No.: Book 115 of Maps, Pages 61-63

Purpose: Public utilities
Affects: The Northwesterly 4 feet

5. An unrecorded lease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled: Memorandum of Lease
Lessor: The Congregation Emanu-El, a nonprofit corporation (San Francisco)
Lessee: Thomas A. Price
Recording Date: December 11, 1986
Recording No.: 86160399, Official Records

Affects: The herein described Land and other land.

Unrecorded Assignmemt of Lessee's interest thereof,

From: Thomas A. Price
To: Thomas A. Price and Gwendolyn L. Price as Trustees of The Price Trust of October 5, 1984
As disclosed by: Memorandum of Agreement
Recording Date: August 31, 1999
Recording No.: 1999-149535, Official Records

EXCEPTIONS
(continued)

An unrecorded sublease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled: Subordination, Non Disturbance and Attornment Agreement (Subtenant-Leasehold Deed of Trust)
Sublessor: Thomas A. Price and Gwendolyn L. Price, Trustees of The Price Trust of October 5, 1984
Sublessee: Transcar Leasing, Inc., a California Corporation
Recording Date: October 20, 1995
Recording No.: 95-112220, Official Records

and Re-Recording Date: November 13, 1995
and Re-Recording No.: 95-121521, Official Records
Reason: To add correct legal description

An unrecorded sublease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled: Subordination, Non Disturbance and Attornment Agreement (Subtenant-Leasehold Deed of Trust)
Sublessor: Thomas A. Price and Gwendolyn L. Price, Trustees of The Price Trust of October 5, 1984
Sublessee: FAA Serramonte, Inc., a California Corporation and FirstAmerica Automotive, Inc., a Delaware Corporation
Recording Date: January 22, 1999
Recording No.: 99-011448, Official Records

An unrecorded sublease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled: Subordination, Non Disturbance and Attornment Agreement (Subtenant-Leasehold Deed of Trust)
Sublessor: Thomas A. Price and Gwendolyn L. Price, Trustees of The Price Trust of October 5, 1984
Sublessee: FAA Serramonte H, Inc., a California Corporation and FirstAmerica Automotive, Inc., a Delaware Corporation
Recording Date: January 22, 1999
Recording No.: 99-011449, Official Records

Matters contained in that certain document

Entitled: Memorandum of PCS Site Agreement
Dated: August 15, 1996
Executed by: Thomas A. Price, an individual and Sprint Spectrum, L.P., a Delaware Limited Partnership
Recording Date: May 26, 1999
Recording No.: 99-093110, Official Records

Reference is hereby made to said document for full particulars.

EXCEPTIONS
(continued)

Matters contained in that certain document

Entitled:	Memorandum of Amendment to PCS Site Agreement
Dated:	February 11, 2007
Executed by:	Thomas A. Price, an individual and Sprint Spectrum Realty Company, L.P., a Delaware Limited Partnership, successor in interest to Sprint Spectrum L.P., a Delaware Limited Partnership
Recording Date:	March 18, 2009
Recording No.:	2009-029921, Official Records

Reference is hereby made to said document for full particulars.

A deed of trust to secure an indebtedness in the amount shown below,

Amount:	$15,800,000.00
Dated:	August 31, 1999
Trustor/Grantor	Thomas A. Price and Gwendolyn L. Price, as Trustees of The Price Trust U/T/D October 5, 1984
Trustee:	Chicago Title Company
Beneficiary:	General Motors Acceptance Corporation, a Delaware Corporation
Loan No.:	None Shown
Recording Date:	August 31, 1999
Recording No.:	1999-149536, Official Records

An agreement to modify the terms and provisions of said deed of trust as therein provided

Executed by:	Thomas A. Price and Gwendolyn L. Price, as Trustees of The Price Trust U/T/D October 5, 1984 and General Motors Acceptance Corporation, a Delaware Corporation
Recording Date:	October 29, 2002
Recording No.:	2002-220818, Official Records

An unrecorded sublease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled:	Subordination of Sublease and Attornment Agreement
Sublessor:	Thomas A. Price and Gwendolyn L. Price, as Trustees of The Price Trust U/T/D October 5, 1984
Sublessee:	Zyed Ali d/b/a Auto West Collision
Recording Date:	August 31, 1999
Recording No.:	1999-149538, Official Records

An unrecorded sublease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled:	UCC Financing Statement
Sublessor:	Not Shown
Sublessee:	Sonic Automotive, Inc.
Recording Date:	February 26, 2001
Recording No.:	2001-023324, Official Records

EXCEPTIONS
(continued)

A deed of trust to secure an indebtedness in the amount shown below,

Amount:	$3,227,000.00
Dated:	February __, 2001
Trustor/Grantor	Thomas A. Price and Gwendolyn L. Price, as Trustees of The Price Trust, u/t/a dated October 5, 1984, as amended
Trustee:	Chicago Title Company
Beneficiary:	General Motors Acceptance Corporation, a Delaware Corporation
Loan No.:	None Shown
Recording Date:	March 14, 2001
Recording No.:	2001-032560, Official Records

An agreement recorded October 29, 2002 at 2002-220819, Official Records which states that this instrument was subordinated to the document or interest described in the instrument

Recording Date:	August 31, 1999
Recording No.:	1999-149536, Official Records

An unrecorded sublease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled:	Subordination of Sublease, Non Disturbance and Attornment Agreement
Sublessor:	Thomas A. Price and Gwendolyn L. Price, as Trustees of The Price Trust U/T/D October 5, 1984
Sublessee:	Serramonte Auto Plaza Body Shop, Inc.
Recording Date:	October 29, 2002
Recording No.:	2002-220821, Official Records

A deed of trust to secure an indebtedness in the amount shown below,

Amount:	$2,500,000.00
Dated:	May 5, 2003
Trustor/Grantor	Thomas A. Price and Gwendolyn L. Price, as Trustees of The Price Trust U/T/D October 5, 1984
Trustee:	Chicago Title Company
Beneficiary:	General Motors Acceptance Corporation, a Delaware Corporation
Loan No.:	None Shown
Recording Date:	May 16, 2003
Recording No.:	2003-134405, Official Records

An option to purchase said Land with certain terms, covenants, conditions and provisions as set forth therein.

Optionor:	FAA Serramonte, Inc., a California Corporation and First American Automotive, Inc., a Delaware Corporation
Optionee:	Chrysler Realty Corporation
Disclosed by:	Option to Purchase
Recording Date:	August 29, 2003
Recording No.:	2003-247865, Official Records

EXCEPTIONS
(continued)

An unrecorded sublease with certain terms, covenants, conditions and provisions set forth therein as disclosed by the document

Entitled:	Notice of Nonresponsibility
Sublessor:	Franciscan Motors, Inc., a subsidiary of Sonic Automotive, Inc.
Sublessee:	Thomas A. Price
Recording Date:	June 7, 2004
Recording No.:	2004-116730, Official Records

and Recording Date:	June 7, 2004
and Recording No.:	2004-117696, Official Records

A deed of trust to secure an indebtedness in the amount shown below,

Amount:	$19,500,000.00
Dated:	September 11, 2006
Trustor/Grantor	Thomas A. Price and Gwendolyn L. Price, as Trustees of The Price Trust U/T/D October 5, 1984
Trustee:	American Securities Company, a corporation
Beneficiary:	Wells Fargo Bank, National Association
Loan No.:	None Shown
Recording Date:	September 18, 2006
Recording No.:	2006-140064, Official Records

An agreement to modify the terms and provisions of said deed of trust as therein provided

Executed by:	Thomas A. Price and Gwendolyn L. Price, Trustees of The Price Trust U/T/D October 5, 1984 and Wells Fargo Bank, National Association
Recording Date:	April 23, 2012
Recording No.:	2012-055515, Official Records

Matters contained in that certain document

Entitled:	Subordination, Non Disturbance and Attornment and Estoppel Agreement
Dated:	September 11, 2006
Executed by:	FirstAmerica Automotive, Inc., a Delaware Corporation and FAA Serramonte H, Inc., a California Corporation and Wells Fargo Bank, National Association
Recording Date:	October 31, 2006
Recording No.:	2006-164374, Official Records

Reference is hereby made to said document for full particulars.

EXCEPTIONS
(continued)

Matters contained in that certain document

Entitled:	Subordination, Non Disturbance and Attornment and Estoppel Agreement
Dated:	September 11, 2006
Executed by:	FirstAmerica Automotive, Inc., a Delaware Corporation and FAA Serramonte, Inc., a California Corporation and Wells Fargo Bank, National Association
Recording Date:	October 31, 2006
Recording No.:	2006-164376, Official Records

Reference is hereby made to said document for full particulars.

Matters contained in that certain document

Entitled:	Subordination, Non Disturbance and Attornment and Estoppel Agreement
Dated:	September 11, 2006
Executed by:	Serramonte Auto Plaza Body Shop, Inc., and Wells Fargo Bank, National Association
Recording Date:	October 31, 2006
Recording No.:	2006-164377, Official Records

Reference is hereby made to said document for full particulars.

The present ownership of the leasehold created by said lease and other matters affecting the interest of the lessee are not shown herein.

The present ownership of any subleases shown above and other matters affecting the interest of any sub-lessees are not shown herein.

6. Matters contained in that certain document

Entitled:	Consent & Waiver by Owner Landlord or Mortgagee or Real Estate
Dated:	August 13, 1987
Executed by:	Congregation Emanu-El
Recording Date:	August 24, 1987
Recording No.:	87132266, ,Official Records

Reference is hereby made to said document for full particulars.

7. Matters contained in that certain document

Entitled:	Easement Agreement
Dated:	July 20, 1994
Executed by:	George R. Karadanis and The Congregation Emanu-El
Recording Date:	July 29, 1994
Recording No.:	94126679, Official Records

Reference is hereby made to said document for full particulars.

EXCEPTIONS
(continued)

8. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.

The Company will require, for review, a full and complete copy of any unrecorded agreement, contract, license and/or lease, together with all supplements, assignments and amendments thereto, before issuing any policy of title insurance without excepting this item from coverage.

The Company reserves the right to except additional items and/or make additional requirements after reviewing said documents.

9. Matters which may be disclosed by an inspection and/or by a correct ALTA/ACSM Land Title Survey of said Land that is satisfactory to the Company, and/or by inquiry of the parties in possession thereof.

10. The Company will require the following documents for review prior to the issuance of any title assurance predicated upon a conveyance or encumbrance by the corporation named below.

Name of Corporation: The Congregation Emanu-El, a corporation

a. A Copy of the corporation By-laws and Articles of Incorporation.

b. An original or certified copy of a resolution authorizing the transaction contemplated herein.

c. If the Articles and/or By-laws require approval by a 'parent' organization, a copy of the Articles and By-laws of the parent.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

11. The Company will require that an Owner's Affidavit be completed by the party(s) named below before the issuance of any policy of title insurance.

Party(ies): The Congregation Emanu-El, a corporation

The Company reserves the right to add additional items or make further requirements after review of the requested Affidavit.

12. Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

Affects: Fee Title Interest Only

END OF EXCEPTIONS

NOTES

Note 1. Note: Property taxes for the fiscal year shown below are PAID. For proration purposes the amounts were:

Code Area:	07-001
Tax ID No.:	011-341-340
Fiscal Year:	2014-2015
1st Installment:	$38,266.49
2nd Installment:	$38,266.49
Exemption:	$0.00
Land:	$1,856,581.00
Improvements:	$3,628,181.00
Personal Property:	$0.00

Affects: Lot 8

Note 2. Note: Property taxes for the fiscal year shown below are PAID. For proration purposes the amounts were:

Code Area:	07-001
Tax ID No.:	011-341-350
Fiscal Year:	2014-2015
1st Installment:	$15,852.69
2nd Installment:	$15,852.69
Exemption:	$0.00
Land:	$812,596.00
Improvements:	$1,511,497.00
Personal Property:	$0.00

Affects: Lot 9

Note 3. Note: The Company is not aware of any matters which would cause it to decline to attach CLTA Endorsement Form 116 indicating that there is located on said Land a Commercial Structure, known as 435 & 445 Serramonte Boulevard, Colma, California, to an Extended Coverage Loan Policy.

Note 4. Note: The name(s) of the proposed insured(s) furnished with this application for title insurance is/are:

No names were furnished with the application. Please provide the name(s) of the buyers as soon as possible.

Note 5. Note: There are NO conveyances affecting said Land recorded within 24 months of the date of this report.

Note 6. Your application for title insurance was placed by reference to only a street address or tax identification number. Based on our records, we believe that the legal description in this report covers the parcel(s) of Land that you requested. If the legal description is incorrect, the seller/borrower must notify the Company and/or the settlement company in order to prevent errors and to be certain that the correct parcel(s) of Land will appear on any documents to be recorded in connection with this transaction and on the policy of title insurance.

NOTES
(continued)

Note 7. ***IMPORTANT RECORDING NOTE***

Please send all original documents for San Mateo County recordings to the following office:

Pasion Title Service
234 Marshall Street #12
Redwood City CA. 94063
Attn: Recording Desk/Derrick
Phone: (480) 722-0448

Please direct all other title communication and copies of documents, including recording release instructions, policy write-up instructions and settlement statements, to the Title Only Department at the issuing office.

Note 8. If a county recorder, title insurance company, escrow company, real estate broker, real estate agent or association provides a copy of a declaration, governing document or deed to any person, California law requires that the document provided shall include a statement regarding any unlawful restrictions. Said statement is to be in at least 14-point bold face type and may be stamped on the first page of any document provided or included as a cover page attached to the requested document. Should a party to this transaction request a copy of any document reported herein that fits this category, the statement is to be included in the manner described.

Note 9. Any documents being executed in conjunction with this transaction must be signed in the presence of an authorized Company employee, an authorized employee of an agent, an authorized employee of the insured lender, or by using Bancserv or other approved third-party service. If the above requirements cannot be met, please call the company at the number provided in this report.

END OF NOTES

FIDELITY NATIONAL FINANCIAL
PRIVACY NOTICE
Effective: January 6, 2015

Order No.: FWTO-4071400286-

Fidelity National Financial, Inc. and its majority-owned subsidiary companies providing real estate- and loan-related services (collectively, "FNF", "our" or "we") respect and are committed to protecting your privacy. This Privacy Notice lets you know how and for what purposes your Personal Information (as defined herein) is being collected, processed and used by FNF. We pledge that we will take reasonable steps to ensure that your Personal Information will only be used in ways that are in compliance with this Privacy Notice. The provision of this Privacy Notice to you does not create any express or implied relationship, or create any express or implied duty or other obligation, between Fidelity National Financial, Inc. and you. See also **No Representations or Warranties** below.

This Privacy Notice is only in effect for any generic information and Personal Information collected and/or owned by FNF, including collection through any FNF website and any online features, services and/or programs offered by FNF (collectively, the "Website"). This Privacy Notice is not applicable to any other web pages, mobile applications, social media sites, email lists, generic information or Personal Information collected and/or owned by any entity other than FNF.

How Information is Collected

The types of personal information FNF collects may include, among other things (collectively, "Personal Information"): (1) contact information (*e.g.*, name, address, phone number, email address); (2) demographic information (*e.g.*, date of birth, gender marital status); (3) Internet protocol (or IP) address or device ID/UDID; (4) social security number (SSN), student ID (SIN), driver's license, passport, and other government ID numbers; (5) financial account information; and (6) information related to offenses or criminal convictions.

In the course of our business, we may collect Personal Information about you from the following sources:

- Applications or other forms we receive from you or your authorized representative;
- Information we receive from you through the Website;
- Information about your transactions with or services performed by us, our affiliates, or others; and
- From consumer or other reporting agencies and public records maintained by governmental entities that we either obtain directly from those entities, or from our affiliates or others.

Additional Ways Information is Collected Through the Website

Browser Log Files. Our servers automatically log each visitor to the Website and collect and record certain information about each visitor. This information may include IP address, browser language, browser type, operating system, domain names, browsing history (including time spent at a domain, time and date of your visit), referring/exit web pages and URLs, and number of clicks. The domain name and IP address reveal nothing personal about the user other than the IP address from which the user has accessed the Website.

Cookies. From time to time, FNF or other third parties may send a "cookie" to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer's hard drive and that can be re-sent to the serving website on subsequent visits. A cookie, by itself, cannot read other data from your hard disk or read other cookie files already on your computer. A cookie, by itself, does not damage your system. We, our advertisers and other third parties may use cookies to identify and keep track of, among other things, those areas of the Website and third party websites that you have visited in the past in order to enhance your next visit to the Website. You can choose whether or not to accept cookies by changing the settings of your Internet browser, but some functionality of the Website may be impaired or not function as intended. See the Third Party Opt Out section below.

Web Beacons. Some of our web pages and electronic communications may contain images, which may or may not be visible to you, known as Web Beacons (sometimes referred to as "clear gifs"). Web Beacons collect only limited information that includes a cookie number; time and date of a page view; and a description of the page on which the Web Beacon resides. We may also carry Web Beacons placed by third party advertisers. These Web Beacons do not carry any Personal Information and are only used to track usage of the Website and activities associated with the Website. See the Third Party Opt Out section below.

Unique Identifier. We may assign you a unique internal identifier to help keep track of your future visits. We may use this information to gather aggregate demographic information about our visitors, and we may use it to personalize the information you see on the Website and some of the electronic communications you receive from us. We keep this information for our internal use, and this information is not shared with others.

Third Party Opt Out. Although we do not presently, in the future we may allow third-party companies to serve advertisements and/or collect certain anonymous information when you visit the Website. These companies may use non-personally identifiable information (*e.g.*, click stream information, browser type, time and date, subject of advertisements clicked or scrolled over) during your visits to the Website in order to provide advertisements about products and services likely to be of greater interest to you. These companies typically use a cookie or third party Web Beacon to collect this information, as further described above. Through these technologies, the third party may have access to and use non-personalized information about your online usage activity.

You can opt-out of online behavioral services through any one of the ways described below. After you opt-out, you may continue to receive advertisements, but those advertisements will no longer be as relevant to you.

- You can opt-out via the Network Advertising Initiative industry opt-out at http://www.networkadvertising.org/.
- You can opt-out via the Consumer Choice Page at www.aboutads.info.
- For those in the U.K., you can opt-out via the IAB UK's industry opt-out at www.youronlinechoices.com.
- You can configure your web browser (Chrome, Firefox, Internet Explorer, Safari, etc.) to delete and/or control the use of cookies.

More information can be found in the Help system of your browser. Note: If you opt-out as described above, you should not delete your cookies. If you delete your cookies, you will need to opt-out again.

PRIVACY NOTICE
(continued)

Use of Personal Information

Information collected by FNF is used for three main purposes:

- To provide products and services to you or one or more third party service providers (collectively, "Third Parties") who are obtaining services on your behalf or in connection with a transaction involving you.
- To improve our products and services that we perform for you or for Third Parties.
- To communicate with you and to inform you about FNF's, FNF's affiliates and third parties' products and services.

When Information Is Disclosed By FNF

We may provide your Personal Information (excluding information we receive from consumer or other credit reporting agencies) to various individuals and companies, as permitted by law, without obtaining your prior authorization. Such laws do not allow consumers to restrict these disclosures. Disclosures may include, without limitation, the following:

- To agents, brokers, representatives, or others to provide you with services you have requested, and to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure in connection with an insurance transaction;
- To third-party contractors or service providers who provide services or perform marketing services or other functions on our behalf;
- To law enforcement or other governmental authority in connection with an investigation, or civil or criminal subpoenas or court orders; and/or
- To lenders, lien holders, judgment creditors, or other parties claiming an encumbrance or an interest in title whose claim or interest must be determined, settled, paid or released prior to a title or escrow closing.

In addition to the other times when we might disclose information about you, we might also disclose information when required by law or in the good-faith belief that such disclosure is necessary to: (1) comply with a legal process or applicable laws; (2) enforce this Privacy Notice; (3) respond to claims that any materials, documents, images, graphics, logos, designs, audio, video and any other information provided by you violates the rights of third parties; or (4) protect the rights, property or personal safety of FNF, its users or the public.

We maintain reasonable safeguards to keep the Personal Information that is disclosed to us secure. We provide Personal Information and non-Personal Information to our subsidiaries, affiliated companies, and other businesses or persons for the purposes of processing such information on our behalf and promoting the services of our trusted business partners, some or all of which may store your information on servers outside of the United States. We require that these parties agree to process such information in compliance with our Privacy Notice or in a similar, industry-standard manner, and we use reasonable efforts to limit their use of such information and to use other appropriate confidentiality and security measures. The use of your information by one of our trusted business partners may be subject to that party's own Privacy Notice. We do not, however, disclose information we collect from consumer or credit reporting agencies with our affiliates or others without your consent, in conformity with applicable law, unless such disclosure is otherwise permitted by law.

We also reserve the right to disclose Personal Information and/or non-Personal Information to take precautions against liability, investigate and defend against any third-party claims or allegations, assist government enforcement agencies, protect the security or integrity of the Website, and protect the rights, property, or personal safety of FNF, our users or others.

We reserve the right to transfer your Personal Information, as well as any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets. We also cannot make any representations regarding the use or transfer of your Personal Information or other information that we may have in the event of our bankruptcy, reorganization, insolvency, receivership or an assignment for the benefit of creditors, and you expressly agree and consent to the use and/or transfer of your Personal Information or other information in connection with a sale or transfer of some or all of our assets in any of the above described proceedings. Furthermore, we cannot and will not be responsible for any breach of security by any third parties or for any actions of any third parties that receive any of the information that is disclosed to us.

Information From Children

We do not collect Personal Information from any person that we know to be under the age of thirteen (13). Specifically, the Website is not intended or designed to attract children under the age of thirteen (13). You affirm that you are either more than 18 years of age, or an emancipated minor, or possess legal parental or guardian consent, and are fully able and competent to enter into the terms, conditions, obligations, affirmations, representations, and warranties set forth in this Privacy Notice, and to abide by and comply with this Privacy Notice. In any case, you affirm that you are over the age of 13, as **THE WEBSITE IS NOT INTENDED FOR CHILDREN UNDER 13 THAT ARE UNACCOMPANIED BY HIS OR HER PARENT OR LEGAL GUARDIAN.**

Parents should be aware that FNF's Privacy Notice will govern our use of Personal Information, but also that information that is voluntarily given by children - or others - in email exchanges, bulletin boards or the like may be used by other parties to generate unsolicited communications. FNF encourages all parents to instruct their children in the safe and responsible use of their Personal Information while using the Internet.

Privacy Outside the Website

The Website may contain various links to other websites, including links to various third party service providers. FNF is not and cannot be responsible for the privacy practices or the content of any of those other websites. Other than under agreements with certain reputable organizations and companies, and except for third party service providers whose services either we use or you voluntarily elect to utilize, we do not share any of the Personal Information that you provide to us with any of the websites to which the Website links, although we may share aggregate, non-Personal Information with those other third parties. Please check with those websites in order to determine their privacy policies and your rights under them.

European Union Users

If you are a citizen of the European Union, please note that we may transfer your Personal Information outside the European Union for use for any of the purposes described in this Privacy Notice. By providing FNF with your Personal Information, you consent to both our collection and such transfer of your Personal Information in accordance with this Privacy Notice.

PRIVACY NOTICE
(continued)

Choices With Your Personal Information

Whether you submit Personal Information to FNF is entirely up to you. You may decide not to submit Personal Information, in which case FNF may not be able to provide certain services or products to you.

You may choose to prevent FNF from disclosing or using your Personal Information under certain circumstances ("opt out"). You may opt out of any disclosure or use of your Personal Information for purposes that are incompatible with the purpose(s) for which it was originally collected or for which you subsequently gave authorization by notifying us by one of the methods at the end of this Privacy Notice. Furthermore, even where your Personal Information is to be disclosed and used in accordance with the stated purposes in this Privacy Notice, you may elect to opt out of such disclosure to and use by a third party that is not acting as an agent of FNF. As described above, there are some uses from which you cannot opt-out.

Please note that opting out of the disclosure and use of your Personal Information as a prospective employee may prevent you from being hired as an employee by FNF to the extent that provision of your Personal Information is required to apply for an open position.

If FNF collects Personal Information from you, such information will not be disclosed or used by FNF for purposes that are incompatible with the purpose(s) for which it was originally collected or for which you subsequently gave authorization unless you affirmatively consent to such disclosure and use.

You may opt out of online behavioral advertising by following the instructions set forth above under the above section "Additional Ways That Information Is Collected Through the Website," subsection "Third Party Opt Out."

Access and Correction

To access your Personal Information in the possession of FNF and correct inaccuracies of that information in our records, please contact us in the manner specified at the end of this Privacy Notice. We ask individuals to identify themselves and the information requested to be accessed and amended before processing such requests, and we may decline to process requests in limited circumstances as permitted by applicable privacy legislation.

Your California Privacy Rights

Under California's "Shine the Light" law, California residents who provide certain personally identifiable information in connection with obtaining products or services for personal, family or household use are entitled to request and obtain from us once a calendar year information about the customer information we shared, if any, with other businesses for their own direct marketing uses. If applicable, this information would include the categories of customer information and the names and addresses of those businesses with which we shared customer information for the immediately prior calendar year (*e.g.*, requests made in 2015 will receive information regarding 2014 sharing activities).

To obtain this information on behalf of FNF, please send an email message to privacy@fnf.com with "Request for California Privacy Information" in the subject line and in the body of your message. We will provide the requested information to you at your email address in response.

Please be aware that not all information sharing is covered by the "Shine the Light" requirements and only information on covered sharing will be included in our response.

Additionally, because we may collect your Personal Information from time to time, California's Online Privacy Protection Act requires us to disclose how we respond to "do not track" requests and other similar mechanisms. Currently, our policy is that we do not recognize "do not track" requests from Internet browsers and similar devices.

No Representations or Warranties

By providing this Privacy Notice, Fidelity National Financial, Inc. does not make any representations or warranties whatsoever concerning any products or services provided to you by its majority-owned subsidiaries. In addition, you also expressly agree that your use of the Website is at your own risk. Any services provided to you by Fidelity National Financial, Inc. and/or the Website are provided "as is" and "as available" for your use, without representations or warranties of any kind, either express or implied, unless such warranties are legally incapable of exclusion. Fidelity National Financial, Inc. makes no representations or warranties that any services provided to you by it or the Website, or any services offered in connection with the Website are or will remain uninterrupted or error-free, that defects will be corrected, or that the web pages on or accessed through the Website, or the servers used in connection with the Website, are or will remain free from any viruses, worms, time bombs, drop dead devices, Trojan horses or other harmful components. Any liability of Fidelity National Financial, Inc. and your exclusive remedy with respect to the use of any product or service provided by Fidelity National Financial, Inc. including on or accessed through the Website, will be the re-performance of such service found to be inadequate.

Your Consent To This Privacy Notice

By submitting Personal Information to FNF, you consent to the collection and use of information by us as specified above or as we otherwise see fit, in compliance with this Privacy Notice, unless you inform us otherwise by means of the procedure identified below. If we decide to change this Privacy Notice, we will make an effort to post those changes on the Website. Each time we collect information from you following any amendment of this Privacy Notice will signify your assent to and acceptance of its revised terms for all previously collected information and information collected from you in the future. We may use comments, information or feedback that you may submit in any manner that we may choose without notice or compensation to you.

If you have additional questions or comments, please let us know by sending your comments or requests to:

Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, Florida 32204
Attn: Chief Privacy Officer
(888) 934-3354 privacy@fnf.com

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ATTACHMENT ONE

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY - 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.

2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.

3. Defects, liens, encumbrances, adverse claims, or other matters:

   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;

   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;

   (c) resulting in no loss or damage to the insured claimant;

   (d) attaching or created subsequent to Date of Policy; or

   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.

4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.

5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.

6. Any claim, which arises out of the transaction vesting in the insured the estate or interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records. Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.

2. Any facts, rights, interests or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.

3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.

4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the public records.

6. Any lien or right to a lien for services, labor or material not shown by the public records.

ATTACHMENT ONE
(CONTINUED)

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (02-03-10)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (02-03-10)

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;
   d. improvements on the Land;
   e. land division; and
   f. environmental protection.

   This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.

   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.

ATTACHMENT ONE
(CONTINUED)

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19 and 21, Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$10,000.00
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$5,000.00

ATTACHMENT ONE
(CONTINUED)

AMERICAN LAND TITLE ASSOCIATION
RESIDENTIAL TITLE INSURANCE POLICY (6-1-87)

EXCLUSIONS

In addition to the Exceptions in Schedule B, you are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of any law or government regulation. This includes building and zoning ordinances and also laws and regulations concerning:
   - land use
   - improvements on the land
   - land division
   - environmental protection

   This exclusion does not apply to violations or the enforcement of these matters which appear in the public records at policy date.

   This exclusion does not limit the zoning coverage described in Items 12 and 13 of Covered Title Risks.
2. The right to take the land by condemning it, unless:
   - a notice of exercising the right appears in the public records on the Policy Date
   - the taking happened prior to the Policy Date and is binding on you if you bought the land without knowledge of the taking
3. Title Risks:
   - that are created, allowed, or agreed to by you
   - that are known to you, but not to us, on the Policy Date-unless they appeared in the public records
   - that result in no loss to you
   - that first affect your title after the Policy Date - this does not limit the labor and material lien coverage in Item 8 of Covered Title Risks
4. Failure to pay value for your title.
5. Lack of a right:
   - to any land outside the area specifically described and referred to in Item 3 of Schedule A

   or
   - in streets, alleys, or waterways that touch your land

   This exclusion does not limit the access coverage in Item 5 of Covered Title Risks.

ATTACHMENT ONE
(CONTINUED)

2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   - (i) the occupancy, use, or enjoyment of the Land;
   - (ii) the character, dimensions, or location of any improvement erected on the Land;
   - (iii) the subdivision of land; or
   - (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   - (c) resulting in no loss or damage to the Insured Claimant;
   - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
   - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   - (a) a fraudulent conveyance or fraudulent transfer, or
   - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

ATTACHMENT ONE
(CONTINUED)

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   - (i) the occupancy, use, or enjoyment of the Land;
   - (ii) the character, dimensions, or location of any improvement erected on the Land;
   - (iii) the subdivision of land; or
   - (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   - (c) resulting in no loss or damage to the Insured Claimant;
   - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   - (a) a fraudulent conveyance or fraudulent transfer; or
   - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) that arise by reason of:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

ATTACHMENT ONE
(CONTINUED)

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (07-26-10)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;

   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.

   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.

Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the filed rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for such discount. These discounts only apply to transactions involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

Not all discounts are offered by every FNF Company. The discount will only be applicable to the FNF Company as indicated by the named discount.

FNF Underwritten Title Companies	**Underwritten by FNF Underwriters**
CTC – Chicago Title Company	CTIC – Chicago Title Insurance Company
CLTC – Commonwealth Land Title Company	CLTIC – Commonwealth Land Title Insurance Company
FNTC – Fidelity National Title Company	FNTIC – Fidelity National Title Insurance Company
FNTCCA – Fidelity National Title Company of California	FNTIC – Fidelity National Title Insurance Company
TICOR – Ticor Title Company of California	CTIC – Chicago Title Insurance Company
LTC – Lawyer's Title Company	CLTIC – Commonwealth Land Title Insurance Company

Available Discounts

CREDIT FOR PRELIMINARY TITLE REPORTS AND/OR COMMITMENTS ON SUBSEQUENT POLICIES (CTIC, FNTIC)

Where no major change in the title has occurred since the issuance of the original report or commitment, the order may be reopened within twelve (12) to thirty-six (36) months and all or a portion of the charge previously paid for the report or commitment may be credited on a subsequent policy charge.

DISASTER LOANS (CTIC, CLTIC, FNTIC)

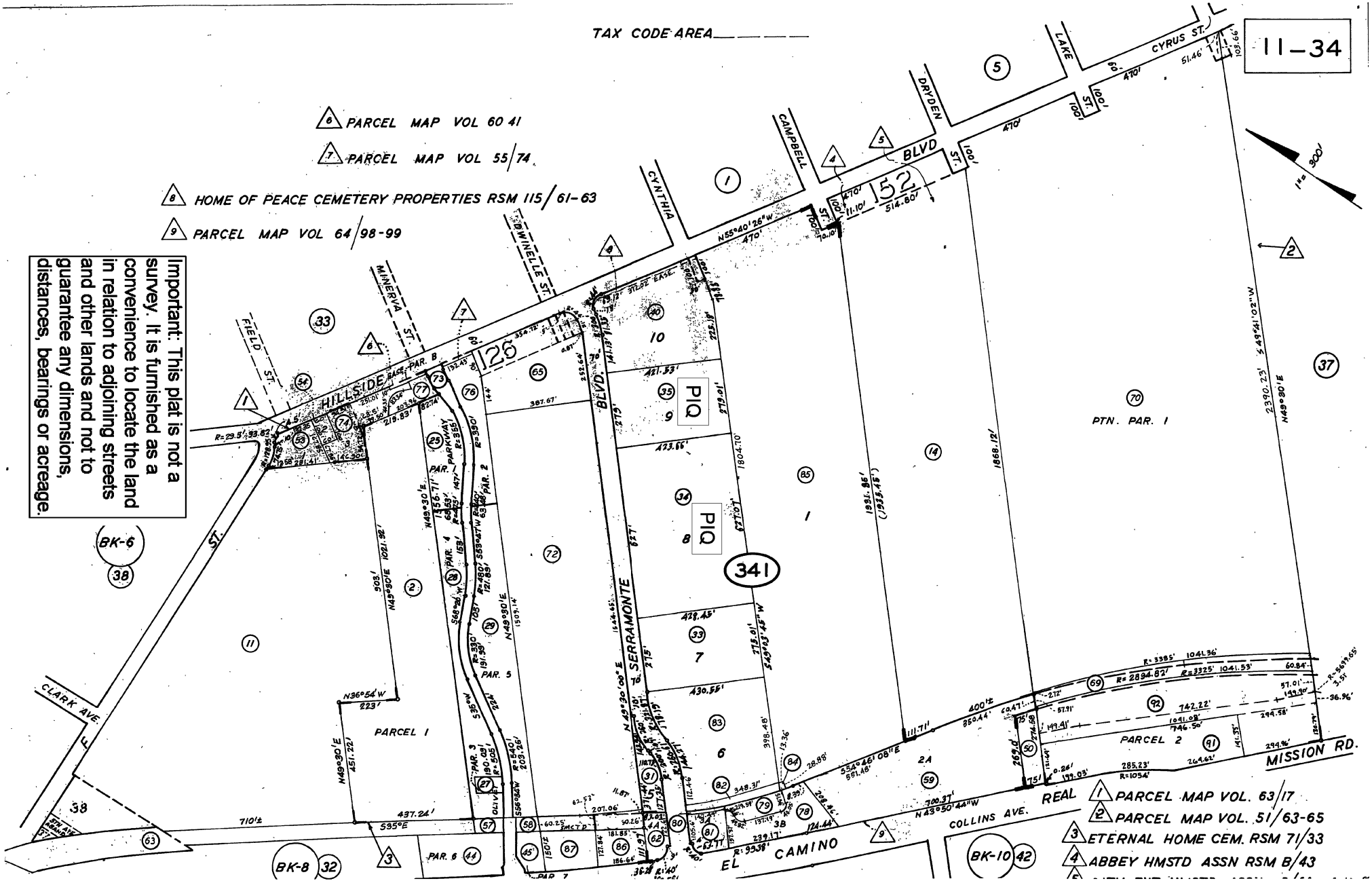
The charge for a Lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within twenty-four (24) months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be fifty percent (50%) of the appropriate title insurance rate.

CHURCHES OR CHARITABLE NON-PROFIT ORGANIZATIONS (CTIC, FNTIC)

On properties used as a church or for charitable purposes within the scope of the normal activities of such entities, provided said charge is normally the church's obligation the charge for an owner's policy shall be fifty percent (50%) to seventy percent (70%) of the appropriate title insurance rate, depending on the type of coverage selected. The charge for a lender's policy shall be thirty-two percent (32%) to fifty percent (50%) of the appropriate title insurance rate, depending on the type of coverage selected.

TAX CODE AREA_____

11-34



Important: This plat is not a survey. It is furnished as a convenience to locate the land in relation to adjoining streets and other lands and not to guarantee any dimensions, distances, bearings or acreage.

APPENDIX E

ENVIRONMENTAL DATA RESOURCES, INC.

Aerial Photo Decade Package

APPENDIX E

CarMax Colma
435, 445 and 455 Serramonte Blvd.
Daly City, CA 94014

Inquiry Number: 4270024.9
April 22, 2015

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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Date EDR Searched Historical Sources:

Aerial Photography April 22, 2015

Target Property:

435, 445 and 455 Serramonte Blvd.

Daly City, CA 94014

Year	***Scale***	***Details***	***Source***
1943	Aerial Photograph. Scale: 1"=500'	Flight Year: 1943	USGS
1946	Aerial Photograph. Scale: 1"=500'	Flight Year: 1946	USGS
1956	Aerial Photograph. Scale: 1"=500'	Flight Year: 1956	USGS
1968	Aerial Photograph. Scale: 1"=500'	Flight Year: 1968	USGS
1974	Aerial Photograph. Scale: 1"=500'	Flight Year: 1974	USGS
1982	Aerial Photograph. Scale: 1"=500'	Flight Year: 1982	USGS
1993	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1993	USGS/DOQQ
1998	Aerial Photograph. Scale: 1"=500'	Flight Year: 1998	USGS
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USGS
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP

INQUIRY #: 4270024.9
YEAR: 1943
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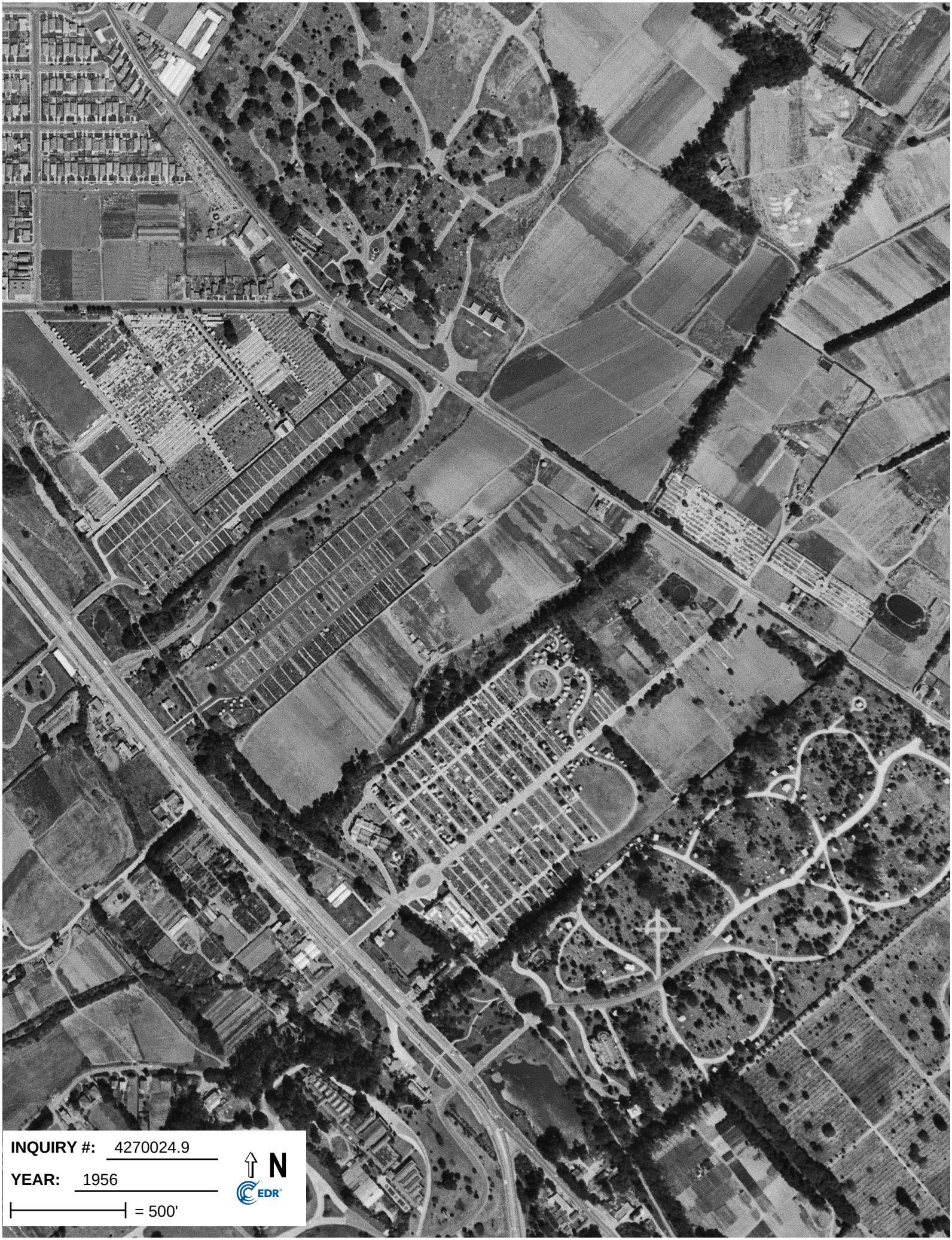
EDR

INQUIRY #: 4270024.9
YEAR: 1946
= 500'
N
EDR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YEAR: 2010

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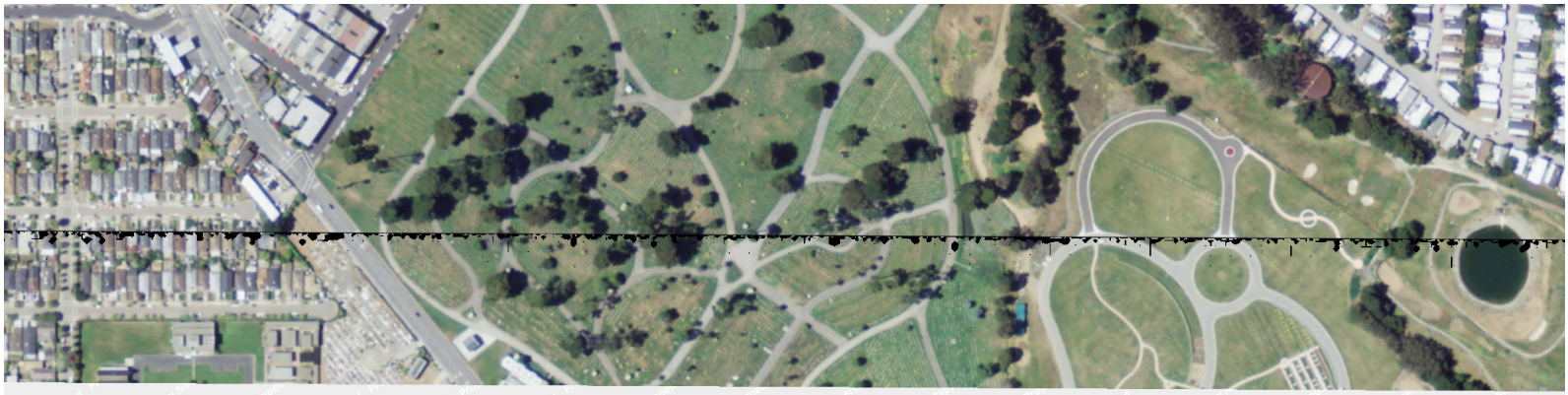
EDR



INQUIRY #: 4270024.9
YEAR: 2012
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EDR

APPENDIX F

ENVIRONMENTAL DATA RESOURCES, INC.

City Directory

APPENDIX F

CarMax Colma
435, 445 and 455 Serramonte Blvd.
Daly City, CA 94014

Inquiry Number: 4270024.5
April 22, 2015

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2013	☑	☐	Cole Information Services
2008	☑	☐	Cole Information Services
2003	☑	☐	Cole Information Services
1999	☑	☐	Cole Information Services
1995	☑	☐	Cole Information Services
1992	☑	☐	Cole Information Services
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1977	☑	☐	Haines Criss-Cross Directory
1970	☑	☐	Haines Criss-Cross Directory

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FINDINGS

TARGET PROPERTY STREET

435, 445 and 455 Serramonte Blvd.
Daly City, CA 94014

Year	***CD Image***	***Source***
SERRAMONTE BLVD		
2013	pg A1	Cole Information Services
2008	pg A2	Cole Information Services
2003	pg A3	Cole Information Services
1999	pg A4	Cole Information Services
1995	pg A5	Cole Information Services
1992	pg A6	Cole Information Services
1985	pg A7	Haines Criss-Cross Directory
1980	pg A8	Haines Criss-Cross Directory
1977	pg A10	Haines Criss-Cross Directory
1977	pg A9	Haines Criss-Cross Directory
1970	pg A11	Haines Criss-Cross Directory

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	Cole Information Services

SERRAMONTE BLVD 2013

435	SERRAMONTE AUTO PLAZA BODY SHOP
455	SERRAMONTE AUTO PLAZA SERVICE
465	ACURA OF SERRAMONTE
501	OLYMPIAN DALY CITY NO 213
	SMOG CHECK STATIONS
600	EMBLIDGE MOSCONE
	SERRAMONTE VOLKSWAGEN OUTLET
620	BRENDA FOUCHIA
	CARL STOREY
	GRANT MAYS
	JOANNA SNYDER
	JONATHAN LAU
	JORGE ABAD
	MARCOS REYES
	MARIO GONZALEZ
	SYLVIA GUERIN
640	ADRIANO JULATON
	CONCHITA SAQUING
	DARLENE CRUMEDY
	JOAN ROBELO
	JOSE CENABRE
	ROGELIO ANONUEVO
	ROSALINDA IBANEZ
650	OCCUPANT UNKNOWN
	SERRAMONTE NISSAN
652	OCCUPANT UNKNOWN
	REGINA KING

Target Street	Cross Street	Source
✓	-	Cole Information Services

SERRAMONTE BLVD 2008

435	SERRAMONTE BODY SHOP
465	ACURA OF SERRAMONTE
475	ACURA OF SERRAMONTE
485	HONDA OF SERRAMONTE
501	NELLA OIL CO
	OLYMPIAN NO 213
	QUALITY TUNE UP SHOPS
505	MCDONALDS SERRAMONTE
510	CLASSY NAILS
555	LUGGAGE CENTER
600	COLMA BUICK PONTAIN GMC
620	ANN BRIDGWATER
	IRINA VEKSLER
	IRIS LLAVANES
	J CHAN
	JORGE ABAD
	LINDA MCVEIGH
	PATRICK MOKHTARZADEH
	SYLVIA GUERIN
633	MANUEL BARRERA
640	DARLENE CRUMEDY
	ELLEN SAY
	FAITH SAQUING
	J CALDERA
	JEROME ECAL
	KENNETH SACDALAN
	POLLY LAM
	RINA ANONUEVO
	SHANNA ROSENTHAL
	TANIA RAFEH
	YANNI YU
650	FARID SHUKRYIA
	MAYSA MUGHRABI
	OCCUPANT UNKNOWN
	SERRAMONTE NISSAN
	SONIC AUTOMOTIVE SERRAMONTE NISSAN
651	EARL SCHIMMEYER
652	JACQUELINE LAFLEUR
	OCCUPANT UNKNOWN
	REGINA KING
654	MARYANN DIEGO
	NINA VELASQUEZ

Target Street	Cross Street	Source
✓	-	Cole Information Services

SERRAMONTE BLVD 2003

435	KAREN ROGERS
	SRMNT AUTO PLAZA BODY SHOP
455	SERRAMONTE CHRYSLER PLYMOUTH
475	ACURA OF SERRAMONTE
485	HARIJONO SOENARDI
501	QUALITY TUNE UP SHOPS
	SERRAMONTE OLYMPIC
555	LUGGAGE CTR INC
600	COLMA BUICK PONTIAC GMC
	COLMA BUICK PONTIAC GMC SRVC
620	DENEEN JONES
	DORSEY SMITH
	EYAD ABDEL-KHALEQ
	JAMES CAREY
	JOSE VEGA
	SABRINA THOMAS
	STUART CAMPBELL
640	LILY LIM
	MANUEL BUMAGAT
	MARIO CHING
	SELVIN GONZALEZ
	SHIN LIE
650	FALORE SERRAMONTE
	FALORE SRMNT CHRYSLR PLYMTH
	OCCUPANT UNKNOWN
654	CORNELIO CATIGAN
	TOMAS ESTRADA

Target Street	Cross Street	Source
✓	-	Cole Information Services

SERRAMONTE BLVD 1999

435	SERRAMONTE AUTO PLAZA BODY SHOP
455	SERRAMONTE CHRYSLER PLYMOUTH
	SERRAMONTE MITSUBISHI
475	ENTERPRISE RENT A CAR COLMA AUTO ROW
501	QUALITY TUNE UP SHOPS DALY CITY
	SERRAMONTE OLYMPIC
	SMOG CHECK STATIONS DALY CITY
600	BUICK OF SERRAMONTE
	PONTIAC OF SERRAMONTE
	SERRAMONTE GMC TRUCK
620	FRANCIS LUCERO
	JOANNA SNYDER
	JONATHAN LAU
	JORGE ABAD
	LINDA MCVEIGH
	PATRICK MOKHTARZADEH
	REYES MIRIAM
	SYLVIA GUERIN
633	MANUEL BARRERA
640	DARLENE CRUMEDY
	FAITH SAQUING
	J CALDERA
	JASER RAMZI
	JEROME ECAL
	JOAN ROBELO
	MOHAN MAVATTHUR
	RAMZI JASER
	ROGELIO ANONUEVO
	SHANNA ROSENTHAL
	TANIA RAFEH
650	CHRYSLER PLYMOUTH JEEP EAGLE FALORE
	FALORE CHRYSLER PLYMOUTH JEEP EAGLE
	MAYSA MUGHRABI
	OCCUPANT UNKNOWN
	SERRAMONTE CHRYSLER PLYMOUTH JEEP EAGLE
651	EARL SCHIMMEYER
652	KEVIN HILL
	OCCUPANT UNKNOWN
	REGINA KING
654	NINA VELASQUEZ
	OCCUPANT UNKNOWN

Target Street	Cross Street	Source
✓	-	Cole Information Services

SERRAMONTE BLVD 1995

445	SERRAMONTE NISSAN SVC & PARTS
455	BAY AREA RENTALS
465	SERRAMONTE OLDSMOBILE
501	OLYMPIAN OIL CO
	QUALITY TUNE UP SHOPS
	SERRAMONTE OLYMPIC
600	ENTERPRISE RENT A CAR
620	FERNANDEZ, R
	HERNANDEZ, ISIDRO
	ZAPATA, H
640	JONES, TRACEY
	PAAT, J M
650	FALORES SERRAMONTE JEEP EAGLE

Target Street	Cross Street	Source
✓	-	Cole Information Services

SERRAMONTE BLVD 1992

0	SERRAMONTE AUTO
288	JAY, JACOBS
435	REGAL AUTO BODY SHP
	SERRAMONTE SERV BDY
445	SERRAMONTE CHRYSLER
455	SNAPPY CAR RENTAL
501	SERRAMONTE OLYMPIC
	SMOG CHECK STATIONS
600	ENTERPRISE RENT CAR
620	ESPINA, GARY
640	WILFRED, GASH
650	BUICK SALES&SERVICE
	FALORES JEEP EAGLE
654	HREPICH, DANETTE

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SERRAMONTE BLVD 1985

SERRAMONTE BLVD
94015 DALY CITY

501	GS GRACE AUTO REPR	756-6556	4
	JOES SERRAMNTE ARCO	994-7317	7
505	MCDONALDS OF SERRAM	991-9617	3
620.....	APARTMENTS		
	AKASOFU KAZUO	994-4056	4
	CHAMBERLAIN DAVID G	991-0898	3
	DESJARDINS MICHAEL	992-4392	3
	FRIEDRICHS EDW	994-8331	3
	ISHIMATSU ALLISON M	992-2945	4
	LONG C	991-2866	4
	POISSON KARON P	991-3268	4
	POWERS DONALD	755-7176	4
2	SCHOTT ALBERT R JR	994-6699	9
	SCOTT PORTIA B	991-0898	3
620.....			
628	XXXX	00	
640.....	APARTMENTS		
	BERG GLEN F	992-0318	2
	CARAZO VIANA	756-6067	4
	CHAUHAN ARUN S	756-1345	4
	DORN YUL	994-7022	2
4	WILFRED GASH	994-8628	9
8	WONG PHILLIP K	994-6434	1
640.....			

ZIP CODE 94014
SAN FRANCISCO

650	FALORE AMC JEEP	994-1660	1
	FALORE BUICK AMC	994-1660	1
699.....	BUILDING		
	CA ACADEMY GYMNSTCS	991-4646	4
	CONGREGATION BNAI	992-1191	3
	J S D FED CREDIT UN	756-2635	1
	JEFFERSON SCHL DIST	756-2635	3
	JEFFERSON UN ADULT	755-8558	2
	JEFFERSON UN HI SCH	756-0300	3
	LAWLERS SERRAMONTE	992-6101	4
	NORTH SN MATEO ARTS	994-5250	4
	S F CHRSTN HI SCHL	991-4551	3
	SOCIETY WSTRN ARTST	992-0792	3
	YOUNG WORLD LRN	994-6599	3
A	E A N TECH	991-4300	4
699.....			
700	DELOREAN SPORTS CRS	994-5601	2
	REGAL SERRAMONTE	994-9900	0
	SERRAMONTE IS TR PT	994-5600	3
	SERRAMONTE OLDS PTS	992-6660	8
	SERRAMONTE OLDSMBLE	992-0491	7
	SERRAMONTE OLDSMOBL	994-5600	3
	TRANSCAR LEASING	994-5600	4
750	MITSUBISHI SERRAMNT	991-4100	3
	SERRAMONTE M	991-4100	4
775	TOYS R US	755-9000	
780	STEWART CHEV UD CRS	756-2842	9
	STEWART CHEVROLET	994-2400	
785	COST PLUS IMPORTS	994-7090	6
970	PAC STEREO DALY CTY	756-2390	
990	CHEVRON STATIONS	994-2101	4
	HALLMARK TOWING	991-0536	3
	SERRAMONTE CHEVRON	994-2101	4
999	AMER WHEELIFT SYSTM	755-7007	2
	AMER WHEELIFT SYSTM	994-5438	2
	MAJOR MUFFLER CNTR	992-4733	1
	MONTE RENT A CAR	991-4747	4
	NATL AUTOFINDERS	994-7355	4
	SERRAMONTE FORD	755-7007	
	SERRAMONTE LEASING	991-4752	4
	VERDUCCI FRANK P	755-7007	
★	41 BUS 18 RES	0 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SERRAMONTE BLVD 1980

SERRAMONTE BLVD
94015 DALY CITY

59★	PEACH TREE RSTRNT	755-3939	5
82	XXXX	00	
103	XXXX	00	
501★	JOES SERRAMNTE ARCO	994-7317	7
★	JOES SERRAMNTE ARCO	994-3663	7
★	SERRAMONTE ARCO	994-7317	8
505★	MCDONALDS SERRAMONT	755-9778	7
620.....	APARTMENTS		
	ALSABUR PETER R A	992-8838	9
4	ANDERSON S	992-0882	6
	BOWEN C	755-6836	9
11	CAMPI FRANK	994-2192	4
5	LARY LORETTA	994-1235	5
	MUTNICK L E	992-4639	9
	RYAN T L	992-3860	9
	SCHOTT ALBERT JR	994-6699	9
620			
628	XXXX	00	
640.....	APARTMENTS		
	BEASLEY SHIRLEY	756-3481	8
	FLOWERS LARRY	994-4286	9
	FRANCOEUR ROBT	755-7269	7
	HINZ JOYCE ANN	994-5747	9
	MESHKOFF PETER	994-4135	9
	RUBBELKE LLOYD E	992-8681	7
	TORRALBA FERMIN-3D	994-9927	9
	WILFRED GASH	994-8628	9
640			
650★	SERRAMONTE AMC JEEP	994-1660	5
699★	JEFFERSON UN HI SCH	992-9555	2
700★	AMERICAN HATCH S F	992-8343	9
★	SERRAMONTE AUTO LEA	992-6469	9
★	SERRAMONTE OLDS PTS	992-6660	8
★	SERRAMONTE OLDSMBLE	992-0491	7
★	SERRAMONTE OLDSMBLE	994-5600	7
775★	TOYS R US	755-9000	3
780★	STEWART CHEV UD CRS	756-2842	9
★	STEWART CHEVROLET	994-2400	3
785★	COST PLUS IMPORTS	994-7090	6
★	COST PLUS NURSERY	992-4555	6
970★	PAC STEREO	756-2390	5
990★	SERRAMONTE CHEVON	994-2101	3
999★	SERRAMONTE FORD	755-7007	3
★	SERRAMONTE LEASING	755-7007	8
★	VERDUCCI FRANK P	755-7007	3
★	22 BUS 19 RES	0 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SERRAMONTE BLVD 1977

SERRAMONTE BLVD 94015 DALY CITY

```
 59*PEACH TREE RSTRNT   755-3939 5
 82  XXXX               00
101*PRESTIGE STATNS INC994-7317 6
103  XXXX               00
329*COAST FED SAVNGS&LN992-0534 5
620....APARTMENTS
  1  ANDERSON GILBERT L 992-0752 4
     ANDERSON S         992-0882 6
 11  CAMPI FRANK        994-2192 4
     JONES L            994-7156 6
  6  KAMENY W MRS       992-4554 4
  5  LARY LORETTA       994-1235 5
 13  SANCHEZ MATIAS E   992-1822 4
620.......................
 628  XXXX               00
640....APARTMENTS
     BALDWIN DEBI       755-9593 6
 12  BLANK EDW          992-0753 4
     ELSA MICHAEL S     994-2132 6
  8  ERICKSON D L       992-5026 5
     HABIT BOB          992-6689 6
 15  JOHN PHILIP A      994-5982 5
     KRUKOV NINA        994-0355 6
```

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SERRAMONTE BLVD 1977

```
..SERRAMONTE BLVD        94015 CONT..
      PARKS MAXINE          755-2888 6
      STEEMERS GERHARD J 992-7884 6
 640.......................
  650*SERRAMONTE AMC JEEP994-1660 5
  699*JEFFERSN SERRMNT HI992-9555 2
  700*LESHER MUIRHEAD MTR994-5600 4
  775*TOYS R US            755-9000 3
  780*STEWART CHEVROLET    994-2400 3
  785*COST PLUS IMPORTS    994-7090 6
     *COST PLUS NURSERY    992-4555 6
  970   XXXX               OO
  990*SERRAMONTE CHEVON    994-2101 3
  999*SERRAMONTE FORD      755-7007 3
     *SERRAMONTE FORD TRK755-3557 6
      VERDUCCI FRANK P     755-7007 3
 NO  #*THE VLG SERRAMONTE 755-2533 5
 NO  #*VILLAGE SERRAMONTE 755-2533 5
     *   15 BUS    21 RES     0 NEW
```

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

SERRAMONTE BLVD 1970

SERRAMONTE BLVD 94015 DALY CITY

82*ALEC TRAVEL CENTER 756-0882
*UNITED TRAVEL SERV 756-0880
*WESTLAKE TRAVEL CTR756-0881
133*WAYSIDE CUPBOARD 994-2040
313*SERRAMONTE HI SCHL 992-9555
* 5 BUS 0 RES

APPENDIX G

Environmental Site Assessment Questionnaires

APPENDIX G

ENGEO
Expect Excellence

☐ 2010 Crow Canyon Place ▪ Suite 250 ▪ San Ramon, CA 94583 (925) 866-9000 ▪ Fax (888) 279-2698
☐ 2213 Plaza Drive ▪ Rocklin, CA 95765 (916) 786-8883 ▪ Fax (888) 279-2698
☐ 332 Pine Street ▪ Suite 300 ▪ San Francisco, CA 94104 (415) 284-9900 ▪ Fax (888) 279-2698
☐ 6399 San Ignacio Avenue ▪ Suite 150 ▪ San Jose, CA 95119 (408) 574-4900 ▪ Fax (888) 279-2698
☐ 580 N. Wilma Avenue▪ Suite A ▪ Ripon, CA 95366 (209) 835-0610 ▪ Fax (888) 279-2698
☐ 17675 Sierra Highway ▪ Santa Clarita, CA 91351 (661) 257-4004 ▪ Fax (888) 279-2698
☐ 6 Morgan ▪ Suite 162 ▪ Irvine, CA 92618 (949) 529-3479 ▪ Fax (888) 279-2698

ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE FOR CLIENT

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be completed by the user of the phase one environmental site assessment, or their authorized representative.

PART I

1. Property address and Assessor's Parcel Number (APN):
   435 and 445 Serramonte Blvd Colma CA
   APN: 011341340 and 011341350

2. Current property owner (name, address, voice/fax number):
   Congregation Emanu el
   2 Lake Street
   San Francisco CA 94118
   415-216-0888
   C/O David Dinklespiel

3. Date current property owner assumed title of property:
   No knowledge

4. Current property development/improvements:
   Various automotive service uses in three buildings

5. Past property use, development/improvements:
   No knowledge

6. Neighboring property uses:
   Car dealers, cemetary and a card club

PART II

1. Are you aware of any environmental cleanup liens against the *property* that are filed under federal, tribal, local or state law? ☐ Yes ☑ No

2. Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state or local law? ☐ Yes ☑ No

3. Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example are you involved in the same line of business as the current or former occupants of the *property* or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? ☐ Yes ☑ No

4. If a property transaction is occurring in conjunction with this environmental assessment, does the purchase price of this *property* reasonably reflect the fair market value of the *property*? ☑ Yes ☐ No

5. If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property?* ☐ Yes ☐ No ☑ N/A

6. Are you aware of any commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, ☐ Yes ☑ No

   (a) do you know of specific chemicals that are present or once were present at the *property*?
   (b) do you know of spills or other chemical releases that have taken place at the *property*?
   (c) do you know of any environmental cleanups that have taken place at the *property*?

7. Based on your knowledge and experience related to the *property* are there any obvious indicators that point to the presence or likely presence of contamination at the *property*? ☐ Yes ☑ No

If a "Yes" response was provided to any of the above questions, please provide details below:

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Keith Henderson

Signature: [signature] Date: 2015-5-12

Project Name: CarMax Automotive Dealership
Project No. 12054.000.000

ENGEO
Expect Excellence

☐ 2010 Crow Canyon Place ▪ Suite 250 ▪ San Ramon, CA 94583 (925) 866-9000 ▪ Fax (888) 279-2698
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☐ 332 Pine Street ▪ Suite 300 ▪ San Francisco, CA 94104 (415) 284-9900 ▪ Fax (888) 279-2698
☐ 6399 San Ignacio Avenue ▪ Suite 150 ▪ San Jose, CA 95119 (408) 574-4900 ▪ Fax (888) 279-2698
☐ 580 N. Wilma Avenue▪ Suite A ▪ Ripon, CA 95366 (209) 835-0610 ▪ Fax (888) 279-2698
☐ 17675 Sierra Highway ▪ Santa Clarita, CA 91351 (661) 257-4004 ▪ Fax (888) 279-2698
☐ 6 Morgan ▪ Suite 162 ▪ Irvine, CA 92618 (949) 529-3479 ▪ Fax (888) 279-2698

ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE FOR "KEY SITE MANAGER"

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be preferably completed by the current property owner, or owner representative, leasing agent, or other person having good knowledge of the uses and physical characteristics of the property (Key Site Manager).

PART I

1. Property Address/Location and Assessor's Parcel Number (APN):

435 & 445 Serramonte Blvd Colma, CA
APN #011341340 & #011341350

2. Current property owner (name, address, voice/fax number):

The Congregation Emanu-El
Two Lake Street
San Francisco, CA 94118
(415) 751-2535

3. Date current property owner assumed title of property:

Late 1800's

4. Current property development/improvements:

Auto Repair shops

5. Past property use, development/improvements:

Farmland

6. Neighboring property uses:

Cemetery
Casino
Auto Dealership

PART II - The following questions should be answered to the best of your knowledge.

1.	Is/has the *property* or any adjoining property used/been used for industrial purposes?	☐ Yes	☒ No
2.	Has the *property* or any adjoining property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility?	☒ Yes	☐ No
3.	Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal in volume or 50 gal in the aggregate, stored on or used at the *property* or at the facility?	☒ Yes	☐ No
4.	Has undocumented soil been brought onto the property at any time? If yes, estimated quantity is _____ cubic yards.	☐ Yes	☒ No
5.	Has soil been brought onto the property that originated from a contaminated site or that is of an unknown origin?	☐ Yes	☒ No
6.	Are there currently, or have there been previously, any pits, ponds, or lagoons located on the *property* in connection with waste treatment or waste disposal?	☐ Yes	☒ No
7.	Is there currently, or has there been previously, any stained soil on the *property*?	☐ Yes	☒ No
8.	Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*?	☒ Yes	☐ No
9.	Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*?	☐ Yes	☒ No
10.	Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors?	☐ Yes	☒ No
11.	Are there any domestic, irrigation or monitoring wells on the property?	☐ Yes	☒ No
12.	If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency?	☐ Yes	☒ No
13.	Have you been informed of the past or current existence of *hazardous substances* or *petroleum products* or environmental violations with respect to the *property* or any facility located on the *property*?	☐ Yes	☒ No
14.	Have there been any *environmental site assessments* of the *property* or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*?	☐ Yes	☒ No
15.	Have there been any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*?	☐ Yes	☒ No
16.	Has there been any past agricultural use of the *property*, such as orchards or seed crop cultivation?	☒ Yes	☐ No
17.	Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*?	☐ Yes	☒ No
18.	Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs?	☐ Yes	☒ No

If a "Yes" response was provided to any of the above questions, please provide details below:

2/3. There is an auto repair shop on the property.

8. The tank has been removed.

16. Prior to the mid-80's the land was used for growing flowers.

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Elena Gary

Signature: Elena Gary

Date: 5/21/15

APPENDIX H

GOLDEN GATE TANK REMOVAL, INC.

Underground Storage Tank Closure Report

APPENDIX H

UNDERGROUND STORAGE TANK

CLOSURE REPORT

445 Serramonte Boulevard
Colma, California 94014
Job No. 9502
May 21, 2015

Prepared For:

Temple Emanuel, David Goldman, Executive Director
2 Lake Street
San Francisco, California 94118

Registered Environmental Assessor I
TIM HALLEN
REA I - 08006
Expires:
June 30, 16
STATE OF CALIFORNIA

Tim Hallen
Registered Environmental Assessor 08006

1480 Carroll Avenue - San Francisco, CA 94124 - Tel.: 415.512.1555 Fax: 415.512.0964
General Engineering Contractors License No. 616521

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COVER SHEET

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FIGURES
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ATTACHMENTS

1. SITE LOCATION

The subject property is located at 445 Serramonte Boulevard between Hillside Boulevard and El Camino Real in Colma, California. Figure 1 attached shows the general site location.

2. SITE HISTORY

One underground storage tank (UST) containing waste oil was located beneath parking lot area at the rear of the subject property. The tank had a capacity of approximately 2,000 gallons, measuring approximately 9.5 feet in length by 6 feet in diameter, and was constructed of single wall bare steel. Fill ports were located on both the northeast and southwest ends of the tank. The age of the tank is unknown. The owner had no prior knowledge of the tank nor is there any indication of previous site investigation activities. The approximate location of the tank as well as nearby streets is shown on the attached Figure 2.

3. TANK REMOVALS

In April, 2015, Golden Gate Tank Removal, Inc. (GGTR) applied for and obtained permits from the San Mateo County Environmental Health Services Division (SMCEHSD) and the Colma Fire District (CFD). A copy of each document is presented as an attachment.

On April 30, 2015, GGTR mobilized its equipment and began work on the project. The concrete sidewalk covering the tank was removed and disposed of at a local recycler. The overburden soil covering the tank was removed and placed in a covered stockpile adjacent to the tank excavation. Field measurements indicated that the bottom of the tank was 11 feet below grade (fbg). The subsurface product piping extending between the top of the tank and the excavation sidewall was cut at each end, drained of any residual product and removed from the excavation area. Exposed vent lines and fill pipes were removed; product lines were drained, cut and plugged.

As part of the removal operations, GGTR contracted NRC Environmental Services to pump the residual product from the tank and piping into a vacuum tanker truck. GGTR then washed the interior of the tank with 180-degree water using a 3,000-psi pressure washer. A non-toxic enzyme was used to break down thick oil deposits. After a third washing, NRC, on May 7, 2015, transported the Non-RCRA Hazardous Waste Liquid (totaling 250 Gallons) under Uniform Hazardous Waste Manifest No. 014380076JJK to the Crosby & Overton facility in Long Beach, California. A copy of the liquid manifest is included as an attachment.

On May 7, 2015, a CFD Inspector observed testing of the lower explosive limit (LEL) and oxygen (O_2) concentrations in the tank with a QRae$^+$ Multi-Gas meter. The LEL and O_2 levels were 0% and 20.9%, respectively.

On May 7, 2015, as directed by Inspector Liliana Mejia of the SMCEHSD, GGTR removed the tank from the excavation. After a visual inspection, GGTR loaded the UST onto a Ecology Control Industries (ECI) flatbed truck. ECI transported the UST as Non-RCRA Hazardous Waste Solid under Uniform Hazardous Waste Manifest No. 013897039JJK to the ECI facility in Richmond, California. A copy of the solid waste manifest is included as attachment.

4. TANK AND SOIL CONDITIONS

The tank was found to be in good condition with no visible holes. No soil discoloration and hydrocarbon odors were observed in the tank overburden soil and/or in the soil beneath the tank. Soil observed during the UST removal was predominantly damp to moist, moderate to dark yellow brown, silty sand with gravel. No groundwater was observed in the excavation during the UST removal activities.

5. TANK REMOVAL SAMPLING & ANALYSIS

Immediately following tank removal activities, under the direction of Inspector Liliana Mejia of the SMCEHSD, GGTR collected one four-point composite soil sample from the stockpiled overburden soil and two discrete confirmation soil samples from the tank excavation. The composite stockpile sample was labeled 9502-SP and the discrete samples were labeled 9502-E-12' and 9502-W-12'. Soil sample 9502-E-12' was collected below the northeast end of the tank bottom at approximately 12 feet below grade (fbg), and 9502-W-12' was collected below the southwest end of the tank bottom at approximately 12 fbg. All samples were transported to Accutest Laboratories (State ELAP Certification #08258) under formal chain-of-custody protocol for the required analyses. Figure 2 depicts the approximate soil sample locations.

All samples were analyzed for Total Petroleum Hydrocarbons (TPH) as TPH (C10-C28) and TPH (>C28-C40) by EPA Method SW846 8015B M, TPH-GRO (C6-C10), VOA 8260 List by EPA Method SW846 8260B, BN PAH List by EPA Method SW846 8270C, Cadmium, Chromium, Lead, Nickel and Zinc by EPA Method SW846 6010B. A summary of the analytical results is included in the Table provided by Accutest Northern California, Inc. and a copy of the laboratory certificate of analysis and chain of custody form is included as an attachment.

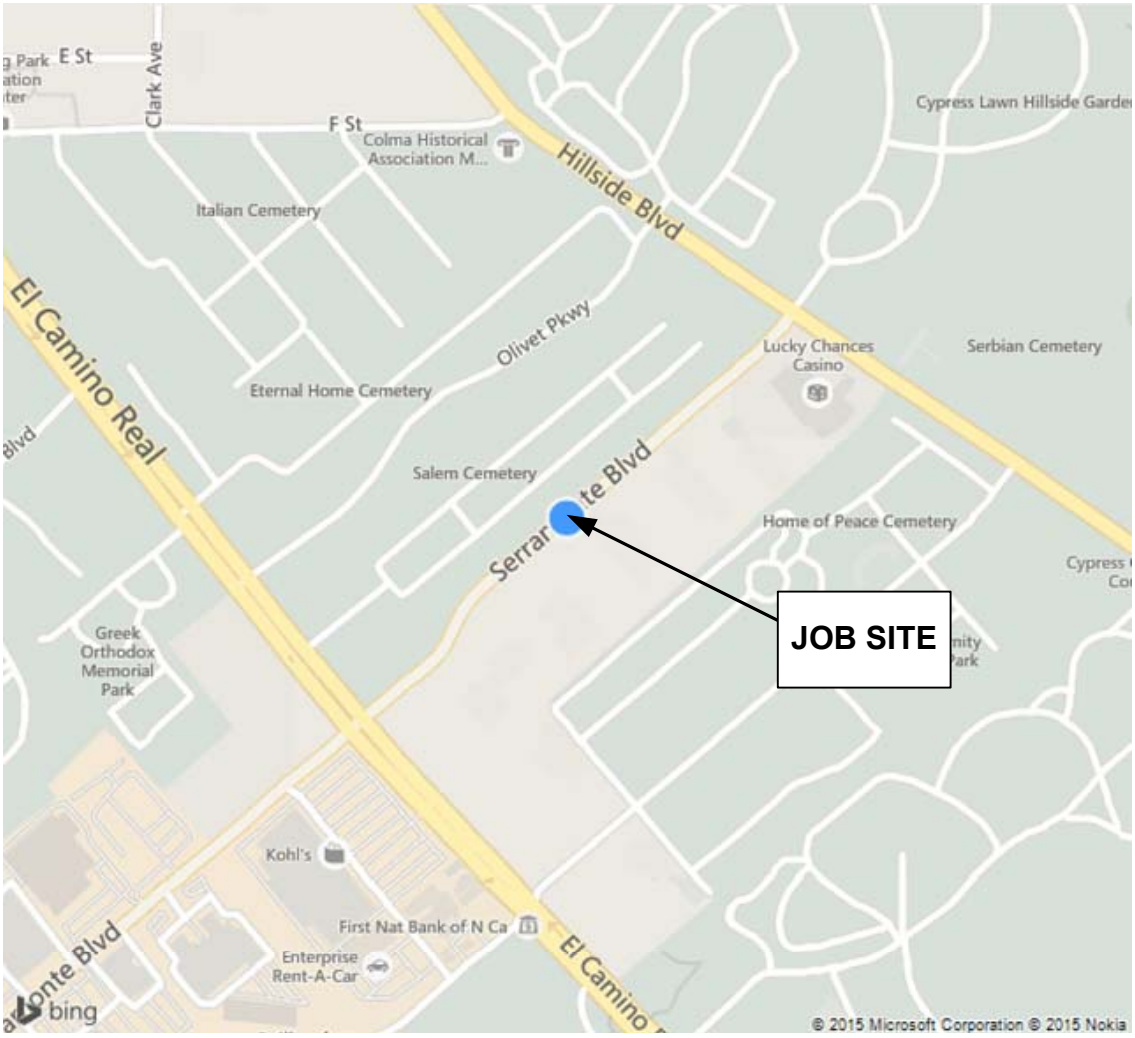
6. SITE RESTORATION

On May 14, 2015, GGTR backfilled the excavation with the stockpiled overburden soil and clean import material. The soil was placed in 12" lifts and compacted using a jumping jack compactor. The site was restored to its original condition.

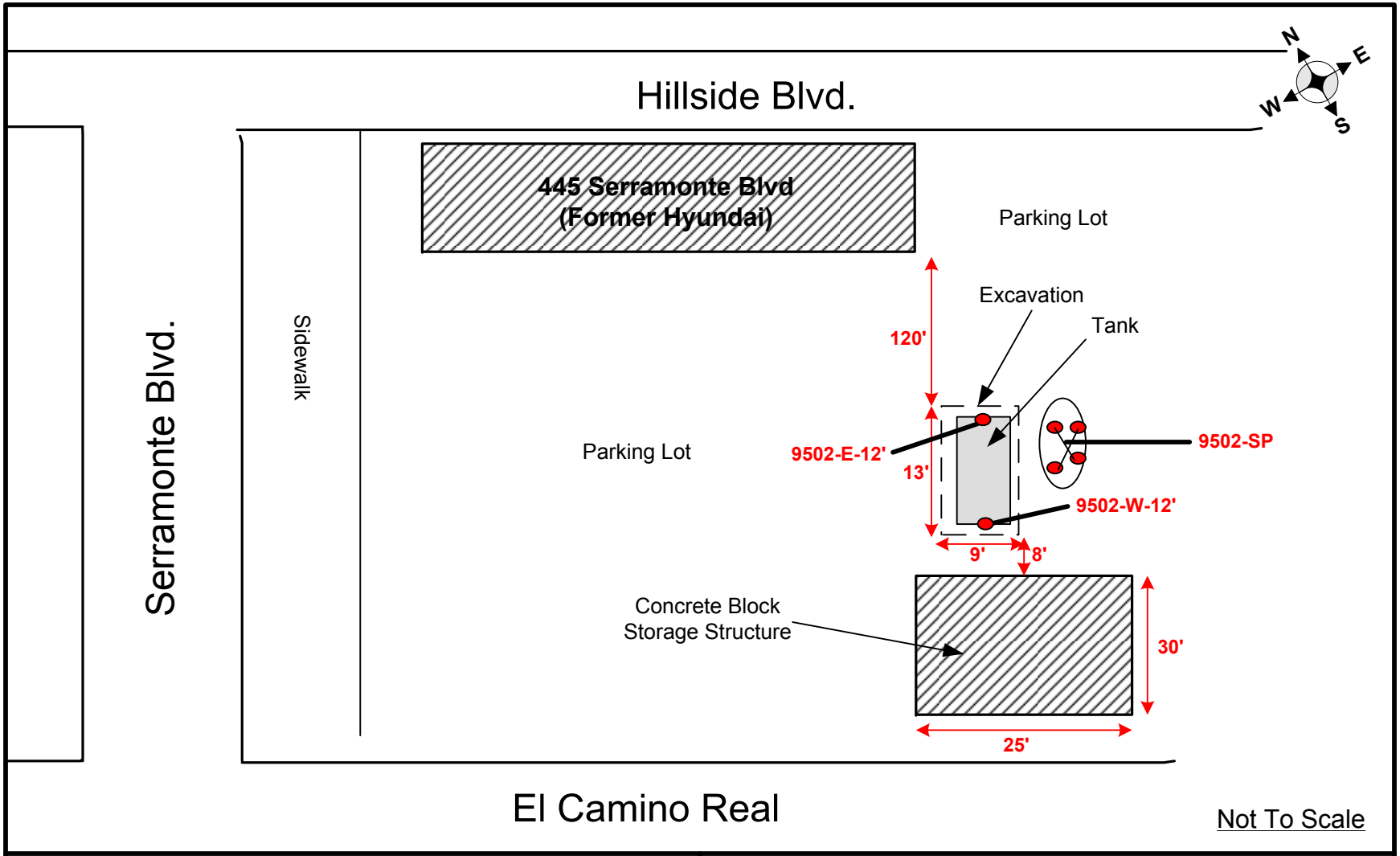
7. FINDINGS / RECOMMENDATION

There were no visible holes in the tank. The contents of the tank were disposed of according to all applicable regulations. There was no visual evidence of contamination in the stockpiled overburden and soil beneath the tank. Groundwater was not encountered in the excavation during the tank removal or sampling activities. The analytical results from the State Certified Laboratory following tank removal were non-detect to insignificant and below applicable Environmental Screening Levels. Therefore, GGTR recommends no further action at the site.

FIGURES



GOLDEN GATE TANK REMOVAL, INC. 1480 Carroll Avenue San Francisco, CA 94124 Ph (415) 512-1555 Fx (415) 512-0964		**VICINITY MAP** 445 Serramonte Boulevard Colma, CA 94014	
GGTR Project No.9502	*Drawing By: AC*	April 2015	***Figure 1***



GOLDEN GATE TANK REMOVAL, INC. 1480 Carroll Avenue San Francisco, California 94124 Phone (415) 512-1555 Fax (415) 512-0964	**Site Drawing** 445 Serramonte Boulevard Colma, California 94014

GGTR Proj. No. 9502	*Figure By: AC*	*May 2015*	***Figure 2***

UST READY TO REMOVED FROM EXCAVATION

TANK READY TO BE TRANSPORTED FOR DISPOSAL

GOLDEN GATE TANK REMOVAL, INC. 1480 Carroll Avenue San Francisco, CA 94124 Ph (415) 512-1555 Fx (415) 512-0964		**UST REMOVAL** 445 Serramonte Blvd. Colma, CA 94014	
GGTR Project No. 9502	*Drawing By: AC*	May 2015	***Figure 3***

.

TABLE

Accutest Northern California,Inc.			May 14, 2015 15:47 pm	
Job Number:	C39742			
Account:	Golden Gate Tank Removal			
Project:	445 Serramonte Boulevard - Colma,CA			
Project Number:	9502			
			Legend:	Hit

Client Sample ID:		9502-E-12'	9502-SP	9502-W-12'
Lab Sample ID:		C39742-2	C39742-3	C39742-1
Date Sampled:		05/07/2015	05/07/2015	05/07/2015
Matrix:		Soil	Soil	Soil
GC/MS Volatiles (SW846 8260B)				
Acetone	ug/kg	ND (9.9)	ND (400)	ND (10)
Benzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Bromobenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Bromochloromethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Bromodichloromethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Bromoform	ug/kg	ND (0.50)	ND (20)	ND (0.50)
n-Butylbenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
sec-Butylbenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
tert-Butylbenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Chlorobenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Chloroethane	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Chloroform	ug/kg	ND (0.50)	ND (20)	ND (0.50)
o-Chlorotoluene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
p-Chlorotoluene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Carbon tetrachloride	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,1-Dichloroethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,1-Dichloroethylene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,1-Dichloropropene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,2-Dibromo-3-chloropropane	ug/kg	ND (1.4)	ND (56)	ND (1.4)
1,2-Dibromoethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,2-Dichloroethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,2-Dichloropropane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,3-Dichloropropane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Di-Isopropyl ether	ug/kg	ND (0.50)	ND (20)	ND (0.50)
2,2-Dichloropropane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Dibromochloromethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Dichlorodifluoromethane	ug/kg	ND (0.99)	ND (40)	ND (1.0)
cis-1,2-Dichloroethylene	ug/kg	ND (1.1)	ND (44)	ND (1.1)
cis-1,3-Dichloropropene	ug/kg	ND (0.50)	ND (20)	ND (0.50)

m-Dichlorobenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
o-Dichlorobenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
p-Dichlorobenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
trans-1,2-Dichloroethylene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
trans-1,3-Dichloropropene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Ethylbenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Ethyl tert-Butyl Ether	ug/kg	ND (0.50)	ND (20)	ND (0.50)
2-Hexanone	ug/kg	ND (2.0)	ND (80)	ND (2.0)
Hexachlorobutadiene	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Isopropylbenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
p-Isopropyltoluene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
4-Methyl-2-pentanone	ug/kg	ND (2.0)	ND (80)	ND (2.0)
Methyl bromide	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Methyl chloride	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Methylene bromide	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Methylene chloride	ug/kg	ND (5.0)	ND (200)	ND (5.0)
Methyl ethyl ketone	ug/kg	ND (2.0)	ND (80)	ND (2.0)
Methyl Tert Butyl Ether	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Naphthalene	ug/kg	ND (0.99)	ND (40)	ND (1.0)
n-Propylbenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Styrene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Tert-Amyl Methyl Ether	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Tert Butyl Alcohol	ug/kg	ND (9.9)	ND (400)	ND (10)
1,1,1,2-Tetrachloroethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,1,1-Trichloroethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,1,2-Trichloroethane	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,2,3-Trichlorobenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,2,3-Trichloropropane	ug/kg	ND (0.99)	ND (40)	ND (1.0)
1,2,4-Trichlorobenzene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
1,2,4-Trimethylbenzene	ug/kg	ND (0.99)	ND (40)	ND (1.0)
1,3,5-Trimethylbenzene	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Tetrachloroethylene	ug/kg	ND (0.60)	ND (24)	ND (0.60)
Toluene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Trichloroethylene	ug/kg	ND (0.50)	ND (20)	ND (0.50)
Trichlorofluoromethane	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Vinyl chloride	ug/kg	ND (0.99)	ND (40)	ND (1.0)
Xylene (total)	ug/kg	ND (0.99)	ND (40)	ND (1.0)
TPH-GRO (C6-C10)	ug/kg	ND (50)	ND (2000)	ND (50)
GC/MS Semi-volatiles (SW846 8270C)				
Acenaphthene	ug/kg	ND (72)	ND (140)	ND (73)

Acenaphthylene	ug/kg	ND (76)	ND (150)	ND (78)
Anthracene	ug/kg	ND (53)	ND (110)	ND (53)
Benzo(a)anthracene	ug/kg	ND (33)	ND (66)	ND (33)
Benzo(a)pyrene	ug/kg	ND (33)	ND (66)	ND (33)
Benzo(b)fluoranthene	ug/kg	ND (33)	ND (66)	ND (33)
Benzo(g,h,i)perylene	ug/kg	ND (42)	ND (86)	ND (43)
Benzo(k)fluoranthene	ug/kg	ND (33)	ND (66)	ND (33)
Chrysene	ug/kg	ND (33)	ND (66)	ND (33)
Dibenzo(a,h)anthracene	ug/kg	ND (40)	ND (82)	ND (41)
Fluoranthene	ug/kg	ND (33)	ND (66)	ND (33)
Fluorene	ug/kg	ND (71)	ND (140)	ND (72)
Indeno(1,2,3-cd)pyrene	ug/kg	ND (42)	ND (84)	ND (43)
1-Methylnaphthalene	ug/kg	ND (75)	ND (150)	ND (76)
2-Methylnaphthalene	ug/kg	ND (78)	ND (160)	ND (79)
Naphthalene	ug/kg	ND (75)	ND (150)	ND (77)
Phenanthrene	ug/kg	ND (57)	ND (110)	ND (58)
Pyrene	ug/kg	ND (33)	ND (66)	ND (33)
GC Semi-volatiles (SW846 8015B M)				
TPH (C10-C28)	mg/kg	ND (0.83)	8.24	ND (0.83)
TPH (>C28-C40)	mg/kg	ND (1.7)	20.7	ND (1.7)
Metals Analysis				
Cadmium	mg/kg	<0.84	<0.89	<0.90
Chromium	mg/kg	32.9	43.7	35.1
Lead	mg/kg	3.1	5.4	2.0
Nickel	mg/kg	33.6	28.3	41.2
Zinc	mg/kg	1130	24.5	203

ATTACHMENTS

ANALYTICAL REPORT
UST CLOSURE INSPECTION RECORDS
LIQUID WASTE MANIFEST
TANK DISPOSAL MANIFEST
HAZARDOUS WASTE TANK CLOSURE CERTIFICATION
PERMITS

Northern California
ACCUTEST
LABORATORIES

05/14/15

Technical Report for

Golden Gate Tank Removal

445 Serramonte Boulevard - Colma,CA

9502

Accutest Job Number: C39742

Sampling Date: 05/07/15

Report to:

Golden Gate Tank Removal
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San Francisco, CA 94124
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annettechen@ggtr.com; tim@ggtr.com;
ATTN: Tim Hallen

Total number of pages in report: **51**

NELAP ACCREDITED TNI LABORATORY

James J. Rhudy
Lab Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Tony Vega 408-588-0200

Certifications: CA (ELAP 2910) AK (UST-092) AZ (AZ0762) NV (CA00150) OR (CA300006) WA (C925) DoD ELAP (L-A-B L2242)

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Accutest Laboratories

Sample Summary

Golden Gate Tank Removal

Job No: C39742

445 Serramonte Boulevard - Colma,CA
Project No: 9502

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
C39742-1	05/07/15	00:00 AM		05/08/15	SO	Soil	9502-W-12'
C39742-2	05/07/15	00:00 AM		05/08/15	SO	Soil	9502-E-12'
C39742-3	05/07/15	00:00 AM		05/08/15	SO	Soil	9502-SP

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: C39742
Account: Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA
Collected: 05/07/15

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C39742-1	**9502-W-12'**					
Chromium		35.1	0.90		mg/kg	SW846 6010B
Lead		2.0	1.8		mg/kg	SW846 6010B
Nickel		41.2	0.90		mg/kg	SW846 6010B
Zinc		203	1.8		mg/kg	SW846 6010B
C39742-2	**9502-E-12'**					
Chromium		32.9	0.84		mg/kg	SW846 6010B
Lead		3.1	1.7		mg/kg	SW846 6010B
Nickel		33.6	0.84		mg/kg	SW846 6010B
Zinc		1130	1.7		mg/kg	SW846 6010B
C39742-3	**9502-SP**					
TPH (C10-C28)		8.24	3.3	0.83	mg/kg	SW846 8015B M
TPH (> C28-C40)		20.7	6.6	1.7	mg/kg	SW846 8015B M
Chromium		43.7	0.89		mg/kg	SW846 6010B
Lead		5.4	1.8		mg/kg	SW846 6010B
Nickel		28.3	0.89		mg/kg	SW846 6010B
Zinc		24.5	1.8		mg/kg	SW846 6010B

Northern California ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	9502-W-12'		
Lab Sample ID:	C39742-1	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L41226.D	1	05/08/15	XB	n/a	n/a	VL1238
Run #2							

	Initial Weight
Run #1	5.00 g
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	40	10	ug/kg	
71-43-2	Benzene	ND	5.0	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	0.50	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	0.50	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	0.50	ug/kg	
75-25-2	Bromoform	ND	5.0	0.50	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	0.50	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	0.50	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	0.50	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	0.50	ug/kg	
75-00-3	Chloroethane	ND	5.0	1.0	ug/kg	
67-66-3	Chloroform	ND	5.0	0.50	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	0.50	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	0.50	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	0.50	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	0.50	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	0.50	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	1.4	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	0.50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	0.50	ug/kg	
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	0.50	ug/kg	
124-48-1	Dibromochloromethane	ND	5.0	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.1	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	0.50	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	0.50	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	0.50	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	0.50	ug/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-W-12'		
Lab Sample ID:	C39742-1	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	0.50	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	0.50	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	0.50	ug/kg	
637-92-3	Ethyl tert-Butyl Ether	ND	5.0	0.50	ug/kg	
591-78-6	2-Hexanone	ND	20	2.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.50	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	0.50	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	20	2.0	ug/kg	
74-83-9	Methyl bromide	ND	5.0	1.0	ug/kg	
74-87-3	Methyl chloride	ND	5.0	1.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	0.50	ug/kg	
75-09-2	Methylene chloride	ND	20	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	20	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	1.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	1.0	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	0.50	ug/kg	
100-42-5	Styrene	ND	5.0	0.50	ug/kg	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/kg	
75-65-0	Tert Butyl Alcohol	ND	40	10	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	0.50	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	0.50	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	0.50	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.50	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	1.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.0	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	0.60	ug/kg	
108-88-3	Toluene	ND	5.0	0.50	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	0.50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	10	1.0	ug/kg	
	TPH-GRO (C6-C10)	ND	100	50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-W-12'		
Lab Sample ID:	C39742-1	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	100%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%

(a) All results reported on a wet weight basis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-W-12'		
Lab Sample ID:	C39742-1	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y30871.D	1	05/12/15	MT	05/11/15	OP12202	EY1422
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	170	73	ug/kg	
208-96-8	Acenaphthylene	ND	170	78	ug/kg	
120-12-7	Anthracene	ND	170	53	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	33	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	33	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	33	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	43	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	33	ug/kg	
218-01-9	Chrysene	ND	170	33	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	41	ug/kg	
206-44-0	Fluoranthene	ND	170	33	ug/kg	
86-73-7	Fluorene	ND	170	72	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	43	ug/kg	
90-12-0	1-Methylnaphthalene	ND	170	76	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	79	ug/kg	
91-20-3	Naphthalene	ND	170	77	ug/kg	
85-01-8	Phenanthrene	ND	170	58	ug/kg	
129-00-0	Pyrene	ND	170	33	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		15-101%
321-60-8	2-Fluorobiphenyl	56%		15-104%
1718-51-0	Terphenyl-d14	97%		56-123%

(a) All results reported on a wet weight basis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-W-12'		
Lab Sample ID:	C39742-1	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8015B M SW846 3550B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH322966.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

TPH Extractable

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	3.3	0.83	mg/kg	
	TPH (> C28-C40)	ND	6.6	1.7	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	101%		37-122%

(a) All results reported on a wet weight basis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-W-12'		
Lab Sample ID:	C39742-1	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
		Percent Solids:	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cadmium	< 0.90	0.90	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Chromium	35.1	0.90	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Lead	2.0	1.8	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Nickel	41.2	0.90	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Zinc	203	1.8	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA4860
(2) Prep QC Batch: MP9501

(a) All results reported on a wet weight basis.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	9502-E-12'		
Lab Sample ID:	C39742-2	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L41227.D	1	05/08/15	XB	n/a	n/a	VL1238
Run #2							

	Initial Weight
Run #1	5.03 g
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	40	9.9	ug/kg	
71-43-2	Benzene	ND	5.0	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	0.50	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	0.50	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	0.50	ug/kg	
75-25-2	Bromoform	ND	5.0	0.50	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	0.50	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	0.50	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	0.50	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	0.50	ug/kg	
75-00-3	Chloroethane	ND	5.0	0.99	ug/kg	
67-66-3	Chloroform	ND	5.0	0.50	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	0.50	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	0.50	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	0.50	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	0.50	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	0.50	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	1.4	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	0.50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	0.50	ug/kg	
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	0.50	ug/kg	
124-48-1	Dibromochloromethane	ND	5.0	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	0.99	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.1	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	0.50	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	0.50	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	0.50	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	0.50	ug/kg	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-E-12'		
Lab Sample ID:	C39742-2	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	0.50	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	0.50	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	0.50	ug/kg	
637-92-3	Ethyl tert-Butyl Ether	ND	5.0	0.50	ug/kg	
591-78-6	2-Hexanone	ND	20	2.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	0.99	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.50	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	0.50	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	20	2.0	ug/kg	
74-83-9	Methyl bromide	ND	5.0	0.99	ug/kg	
74-87-3	Methyl chloride	ND	5.0	0.99	ug/kg	
74-95-3	Methylene bromide	ND	5.0	0.50	ug/kg	
75-09-2	Methylene chloride	ND	20	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	20	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	0.99	ug/kg	
91-20-3	Naphthalene	ND	5.0	0.99	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	0.50	ug/kg	
100-42-5	Styrene	ND	5.0	0.50	ug/kg	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/kg	
75-65-0	Tert Butyl Alcohol	ND	40	9.9	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	0.50	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	0.50	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	0.50	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.50	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	0.99	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.99	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.99	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	0.60	ug/kg	
108-88-3	Toluene	ND	5.0	0.50	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	0.50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	0.99	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	0.99	ug/kg	
1330-20-7	Xylene (total)	ND	9.9	0.99	ug/kg	
	TPH-GRO (C6-C10)	ND	99	50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-E-12'		
Lab Sample ID:	C39742-2	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	98%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%

(a) All results reported on a wet weight basis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-E-12'		
Lab Sample ID:	C39742-2	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y30872.D	1	05/12/15	MT	05/11/15	OP12202	EY1422
Run #2							

	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	160	72	ug/kg	
208-96-8	Acenaphthylene	ND	160	76	ug/kg	
120-12-7	Anthracene	ND	160	53	ug/kg	
56-55-3	Benzo(a)anthracene	ND	160	33	ug/kg	
50-32-8	Benzo(a)pyrene	ND	160	33	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	160	33	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	160	42	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	160	33	ug/kg	
218-01-9	Chrysene	ND	160	33	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	160	40	ug/kg	
206-44-0	Fluoranthene	ND	160	33	ug/kg	
86-73-7	Fluorene	ND	160	71	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	160	42	ug/kg	
90-12-0	1-Methylnaphthalene	ND	160	75	ug/kg	
91-57-6	2-Methylnaphthalene	ND	160	78	ug/kg	
91-20-3	Naphthalene	ND	160	75	ug/kg	
85-01-8	Phenanthrene	ND	160	57	ug/kg	
129-00-0	Pyrene	ND	160	33	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		15-101%
321-60-8	2-Fluorobiphenyl	62%		15-104%
1718-51-0	Terphenyl-d14	105%		56-123%

(a) All results reported on a wet weight basis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-E-12'		
Lab Sample ID:	C39742-2	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8015B M SW846 3550B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH322967.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

TPH Extractable

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	3.3	0.83	mg/kg	
	TPH (> C28-C40)	ND	6.6	1.7	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	98%		37-122%

(a) All results reported on a wet weight basis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-E-12'		
Lab Sample ID:	C39742-2	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
		Percent Solids:	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cadmium	< 0.84	0.84	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Chromium	32.9	0.84	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Lead	3.1	1.7	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Nickel	33.6	0.84	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Zinc	1130	1.7	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA4860
(2) Prep QC Batch: MP9501

(a) All results reported on a wet weight basis.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	9502-SP		
Lab Sample ID:	C39742-3	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [b]	L41228.D	1	05/08/15	XB	n/a	n/a	VL1238
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.25 g	5.0 ml	100 ul
Run #2			

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1600	400	ug/kg	
71-43-2	Benzene	ND	200	20	ug/kg	
108-86-1	Bromobenzene	ND	200	20	ug/kg	
74-97-5	Bromochloromethane	ND	200	20	ug/kg	
75-27-4	Bromodichloromethane	ND	200	20	ug/kg	
75-25-2	Bromoform	ND	200	20	ug/kg	
104-51-8	n-Butylbenzene	ND	200	20	ug/kg	
135-98-8	sec-Butylbenzene	ND	200	20	ug/kg	
98-06-6	tert-Butylbenzene	ND	200	20	ug/kg	
108-90-7	Chlorobenzene	ND	200	20	ug/kg	
75-00-3	Chloroethane	ND	200	40	ug/kg	
67-66-3	Chloroform	ND	200	20	ug/kg	
95-49-8	o-Chlorotoluene	ND	200	20	ug/kg	
106-43-4	p-Chlorotoluene	ND	200	20	ug/kg	
56-23-5	Carbon tetrachloride	ND	200	20	ug/kg	
75-34-3	1,1-Dichloroethane	ND	200	20	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	200	20	ug/kg	
563-58-6	1,1-Dichloropropene	ND	200	20	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	200	56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	200	20	ug/kg	
107-06-2	1,2-Dichloroethane	ND	200	20	ug/kg	
78-87-5	1,2-Dichloropropane	ND	200	20	ug/kg	
142-28-9	1,3-Dichloropropane	ND	200	20	ug/kg	
108-20-3	Di-Isopropyl ether	ND	200	20	ug/kg	
594-20-7	2,2-Dichloropropane	ND	200	20	ug/kg	
124-48-1	Dibromochloromethane	ND	200	20	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	200	40	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	200	44	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	200	20	ug/kg	
541-73-1	m-Dichlorobenzene	ND	200	20	ug/kg	
95-50-1	o-Dichlorobenzene	ND	200	20	ug/kg	
106-46-7	p-Dichlorobenzene	ND	200	20	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-SP		
Lab Sample ID:	C39742-3	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	200	20	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	200	20	ug/kg	
100-41-4	Ethylbenzene	ND	200	20	ug/kg	
637-92-3	Ethyl tert-Butyl Ether	ND	200	20	ug/kg	
591-78-6	2-Hexanone	ND	800	80	ug/kg	
87-68-3	Hexachlorobutadiene	ND	200	40	ug/kg	
98-82-8	Isopropylbenzene	ND	200	20	ug/kg	
99-87-6	p-Isopropyltoluene	ND	200	20	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	800	80	ug/kg	
74-83-9	Methyl bromide	ND	200	40	ug/kg	
74-87-3	Methyl chloride	ND	200	40	ug/kg	
74-95-3	Methylene bromide	ND	200	20	ug/kg	
75-09-2	Methylene chloride	ND	800	200	ug/kg	
78-93-3	Methyl ethyl ketone	ND	800	80	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	200	40	ug/kg	
91-20-3	Naphthalene	ND	200	40	ug/kg	
103-65-1	n-Propylbenzene	ND	200	20	ug/kg	
100-42-5	Styrene	ND	200	20	ug/kg	
994-05-8	Tert-Amyl Methyl Ether	ND	200	20	ug/kg	
75-65-0	Tert Butyl Alcohol	ND	1600	400	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	200	20	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	200	20	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	200	20	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	200	20	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	200	20	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	200	40	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	200	20	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	200	40	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	200	40	ug/kg	
127-18-4	Tetrachloroethylene	ND	200	24	ug/kg	
108-88-3	Toluene	ND	200	20	ug/kg	
79-01-6	Trichloroethylene	ND	200	20	ug/kg	
75-69-4	Trichlorofluoromethane	ND	200	40	ug/kg	
75-01-4	Vinyl chloride	ND	200	40	ug/kg	
1330-20-7	Xylene (total)	ND	400	40	ug/kg	
	TPH-GRO (C6-C10)	ND	4000	2000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-SP		
Lab Sample ID:	C39742-3	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8260B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

VOA 8260 List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	99%		70-130%
460-00-4	4-Bromofluorobenzene	100%		70-130%

(a) All results reported on a wet weight basis.
(b) 4:1 composite.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-SP		
Lab Sample ID:	C39742-3	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8270C SW846 3550B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [b]	Y30873.D	2	05/12/15	MT	05/11/15	OP12202	EY1422
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	330	140	ug/kg	
208-96-8	Acenaphthylene	ND	330	150	ug/kg	
120-12-7	Anthracene	ND	330	110	ug/kg	
56-55-3	Benzo(a)anthracene	ND	330	66	ug/kg	
50-32-8	Benzo(a)pyrene	ND	330	66	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	330	66	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	330	86	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	330	66	ug/kg	
218-01-9	Chrysene	ND	330	66	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	330	82	ug/kg	
206-44-0	Fluoranthene	ND	330	66	ug/kg	
86-73-7	Fluorene	ND	330	140	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	330	84	ug/kg	
90-12-0	1-Methylnaphthalene	ND	330	150	ug/kg	
91-57-6	2-Methylnaphthalene	ND	330	160	ug/kg	
91-20-3	Naphthalene	ND	330	150	ug/kg	
85-01-8	Phenanthrene	ND	330	110	ug/kg	
129-00-0	Pyrene	ND	330	66	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	63%		15-101%
321-60-8	2-Fluorobiphenyl	69%		15-104%
1718-51-0	Terphenyl-d14	102%		56-123%

(a) All results reported on a wet weight basis.
(b) Dilution required due to matrix interference (dark and viscous extract; high concentration of non-target hydrocarbons).

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-SP		
Lab Sample ID:	C39742-3	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
Method:	SW846 8015B M SW846 3550B	**Percent Solids:**	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	HH322968.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

TPH Extractable

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	8.24	3.3	0.83	mg/kg	
	TPH (> C28-C40)	20.7	6.6	1.7	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
630-01-3	Hexacosane	106%		37-122%

(a) All results reported on a wet weight basis.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	9502-SP		
Lab Sample ID:	C39742-3	**Date Sampled:**	05/07/15
Matrix:	SO - Soil	**Date Received:**	05/08/15
		Percent Solids:	n/a [a]
Project:	445 Serramonte Boulevard - Colma,CA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Cadmium	< 0.89	0.89	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Chromium	43.7	0.89	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Lead	5.4	1.8	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Nickel	28.3	0.89	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]
Zinc	24.5	1.8	mg/kg	1	05/11/15	05/11/15	RS	SW846 6010B [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA4860
(2) Prep QC Batch: MP9501

(a) All results reported on a wet weight basis.

RL = Reporting Limit

Northern California ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST LABORATORIES
2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest NC Job #: C39742

Client / Reporting Information

Company Name: Golden Gate Tank Removal
Address: 1480 Carroll Ave.
City: San Francisco State: CA Zip: 94124
Project Contact: Tim Hallen
Phone #: 415-512-1555
Samplers's Name: A. Moza

Project Information

Project Name:
Street: 445 Serramonte Blvd.
City: Colma State: CA.
Project #: 9502
EMAIL: ache@ggtr.com
Client Purchase Order #:

Requested Analysis

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	BT # of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	TPH-GAS (8260B)	TPH - DIESEL/MOTOR OIL	VOCS (FULL LIST) 8260B	16 PRIORITY POLLUTANT PAHS	LUFT 5 METALS	BTEX	MTBE	TOTAL LEAD				
1	9502-D-W-12'	5/7/15		A.M.	SO	1									X	X	X	X	X	X	X	X				
2	9502-S-E-12'	5/7/15		A.M.	SO	1									X	X	X	X	X	X	X	X				
3	9502-SP	5/7/15		A.M.	SO	4									X	X	X	X	X	X	X	X				

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

LAB USE ONLY

Turnaround Time (Business days)

- 10 Day
- 5 Day
- 3 Day
- 2 Day
- 1 Day
- Same Day

4-DAY

Approved By:/ Date:

Data Deliverable Information

- Commercial "A" - Results only
- Commercial "B" - Results with QC summaries
- Commerical "B+" - Results, QC, and chromatograms
- FULT1 - Level 4 data package
- EDF for Geotracker
- EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

BT= BRASS TUBE

Emergency T/A data available VIA Lablink

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	Moza	5-7-15 3:10	5/8/15 0845	2	5/8/15 1650	2
3	Relinquished by:	Date Time:	Received By:	4 Relinquished By:	Date Time:	4 Received By:
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Labels match Coc? Y / N	Headspace Y / N; Separate Receiving Check List used: Y / N; On Ice Y / N; Cooler Temp: 1.8/1.8 °C

4.1
4

C39742: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C39742 **Client:** GOLDEN GATE TANK REMOVAL **Project:** 445 SERRAMONTE BLVD.

Date / Time Received: 5/8/2015 10:50:00 AM **Delivery Method:** Accutest Courier **Airbill #'s:**

Cooler Temps (Initial/Adjusted): #1: (1.8/1.8);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☐		☑	3. COC Present:	☑		☐
2. Custody Seals Intact:	☐		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Therm ID:	IR1;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Comments

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☑		☐	☐
5. Filtering instructions clear:	☐		☐	☑

Accutest Laboratories
V:408.588.0200

2105 Lundy Avenue
F: 408.588.0201

San Jose, CA 95131
www/accutest.com

Northern California ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VL1238-MB	L41224.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	40	10	ug/kg	
71-43-2	Benzene	ND	5.0	0.50	ug/kg	
108-86-1	Bromobenzene	ND	5.0	0.50	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	0.50	ug/kg	
75-27-4	Bromodichloromethane	ND	5.0	0.50	ug/kg	
75-25-2	Bromoform	ND	5.0	0.50	ug/kg	
104-51-8	n-Butylbenzene	ND	5.0	0.50	ug/kg	
135-98-8	sec-Butylbenzene	ND	5.0	0.50	ug/kg	
98-06-6	tert-Butylbenzene	ND	5.0	0.50	ug/kg	
108-90-7	Chlorobenzene	ND	5.0	0.50	ug/kg	
75-00-3	Chloroethane	ND	5.0	1.0	ug/kg	
67-66-3	Chloroform	ND	5.0	0.50	ug/kg	
95-49-8	o-Chlorotoluene	ND	5.0	0.50	ug/kg	
106-43-4	p-Chlorotoluene	ND	5.0	0.50	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	ug/kg	
75-34-3	1,1-Dichloroethane	ND	5.0	0.50	ug/kg	
75-35-4	1,1-Dichloroethylene	ND	5.0	0.50	ug/kg	
563-58-6	1,1-Dichloropropene	ND	5.0	0.50	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.0	1.4	ug/kg	
106-93-4	1,2-Dibromoethane	ND	5.0	0.50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	ug/kg	
142-28-9	1,3-Dichloropropane	ND	5.0	0.50	ug/kg	
108-20-3	Di-Isopropyl ether	ND	5.0	0.50	ug/kg	
594-20-7	2,2-Dichloropropane	ND	5.0	0.50	ug/kg	
124-48-1	Dibromochloromethane	ND	5.0	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.0	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethylene	ND	5.0	1.1	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.0	0.50	ug/kg	
541-73-1	m-Dichlorobenzene	ND	5.0	0.50	ug/kg	
95-50-1	o-Dichlorobenzene	ND	5.0	0.50	ug/kg	
106-46-7	p-Dichlorobenzene	ND	5.0	0.50	ug/kg	
156-60-5	trans-1,2-Dichloroethylene	ND	5.0	0.50	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.0	0.50	ug/kg	
100-41-4	Ethylbenzene	ND	5.0	0.50	ug/kg	
637-92-3	Ethyl tert-Butyl Ether	ND	5.0	0.50	ug/kg	

Method Blank Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VL1238-MB	L41224.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	20	2.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	5.0	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.50	ug/kg	
99-87-6	p-Isopropyltoluene	ND	5.0	0.50	ug/kg	
108-10-1	4-Methyl-2-pentanone	ND	20	2.0	ug/kg	
74-83-9	Methyl bromide	ND	5.0	1.0	ug/kg	
74-87-3	Methyl chloride	ND	5.0	1.0	ug/kg	
74-95-3	Methylene bromide	ND	5.0	0.50	ug/kg	
75-09-2	Methylene chloride	ND	20	5.0	ug/kg	
78-93-3	Methyl ethyl ketone	ND	20	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	5.0	1.0	ug/kg	
91-20-3	Naphthalene	ND	5.0	1.0	ug/kg	
103-65-1	n-Propylbenzene	ND	5.0	0.50	ug/kg	
100-42-5	Styrene	ND	5.0	0.50	ug/kg	
994-05-8	Tert-Amyl Methyl Ether	ND	5.0	0.50	ug/kg	
75-65-0	Tert Butyl Alcohol	ND	40	10	ug/kg	
630-20-6	1,1,1,2-Tetrachloroethane	ND	5.0	0.50	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.0	0.50	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.0	0.50	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.50	ug/kg	
96-18-4	1,2,3-Trichloropropane	ND	5.0	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.50	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	1.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	1.0	ug/kg	
127-18-4	Tetrachloroethylene	ND	5.0	0.60	ug/kg	
108-88-3	Toluene	ND	5.0	0.50	ug/kg	
79-01-6	Trichloroethylene	ND	5.0	0.50	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	5.0	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	10	1.0	ug/kg	
	TPH-GRO (C6-C10)	ND	100	50	ug/kg	

Method Blank Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VL1238-MB	L41224.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	97%	70-130%
2037-26-5	Toluene-D8	100%	70-130%
460-00-4	4-Bromofluorobenzene	99%	70-130%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VL1238-BS	L41221.D	1	05/08/15	XB	n/a	n/a	VL1238
VL1238-BSD	L41222.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	160	163	102	165	103	1	62-130/24
71-43-2	Benzene	40	41.3	103	41.1	103	0	81-119/20
108-86-1	Bromobenzene	40	38.1	95	37.8	95	1	79-120/22
74-97-5	Bromochloromethane	40	42.4	106	43.1	108	2	81-120/19
75-27-4	Bromodichloromethane	40	42.3	106	42.3	106	0	79-124/20
75-25-2	Bromoform	40	40.0	100	39.4	99	2	76-128/21
104-51-8	n-Butylbenzene	40	40.4	101	39.9	100	1	79-123/26
135-98-8	sec-Butylbenzene	40	40.1	100	39.6	99	1	77-122/24
98-06-6	tert-Butylbenzene	40	38.9	97	38.1	95	2	77-121/23
108-90-7	Chlorobenzene	40	40.9	102	39.6	99	3	82-121/20
75-00-3	Chloroethane	40	39.3	98	39.5	99	1	80-126/21
67-66-3	Chloroform	40	44.1	110	43.9	110	0	82-123/20
95-49-8	o-Chlorotoluene	40	38.7	97	38.2	96	1	78-125/25
106-43-4	p-Chlorotoluene	40	42.8	107	38.9	97	10	75-125/26
56-23-5	Carbon tetrachloride	40	43.4	109	42.7	107	2	82-127/22
75-34-3	1,1-Dichloroethane	40	43.7	109	43.4	109	1	80-123/20
75-35-4	1,1-Dichloroethylene	40	40.5	101	39.9	100	1	76-123/19
563-58-6	1,1-Dichloropropene	40	43.1	108	42.2	106	2	79-123/20
96-12-8	1,2-Dibromo-3-chloropropane	40	36.1	90	35.9	90	1	64-133/23
106-93-4	1,2-Dibromoethane	40	39.6	99	38.6	97	3	80-120/20
107-06-2	1,2-Dichloroethane	40	43.5	109	43.1	108	1	76-132/21
78-87-5	1,2-Dichloropropane	40	41.2	103	41.0	103	0	80-121/20
142-28-9	1,3-Dichloropropane	40	40.5	101	39.5	99	3	78-120/20
108-20-3	Di-Isopropyl ether	40	43.8	110	43.7	109	0	78-126/19
594-20-7	2,2-Dichloropropane	40	44.7	112	43.6	109	2	77-132/22
124-48-1	Dibromochloromethane	40	39.8	100	39.2	98	2	76-121/21
75-71-8	Dichlorodifluoromethane	40	52.1	130	51.2	128	2	51-135/23
156-59-2	cis-1,2-Dichloroethylene	40	42.9	107	42.5	106	1	79-123/20
10061-01-5	cis-1,3-Dichloropropene	40	41.5	104	40.8	102	2	81-124/21
541-73-1	m-Dichlorobenzene	40	39.1	98	38.5	96	2	79-123/23
95-50-1	o-Dichlorobenzene	40	39.2	98	38.7	97	1	79-124/22
106-46-7	p-Dichlorobenzene	40	39.3	98	38.8	97	1	79-123/22
156-60-5	trans-1,2-Dichloroethylene	40	42.4	106	42.4	106	0	78-120/19
10061-02-6	trans-1,3-Dichloropropene	40	41.5	104	40.0	100	4	81-123/22
100-41-4	Ethylbenzene	40	41.2	103	39.9	100	3	80-119/21
637-92-3	Ethyl tert-Butyl Ether	40	43.7	109	43.9	110	0	75-132/21

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VL1238-BS	L41221.D	1	05/08/15	XB	n/a	n/a	VL1238
VL1238-BSD	L41222.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	160	155	97	155	97	0	68-139/24
87-68-3	Hexachlorobutadiene	40	40.4	101	39.9	100	1	81-126/32
98-82-8	Isopropylbenzene	40	41.6	104	40.4	101	3	81-122/22
99-87-6	p-Isopropyltoluene	40	40.2	101	39.1	98	3	81-121/23
108-10-1	4-Methyl-2-pentanone	160	153	96	159	99	4	74-136/23
74-83-9	Methyl bromide	40	43.7	109	44.3	111	1	82-124/20
74-87-3	Methyl chloride	40	48.2	121	45.1	113	7	60-132/26
74-95-3	Methylene bromide	40	41.1	103	40.7	102	1	82-120/20
75-09-2	Methylene chloride	40	41.0	103	40.8	102	0	75-119/20
78-93-3	Methyl ethyl ketone	160	161	101	164	103	2	71-130/22
1634-04-4	Methyl Tert Butyl Ether	40	42.8	107	43.1	108	1	79-127/19
91-20-3	Naphthalene	40	38.7	97	39.3	98	2	78-125/23
103-65-1	n-Propylbenzene	40	40.3	101	39.3	98	3	79-124/22
100-42-5	Styrene	40	39.3	98	38.1	95	3	83-122/21
994-05-8	Tert-Amyl Methyl Ether	40	42.7	107	43.0	108	1	80-127/20
75-65-0	Tert Butyl Alcohol	200	199	100	202	101	1	65-144/23
630-20-6	1,1,1,2-Tetrachloroethane	40	41.0	103	39.9	100	3	82-123/21
71-55-6	1,1,1-Trichloroethane	40	44.3	111	43.9	110	1	79-129/21
79-34-5	1,1,2,2-Tetrachloroethane	40	38.4	96	38.6	97	1	77-126/20
79-00-5	1,1,2-Trichloroethane	40	40.1	100	39.0	98	3	79-123/20
87-61-6	1,2,3-Trichlorobenzene	40	39.1	98	39.3	98	1	81-122/26
96-18-4	1,2,3-Trichloropropane	40	44.8	112	44.4	111	1	79-122/24
120-82-1	1,2,4-Trichlorobenzene	40	40.2	101	39.4	99	2	81-121/26
95-63-6	1,2,4-Trimethylbenzene	40	39.7	99	38.7	97	3	82-121/24
108-67-8	1,3,5-Trimethylbenzene	40	39.4	99	39.0	98	1	81-123/23
127-18-4	Tetrachloroethylene	40	39.9	100	39.9	100	0	80-125/25
108-88-3	Toluene	40	40.5	101	39.1	98	4	80-117/21
79-01-6	Trichloroethylene	40	41.4	104	41.1	103	1	81-122/20
75-69-4	Trichlorofluoromethane	40	43.4	109	43.1	108	1	77-133/22
75-01-4	Vinyl chloride	40	46.9	117	46.6	117	1	71-133/23
1330-20-7	Xylene (total)	120	122	102	119	99	2	81-122/22

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	105%	105%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VL1238-BS	L41221.D	1	05/08/15	XB	n/a	n/a	VL1238
VL1238-BSD	L41222.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
2037-26-5	Toluene-D8	100%	98%	70-130%
460-00-4	4-Bromofluorobenzene	102%	99%	70-130%

* = Outside of Control Limits.

Laboratory Control Sample Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VL1238-LCS	L41223.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Spike ug/kg	LCS ug/kg	LCS %	Limits
	TPH-GRO (C6-C10)	250	247	99	50-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	70-130%
2037-26-5	Toluene-D8	101%	70-130%
460-00-4	4-Bromofluorobenzene	101%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C39723-2AMS	L41237.D	1	05/08/15	XB	n/a	n/a	VL1238
C39723-2AMSD	L41238.D	1	05/08/15	XB	n/a	n/a	VL1238
C39723-2A [a]	L41236.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Compound	C39723-2A ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		3430	3090	90	3430	3290	96	6	62-130/24
71-43-2	Benzene	ND		856	912	107	856	955	112	5	81-119/20
108-86-1	Bromobenzene	ND		856	823	96	856	866	101	5	79-120/22
74-97-5	Bromochloromethane	ND		856	926	108	856	982	115	6	81-120/19
75-27-4	Bromodichloromethane	ND		856	886	103	856	923	108	4	79-124/20
75-25-2	Bromoform	ND		856	799	93	856	827	97	3	76-128/21
104-51-8	n-Butylbenzene	ND		856	832	97	856	845	99	2	79-123/26
135-98-8	sec-Butylbenzene	ND		856	821	96	856	849	99	3	77-122/24
98-06-6	tert-Butylbenzene	ND		856	807	94	856	831	97	3	77-121/23
108-90-7	Chlorobenzene	ND		856	854	100	856	890	104	4	82-121/20
75-00-3	Chloroethane	ND		856	834	97	856	882	103	6	80-126/21
67-66-3	Chloroform	ND		856	965	113	856	1000	117	4	82-123/20
95-49-8	o-Chlorotoluene	ND		856	828	97	856	856	100	3	78-125/25
106-43-4	p-Chlorotoluene	ND		856	929	108	856	886	103	5	75-125/26
56-23-5	Carbon tetrachloride	ND		856	906	106	856	929	108	3	82-127/22
75-34-3	1,1-Dichloroethane	ND		856	937	109	856	969	113	3	80-123/20
75-35-4	1,1-Dichloroethylene	ND		856	867	101	856	906	106	4	76-123/19
563-58-6	1,1-Dichloropropene	ND		856	874	102	856	905	106	3	79-123/20
96-12-8	1,2-Dibromo-3-chloropropane	ND		856	691	81	856	692	81	0	64-133/23
106-93-4	1,2-Dibromoethane	ND		856	854	100	856	888	104	4	80-120/20
107-06-2	1,2-Dichloroethane	ND		856	1000	117	856	1010	118	1	76-132/21
78-87-5	1,2-Dichloropropane	ND		856	895	105	856	944	110	5	80-121/20
142-28-9	1,3-Dichloropropane	ND		856	923	108	856	952	111	3	78-120/20
108-20-3	Di-Isopropyl ether	ND		856	961	112	856	1010	118	5	78-126/19
594-20-7	2,2-Dichloropropane	ND		856	950	111	856	972	114	2	77-132/22
124-48-1	Dibromochloromethane	ND		856	822	96	856	853	100	4	76-121/21
75-71-8	Dichlorodifluoromethane	ND		856	1130	132	856	1180	138* [b]	4	51-135/23
156-59-2	cis-1,2-Dichloroethylene	ND		856	908	106	856	973	114	7	79-123/20
10061-01-5	cis-1,3-Dichloropropene	ND		856	887	104	856	921	108	4	81-124/21
541-73-1	m-Dichlorobenzene	ND		856	815	95	856	856	100	5	79-123/23
95-50-1	o-Dichlorobenzene	ND		856	821	96	856	865	101	5	79-124/22
106-46-7	p-Dichlorobenzene	ND		856	824	96	856	866	101	5	79-123/22
156-60-5	trans-1,2-Dichloroethylene	ND		856	880	103	856	939	110	6	78-120/19
10061-02-6	trans-1,3-Dichloropropene	ND		856	852	100	856	874	102	3	81-123/22
100-41-4	Ethylbenzene	ND		856	874	102	856	892	104	2	80-119/21
637-92-3	Ethyl tert-Butyl Ether	ND		856	969	113	856	1010	118	4	75-132/21

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C39723-2AMS	L41237.D	1	05/08/15	XB	n/a	n/a	VL1238
C39723-2AMSD	L41238.D	1	05/08/15	XB	n/a	n/a	VL1238
C39723-2A [a]	L41236.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Compound	C39723-2A ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	ND		3430	3050	89	3430	3090	90	1	68-139/24
87-68-3	Hexachlorobutadiene	ND		856	823	96	856	848	99	3	81-126/32
98-82-8	Isopropylbenzene	ND		856	848	99	856	870	102	3	81-122/22
99-87-6	p-Isopropyltoluene	ND		856	806	94	856	831	97	3	81-121/23
108-10-1	4-Methyl-2-pentanone	ND		3430	2880	84	3430	3120	91	8	74-136/23
74-83-9	Methyl bromide	ND		856	892	104	856	977	114	9	82-124/20
74-87-3	Methyl chloride	ND		856	1020	119	856	1100	128	8	60-132/26
74-95-3	Methylene bromide	ND		856	908	106	856	957	112	5	82-120/20
75-09-2	Methylene chloride	ND		856	884	103	856	933	109	5	75-119/20
78-93-3	Methyl ethyl ketone	ND		3430	3360	98	3430	3500	102	4	71-130/22
1634-04-4	Methyl Tert Butyl Ether	ND		856	904	106	856	948	111	5	79-127/19
91-20-3	Naphthalene	ND		856	711	83	856	747	87	5	78-125/23
103-65-1	n-Propylbenzene	ND		856	823	96	856	842	98	2	79-124/22
100-42-5	Styrene	ND		856	839	98	856	874	102	4	83-122/21
994-05-8	Tert-Amyl Methyl Ether	ND		856	936	109	856	990	116	6	80-127/20
75-65-0	Tert Butyl Alcohol	ND		4280	3020	71	4280	2900	68	4	65-144/23
630-20-6	1,1,1,2-Tetrachloroethane	ND		856	862	101	856	898	105	4	82-123/21
71-55-6	1,1,1-Trichloroethane	ND		856	941	110	856	973	114	3	79-129/21
79-34-5	1,1,2,2-Tetrachloroethane	ND		856	797	93	856	830	97	4	77-126/20
79-00-5	1,1,2-Trichloroethane	ND		856	862	101	856	882	103	2	79-123/20
87-61-6	1,2,3-Trichlorobenzene	ND		856	790	92	856	829	97	5	81-122/26
96-18-4	1,2,3-Trichloropropane	ND		856	956	112	856	970	113	1	79-122/24
120-82-1	1,2,4-Trichlorobenzene	ND		856	800	93	856	832	97	4	81-121/26
95-63-6	1,2,4-Trimethylbenzene	ND		856	822	96	856	847	99	3	82-121/24
108-67-8	1,3,5-Trimethylbenzene	ND		856	847	99	856	879	103	4	81-123/23
127-18-4	Tetrachloroethylene	ND		856	806	94	856	851	99	5	80-125/25
108-88-3	Toluene	ND		856	873	102	856	900	105	3	80-117/21
79-01-6	Trichloroethylene	ND		856	870	102	856	907	106	4	81-122/20
75-69-4	Trichlorofluoromethane	ND		856	917	107	856	978	114	6	77-133/22
75-01-4	Vinyl chloride	ND		856	708	83	856	721	84	2	71-133/23
1330-20-7	Xylene (total)	ND		2570	2550	99	2570	2640	103	3	81-122/22

CAS No.	Surrogate Recoveries	MS	MSD	C39723-2A	Limits
1868-53-7	Dibromofluoromethane	104%	102%	102%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C39723-2AMS	L41237.D	1	05/08/15	XB	n/a	n/a	VL1238
C39723-2AMSD	L41238.D	1	05/08/15	XB	n/a	n/a	VL1238
C39723-2A [a]	L41236.D	1	05/08/15	XB	n/a	n/a	VL1238

The QC reported here applies to the following samples: **Method:** SW846 8260B

C39742-1, C39742-2, C39742-3

CAS No.	Surrogate Recoveries	MS	MSD	C39723-2A	Limits
2037-26-5	Toluene-D8	101%	98%	100%	70-130%
460-00-4	4-Bromofluorobenzene	103%	100%	100%	70-130%

(a) 10:1 composite.
(b) Outside control limits due to matrix interference.

* = Outside of Control Limits.

Northern California ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12202-MB	Y30848.D	1	05/12/15	MT	05/11/15	OP12202	EY1421

The QC reported here applies to the following samples: **Method:** SW846 8270C

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	170	73	ug/kg	
208-96-8	Acenaphthylene	ND	170	78	ug/kg	
120-12-7	Anthracene	ND	170	54	ug/kg	
56-55-3	Benzo(a)anthracene	ND	170	33	ug/kg	
50-32-8	Benzo(a)pyrene	ND	170	33	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	170	33	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	170	43	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	170	33	ug/kg	
218-01-9	Chrysene	ND	170	33	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	170	41	ug/kg	
206-44-0	Fluoranthene	ND	170	33	ug/kg	
86-73-7	Fluorene	ND	170	72	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	170	43	ug/kg	
90-12-0	1-Methylnaphthalene	ND	170	76	ug/kg	
91-57-6	2-Methylnaphthalene	ND	170	80	ug/kg	
91-20-3	Naphthalene	ND	170	77	ug/kg	
85-01-8	Phenanthrene	ND	170	58	ug/kg	
129-00-0	Pyrene	ND	170	33	ug/kg	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	71%	14-99%
4165-62-2	Phenol-d5	75%	18-100%
118-79-6	2,4,6-Tribromophenol	85%	25-107%
4165-60-0	Nitrobenzene-d5	71%	15-101%
321-60-8	2-Fluorobiphenyl	75%	15-104%
1718-51-0	Terphenyl-d14	108%	56-123%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12202-BS	Y30849.D	1	05/12/15	MT	05/11/15	OP12202	EY1421
OP12202-BSD	Y30850.D	1	05/12/15	MT	05/11/15	OP12202	EY1421

The QC reported here applies to the following samples: **Method:** SW846 8270C

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	BSD ug/kg	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	833	602	72	575	69	5	34-112/28
208-96-8	Acenaphthylene	833	613	74	598	72	2	33-115/28
120-12-7	Anthracene	833	680	82	683	82	0	59-111/21
56-55-3	Benzo(a)anthracene	833	696	84	705	85	1	72-122/22
50-32-8	Benzo(a)pyrene	833	697	84	722	87	4	71-120/22
205-99-2	Benzo(b)fluoranthene	833	714	86	688	83	4	67-123/24
191-24-2	Benzo(g,h,i)perylene	833	669	80	733	88	9	57-134/24
207-08-9	Benzo(k)fluoranthene	833	717	86	713	86	1	74-126/25
218-01-9	Chrysene	833	680	82	693	83	2	73-125/22
53-70-3	Dibenzo(a,h)anthracene	833	686	82	774	93	12	59-132/23
206-44-0	Fluoranthene	833	663	80	690	83	4	69-117/21
86-73-7	Fluorene	833	659	79	651	78	1	42-112/24
193-39-5	Indeno(1,2,3-cd)pyrene	833	700	84	775	93	10	60-131/21
90-12-0	1-Methylnaphthalene	833	547	66	522	63	5	33-110/30
91-57-6	2-Methylnaphthalene	833	588	71	562	67	5	33-107/30
91-20-3	Naphthalene	833	534	64	503	60	6	32-121/31
85-01-8	Phenanthrene	833	687	82	690	83	0	57-113/21
129-00-0	Pyrene	833	762	91	716	86	6	63-120/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
367-12-4	2-Fluorophenol	72%	68%	14-99%
4165-62-2	Phenol-d5	76%	73%	18-100%
118-79-6	2,4,6-Tribromophenol	99%	99%	25-107%
4165-60-0	Nitrobenzene-d5	72%	68%	15-101%
321-60-8	2-Fluorobiphenyl	76%	73%	15-104%
1718-51-0	Terphenyl-d14	103%	98%	56-123%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12202-MS	Y30869.D	1	05/12/15	MT	05/11/15	OP12202	EY1422
OP12202-MSD	Y30870.D	1	05/12/15	MT	05/11/15	OP12202	EY1422
C39742-1	Y30871.D	1	05/12/15	MT	05/11/15	OP12202	EY1422

The QC reported here applies to the following samples: **Method:** SW846 8270C

C39742-1, C39742-2, C39742-3

CAS No.	Compound	C39742-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		819	475	58	827	519	63	9	34-112/28
208-96-8	Acenaphthylene	ND		819	497	61	827	540	65	8	33-115/28
120-12-7	Anthracene	ND		819	596	73	827	629	76	5	59-111/21
56-55-3	Benzo(a)anthracene	ND		819	631	77	827	649	78	3	72-122/22
50-32-8	Benzo(a)pyrene	ND		819	642	78	827	667	81	4	71-120/22
205-99-2	Benzo(b)fluoranthene	ND		819	643	78	827	668	81	4	67-123/24
191-24-2	Benzo(g,h,i)perylene	ND		819	583	71	827	631	76	8	57-134/24
207-08-9	Benzo(k)fluoranthene	ND		819	643	78	827	662	80	3	74-126/25
218-01-9	Chrysene	ND		819	619	76	827	641	77	3	73-125/22
53-70-3	Dibenzo(a,h)anthracene	ND		819	600	73	827	640	77	6	59-132/23
206-44-0	Fluoranthene	ND		819	634	77	827	629	76	1	69-117/21
86-73-7	Fluorene	ND		819	543	66	827	586	71	8	42-112/24
193-39-5	Indeno(1,2,3-cd)pyrene	ND		819	623	76	827	649	78	4	60-131/21
90-12-0	1-Methylnaphthalene	ND		819	437	53	827	476	58	9	33-110/30
91-57-6	2-Methylnaphthalene	ND		819	468	57	827	511	62	9	33-107/30
91-20-3	Naphthalene	ND		819	413	50	827	454	55	9	32-121/31
85-01-8	Phenanthrene	ND		819	595	73	827	628	76	5	57-113/21
129-00-0	Pyrene	ND		819	628	77	827	694	84	10	63-120/20

CAS No.	Surrogate Recoveries	MS	MSD	C39742-1	Limits
367-12-4	2-Fluorophenol	58%	63%		14-99%
4165-62-2	Phenol-d5	62%	67%		18-100%
118-79-6	2,4,6-Tribromophenol	85%	90%		25-107%
4165-60-0	Nitrobenzene-d5	59%	64%	52%	15-101%
321-60-8	2-Fluorobiphenyl	63%	68%	56%	15-104%
1718-51-0	Terphenyl-d14	89%	95%	97%	56-123%

* = Outside of Control Limits.

Northern California ACCUTEST LABORATORIES

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12196-MB	HH322977.D	1	05/12/15	AG	05/09/15	OP12196	GHH1525

The QC reported here applies to the following samples: **Method:** SW846 8015B M

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH (C10-C28)	ND	3.3	0.83	mg/kg	
	TPH (> C28-C40)	ND	6.7	1.7	mg/kg	

CAS No.	Surrogate Recoveries		Limits
630-01-3	Hexacosane	103%	37-122%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12196-BS	HH322975.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525
OP12196-BSD	HH322976.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525

The QC reported here applies to the following samples: **Method:** SW846 8015B M

C39742-1, C39742-2, C39742-3

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	BSD mg/kg	BSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	33.3	26.1	78	27.0	81	3	39-102/29
	TPH (> C28-C40)	33.3	25.9	78	26.4	79	2	42-111/26

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
630-01-3	Hexacosane	107%	110%	37-122%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C39742
Account: GGTRCASF Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP12196-MS	HH322973.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525
OP12196-MSD	HH322974.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525
C39742-1	HH322966.D	1	05/11/15	AG	05/09/15	OP12196	GHH1525

The QC reported here applies to the following samples: **Method:** SW846 8015B M

C39742-1, C39742-2, C39742-3

CAS No.	Compound	C39742-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH (C10-C28)	ND		33.2	27.3	82	33.2	27.4	82	0	39-102/29
	TPH (> C28-C40)	ND		33.2	27.5	83	33.2	26.3	79	4	42-111/26

CAS No.	Surrogate Recoveries	MS	MSD	C39742-1	Limits
630-01-3	Hexacosane	104%	102%	101%	37-122%

* = Outside of Control Limits.

Northern California
ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: C39742
Account: GGTRCASF - Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

QC Batch ID: MP9501
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 05/11/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	20	1.3	2		
Antimony	2.0	.07	.087		
Arsenic	2.0	.07	.07		
Barium	20	.04	.035		
Beryllium	1.0	.02	.012		
Boron	10	.09	.2		
Cadmium	1.0	.02	.015	0.010	<1.0
Calcium	500	.71	7.6		
Chromium	1.0	.03	.054	0.030	<1.0
Cobalt	1.0	.02	.022		
Copper	2.5	.12	.19		
Iron	20	.64	1.6		
Lead	2.0	.07	.054	-0.030	<2.0
Magnesium	500	2.7	1.5		
Manganese	1.5	.01	.054		
Molybdenum	2.0	.02	.024		
Nickel	1.0	.02	.024	0.030	<1.0
Potassium	1000	1.8	1.3		
Selenium	2.0	.18	.23		
Silicon		.12			
Silver	1.0	.03	.044		
Sodium	1000	1.5	4.8		
Strontium	1.0	.02	.017		
Thallium	2.0	.05	.073		
Tin	50	.02	.41		
Titanium	1.0	.04	.079		
Vanadium	1.0	.03	.025		
Zinc	2.0	.03	.098	0.51	<2.0

Associated samples MP9501: C39742-1, C39742-2, C39742-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C39742
Account: GGTRCASF - Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

QC Batch ID: MP9501
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 05/11/15

Metal	C39675-1 Original	MS	Spikelot MPIR5	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	0.035	37.9	43.1	87.8	75-125
Calcium	anr				
Chromium	50.0	90.6	43.1	94.2	75-125
Cobalt	anr				
Copper	anr				
Iron	anr				
Lead	8.4	48.5	43.1	93.0	75-125
Magnesium	anr				
Manganese	anr				
Molybdenum	anr				
Nickel	47.4	88.0	43.1	94.2	75-125
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Thallium	anr				
Tin					
Titanium					
Vanadium	anr				
Zinc	46.9	85.1	43.1	88.6	75-125

Associated samples MP9501: C39742-1, C39742-2, C39742-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C39742
Account: GGTRCASF - Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

QC Batch ID: MP9501
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 05/11/15

Metal	C39675-1 Original	MSD	Spikelot MPIR5	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Boron						
Cadmium	0.035	38.1	42.7	89.1	0.5	20
Calcium	anr					
Chromium	50.0	90.5	42.7	94.8	0.1	20
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	8.4	48.0	42.7	92.7	1.0	20
Magnesium	anr					
Manganese	anr					
Molybdenum	anr					
Nickel	47.4	87.7	42.7	94.3	0.3	20
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium	anr					
Zinc	46.9	84.3	42.7	87.5	0.9	20

Associated samples MP9501: C39742-1, C39742-2, C39742-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: C39742
Account: GGTRCASF - Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

QC Batch ID: MP9501
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 05/11/15

Metal	BSP Result	Spikelot MPIR5	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	47.5	50	95.0	80-120
Calcium	anr			
Chromium	50.1	50	100.2	80-120
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	48.3	50	96.6	80-120
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	47.2	50	94.4	80-120
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	50.7	50	101.4	80-120

Associated samples MP9501: C39742-1, C39742-2, C39742-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: C39742
Account: GGTRCASF - Golden Gate Tank Removal
Project: 445 Serramonte Boulevard - Colma,CA

QC Batch ID: MP9501
Matrix Type: SOLID

Methods: SW846 6010B
Units: ug/l

Prep Date: 05/11/15

Metal	C39675-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	0.400	0.00	100.0(a)	0-10
Calcium	anr			
Chromium	575	655	14.0*(b)	0-10
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	96.4	104	7.5	0-10
Magnesium	anr			
Manganese	anr			
Molybdenum	anr			
Nickel	546	537	1.6	0-10
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	539	585	8.4	0-10

Associated samples MP9501: C39742-1, C39742-2, C39742-3

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

ENVIRONMENTAL HEALTH
SAN MATEO COUNTY

Protecting Our Health and Environment

Inspection Report/Field Observations

San Mateo County Environmental Health Division
2000 Alameda de las Pulgas, Suite 100, San Mateo, CA 94403
Telephone: (650) 372-6200 Fax: (650) 627-8244
smchealth.org/environ/toxic

Site Name: Serramonte Auto Plaza
Site Address: 445 Serramonte Colma

Page 1 **of** 1
Date: 05/07/15
Program: UST

On site for UST Removal
UST was removed. LEL%: 0 O2%: 20.9
Vent line was cut aft the tank and ground level. Ends were sealed.

Soil samples taken from the stock pile and at each end of the tank.

Manifests	#	Generator EPAID
Oily Water	014330076JJK	CAC002810739
UST	013997039JJK	NCAL000339644

Facility used 2 EPA ID to remove waste. CAC002810739 was inactive.
Correct manifest for oily water with the correct EPA ID. Submit copy to the County

Submit sample results to the County.

Inspector: Mejia
L:\HAZMAT\Admin\CURRENT MASTER HAZMAT FORMS

Received By: [illegible]

ENVIRONMENTAL HEALTH
SAN MATEO COUNTY
Protecting Our Health and Environment

San Mateo County Environmental Health Division
Certified Unified Program Agency (CUPA)
2000 Alameda de las Pulgas, Suite 100
San Mateo, CA 94403
Phone: (650) 372-6200
www.smhealth.org/environ

UNDERGROUND STORAGE TANK CLOSURE INSPECTION REPORT

Facility Name Serramonte Auto Plaza
Site Address 445 Serramonte City Colma Zip 94014
Contact Person Ascencion Mora Title Supervisor Phone (415) 724-4361
e-mail Cell Phone
Responsible Party Golden Gate Tank Removal Phone 415-512-1555
Mailing Address 1455 Yosemite Ave City San Francisco State CA Zip 94124
e-mail ascensionmora@yahoo.com

INSPECTION INFORMATION

1. **Removal permit issued?** ☑ Yes ☐ No Permit Number: 15-0967
   Does GPP have an open case? ☐ Yes ☑ No
   Are monitoring wells onsite? ☐ Yes ☑ No Depth to groundwater, if known: _____ ft.
2. **Number and Size of Tank(s):**
   — Regular (87) — Midgrade (89) — Premium (91) — Diesel
   2000 gal Waste Oil — Hazardous Waste — Other
3. **Reason for removal:** Does compliance history indicate a problem? ☐ Yes ☒ No
   If yes, explain: _____
4. Does the contractor have a "Site Safety Plan" onsite for review? ☑ Yes ☐ No
5. What is condition of tank(s) and/or piping? no leaks or holes observed
6. Any evidence of a release? ☐ Yes ☒ No Any odor? ☐ Yes ☒ No Soil discoloration? ☐ Yes ☒ No
   Comments: _____
7. Was groundwater encountered in excavation? ☐ Yes ☒ No If yes, what depth? _____ ft.
   Groundwater observations: Floating Product? ☐ Yes ☒ No Sheen? ☐ Yes ☐ No
   Was water sampled? ☐ Yes ☐ No Was water pumped? ☐ Yes ☐ No Approximate volume: _____ gal
8. Was pit over-excavated? ☐ Yes ☐ No If yes, volume _____ yd³
9. Were photographs taken? ☒ Yes ☐ No

SAMPLES AND SAMPLE ANALYSIS: **(Indicate on site-map where samples were collected)**

10. **Were samples collected from stockpile?** ☒ Yes ☐ No Stockpile volume: 25 yd³
    Number of samples collected? 3
    (9502-W, 9502-E & 9502-SP)
11. **Analysis Required**: ☒ MTBE ☒ BTEX ☐ VOC ☐ TPH-G ☐ TPH-D ☒ TPH-MO ☒ Metals: Cd, Cr, Pb, Zn, Ni
    ☐ Chlorinated Hydrocarbons ☒ 8015 ☒ 8260 ☐ 8270 ☒ 6010/6020
12. Chain of Custody verified? ☒ Yes ☐ No

MANIFEST NUMBERS: EPA I.D. NUMBER: _____

TANK 1: 013397059JJK TANK 2: — TANK 3: — TANK 4: —
RINSATE 014338076JJK PIT WATER: —

Inspector Name Mejia Date 5-7-15
Received by Ascen Mora Company GGTR

COLMA FIRE DISTRICT

50 Reiner St
Colma , CA 94014

Bill

Date: 04/21/2015

Inspection Requests:
Phone 650-740-2073

Fire Permit

Plan Check **Pemit # 041515-016F**

Legal Description

Job Address: **445 SERRAMONTE BLVD**

Assessor's No: **011-341-340**

Owner/Tenant

Name: **PRICE THOMAS A LESSEE**
Address: **135 SIR FRANCIS DRAKE BLVD**
City: LARKSPUR State: CA Zip: 94939
Phone:

Applicant

Name: GOLDEN GATE TANK REMOVAL INC
Address: 1480 Carroll Ave
City: San Francisco Zip: 94124 Phone: (415) 512 - 1555
☐ Owner ☐ Tenant ☑ Contractor ☐ Arch/Engr.

Contractor

Name: GOLDEN GATE TANK REMOVAL INC
Address: 1480 Carroll Ave
City: San Francisco Zip: 94124 Phone: (415) 512 - 1555

Architect / Engineer

Name: Company:
License or Registration #:
Address:
City: Zip: Phone:

Fire Application Fee	$10.00
Underground Tank Installation	$268.81
Total Fees	**$278.81**

Class Of Work

☐ Hood & Duct ☐ Fire Sprinkler ☐ Fire Alarm ☐ UG Fire Line
☐ Residential ☐ Commercial ☐ Other:

Description Of Work:

Remove and close 1 (one) 2000 gal waste oil tank

Owner Builder / Contractor Information

Licensed Contractor's Declaration
I hereby affirm that I am licensed under the provisions of Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code (B. & P.C.) and my licnece is in full force and effect.

Contractor's Licensed # and Class 616521
Name: GOLDEN GATE TANK REMOVAL INC
Address: 1480 Carroll Ave
City: San State: Ca Zip: 94124 Phone: (415) 512 - 1555
X Signature: [signature] Date: 4-21-15

Owner/Builder Declaration
I hereby affirm that I am exempt from the Contractor's License Law (C.L.L) for the following reason (Sec. 7031.5, B. & P.C.). Any City which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he/she is licensed pursuant to the provisions of the C.L.L. (Chapter 9 commencing with Section 7000 of Division 3, B. & P.C.) or that he/she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec 7044 B. & P.C.). The C.L.L. does not apply to an owner of property who builds or improves hereon, and who does such work himself or though his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec 7044 B. & P.C.). The C.L.L does not apply to an owner of property who build or improves theron, and who contracts for such projects with a contractor(s) licensed pursuant to the C.L.L. All such contractors must obtain a City Business License prior to beginning work.

☐ I am exempt under Sec. _____, B. & P.C. for this reason:

Owner: Date:

Worker's Compensation Declaration
I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab. C.).

Company: STATE COMPENSATION Policy Number: 1947693
Certified copy is hereby furnished and/or on file with the Building Division.
Applicant: Date:

Certificate of Exemption From Worker's Compensation Insurance
(This Section need not be completed if the permit is for a project valued at one hundred dollars ($100) or less.) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of Calfornia.

Applicant: Date:

Notice to Applicant: If, after making this Certificate of Exemption, you should become subject to the Worker's Comp provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked

Construction Lending Agency
I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.).

Lender's Name :
Lender's Address :

Hazardous Materials
Indicate if the intended occupancy will use chemicals. I certify that the intended occupancy
☐WILL ☐WILL NOT handle acutely hazardous materials in a quantity specified in H & S Code Section 22536 (a) or will contain any source with hazardous air emissions. Signature below acknowledges that H & S Code Sections 25505, 25533 and 25534 and BAAQMD information as well as filing directions were made available to you.

Signature: Date:

NOTICE

This permit will expire if work is not started in 180 days or if work is suspended for more than 180 days or if no inspection is scheduled for more then 180 days. DO NOT conceal or cover any construction until the work is inspected and the inspection reordered on the job copy of your permit. All inspection requests are required 24 hours in advance of the inspection. All work performed under this permit must conform to the plans and specifications filed by the owner or his authorized agent with the building division as the same have been approved and conditioned by the divison. This permit does not consitute an approval or waiver of any voilation of the above provisions, nor of any state law or local ordinance, regulation or requirement. Seperate permit required from the City Engineer for construction on or obsruction of any street or sidewalk.

I certify that I have read this application and state that the information given is true and correct. I agree to comply with all local ordinances and state laws relating to building construction and name this statement under penalty of law. I hereby authorize representatives of the town of Colma to enter upon the above mentioned property for inspection purposes.

Agent for :
☐ Owner ☑ Contractor ☐ Owner ☐ Contractor

X Signature: [signature]

Date:

Colma Fire District Approval

By: Date: 4/21/2015

PERMIT TYPE	DATE	INSPECTOR	NOTES
FIRE ALARM SYSTEM			
Rough-in Wiring			
Appliances Installed			
System Test			
Final Documents Submitted			
FINAL APPROVAL			
FIRE SPRINKLER SYSTEM			
Rough-in			
Hydro Test			
Seismic Bracing			
Flow Test			
FINAL APPROVAL			
FIXED EXTINGUISHING SYSTEMS			
Rough-in			
System Test			
Trim			
Fire Alarm Tie-In			
FINAL APPROVAL			
UNDERGROUND SYSTEM			
Rough Piping			
Thrust Block / Mech Joints			
Hydro			
Flush			
STANDPIPE SYSTEM			
Rough Piping			
Hydro			
Flush			
OTHERS - SPECIFY			
TANK REMOVAL			MONITORING OK
UNDERGROUND			REMOVAL OK
SPECIAL INSPECTIONS			
Fire Proofing Certificate			
FINAL APPROVAL	5/7/15	BP CFD	

ADDRESS

PERMIT #

Please return a copy to the Building Department after project is finaled

CERTIFICATE

CERTIFIED SERVICES COMPANY

255 Parr Boulevard · Richmond, California 94801
Phone # 510-235-1393

CUSTOMER: GOLDEN GATE TANK **JOB NO:** 52T4930

GENERATOR: PRICE-SIMMS SERRAMONTE LLC HYUNDAI SERRAMONTE
445 SERRAMONTE BLVD COLMA 94014

FOR: ECOLOGY CONTROL INDUSTRIES **TANK NO:** 34640

LOCATION: RICHMOND **DATE:** 05/07/2015

LAST PRODUCT: WASTE OIL **TEST METHOD:** VISUAL GASTECH/1314 SMPN

This is to certify that I have personally determined that this is in accordance with the American Petroleum Institute and have found the condition to be in accordance with its assigned designation. This certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

TANK SIZE: 2000 GALLONS CONDITION: SAFE FOR FIRE

REMARKS:

OXYGEN 20.9% LOWER EXPLOSIVE LIMIT LESS THAN 0.1% ECOLOGY CONTROL INDUSTRIES HEREBY CERTIFIES THAT THE ABOVE NUMBERED TANK HAS BEEN CUT OPEN, PROCESSED AND THEREFORE, DESTROYED AT OUR PERMITTED HAZARDOUS WASTE FACILITY. ECOLOGY CONTROL INDUSTRIES HAS THE APPROPRIATE PERMITS FOR AND HAS ACCEPTED THE TANK SHIPPED TO US FOR PROCESSING.

In the event of any physical or atmospheric changes affecting the gas-free conditions of the above tanks, or it in any doubt, immediately stop all hot work and contact the undersigned. This permit is valid for 24 hours if no physical or atmospheric changes occur.

STANDARD SAFETY DESIGNATION

SAFE FOR MEN: Means that in the compartment or space so designated (a) The oxygen content of the atmosphere is at least 19.5 percent by volume; and that (b) Toxic materials in the atmosphere are within permissible concentrations; and (c) In the judgment of the Inspector's certificate.

SAFE FOR FIRE: Means that in the compartment so designated (a) The concentration of flammable materials in the atmosphere is below 10 percent of the lower explosive limit; and that (b) in the judgment of the Inspector, the residues are not capable of producing a higher concentration that permitted under existing atmospheric conditions in the presence of fire and while maintained as directed on the Inspector's certificate, and further, (c) All adjacent spaces have either been cleaned sufficiently to prevent the spread of fire, are satisfactorily inerted, or in the case of fuel tanks, have been treated as deemed necessary by the Inspector.

The undersigned representative acknowledges receipt of this certificate and understands the conditions and limitations under which it was issued.

Bill Maas

REPRESENTATIVE TITLE INSPECTOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CAC002810787

2. Page 1 of 1

3. Emergency Response Phone: NRC 510.749.1390

4. Manifest Tracking Number: 014380076 JJK

5. Generator's Name and Mailing Address
Att: DAVID GOLDMAN
TEMPLE EMANUEL, DAVID GOLDMAN, EXECUTIVE DIRECTOR
2 LAKE ST
SAN FRANCISCO CA 94118
Generator's Phone: 415 751-2541

Generator's Site Address (if different than mailing address)
TEMPLE EMANUEL, DAVID GOLDMAN, EXECUTIVE DIRECTOR
~~445 SERRAMONTE BLVD~~ 445 Serramonte Blvd
~~DIRECTOR~~
COLMA CA 94014

6. Transporter 1 Company Name: NRC ENVIRONMENTAL SERVICES INC.
U.S. EPA ID Number: CAR000030114

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
~~DK DIXON~~
~~7399 CHEVRON WAY~~
~~DIXON CA 95620~~
Facility's Phone: ~~707 693600~~
Crosby & Overton
1630 W. 17th St.
Long Beach, CA 90813
562-432-5445
U.S. EPA ID Number: CAD028409019
~~CAT080012602~~

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-RCRA HAZARDOUS WASTE, LIQUID (OIL WATER)	001	TP ~~TT~~	0250 ~~300~~	G	223
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT, JOB/PO# 93916
NRC ENVIRONMENTAL SERVICES: 1605 FERRY POINT, ALAMEDA, CA 94501
Profile #16296

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Honorio MV
Signature: Honorio Mar
Month Day Year: 05 07 15

GENERATOR

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

INT'L

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Felipe Arevalo
Signature: Felipe Arevalo
Month Day Year: 05 07 15
Transporter 2 Printed/Typed Name
Signature
Month Day Year

TRANSPORTER

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

DESIGNATED FACILITY

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name
Signature
Month Day Year

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CAL000384964
2. Page 1 of
3. Emergency Response Phone: 510-235-1393
4. Manifest Tracking Number: 013897039 JJK

5. Generator's Name and Mailing Address
PRICE-SIMMS SERRAMONTE LLC HYUNDAI SERRAMONTE
1500 COLLINS AVE
COLMA, CA 94014
Generator's Phone: 650-550-7250

Generator's Site Address (if different than mailing address)
445 SERRAMONTE BLVD
COLMA, CA 94014

6. Transporter 1 Company Name: ECOLOGY CONTROL INDUSTRIES
U.S. EPA ID Number: CAD982030173

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
ECOLOGY CONTROL INDUSTRIES
255 PARR BOULEVARD
RICHMOND, CA 94801
Facility's Phone: 510-235-1393
U.S. EPA ID Number: CAD009466392

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-RCRA HAZARDOUS WASTE SOLID (EMPTY STORAGE TANK)	001	TP	~~2000~~ 4000	P	512
	2.			0		
	3.			0		
	4.			0		

14. Special Handling Instructions and Additional Information
ECI JOB #52T4930 TANK#34640[redacted]
WEAR PROPER PPE WHEN HANDLING // WEIGHTS AND VOLUMES ARE APPROXIMATE

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: ASCENSION MURA
Signature: [signature]
Month 5 Day 7 Year 15

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: SHON SPENCE
Signature: [signature]
Month 5 Day 7 Year 15
Transporter 2 Printed/Typed Name
Signature
Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H129 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: BILL MARSKE
Signature: [signature]
Month 5 Day 7 Year 15

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

CA HEALTH & SAFETY CODE: 25280-25299.8

ENVIRONMENTAL HEALTH
SAN MATEO COUNTY

Protecting Our Health and Environment

PERMIT 15- 0967

PE: 2390 UST/TANK ABANDONMENT/REMOVAL FEE

FACILITY: SERRAMONTE AUTO PLAZA
445 SERRAMONTE BLVD., COLMA

OWNER: PRICE, THOMAS A
SERRAMONTE AUTO PLAZA
135 SIR FRANCIS DRAKE BLVD
LARKSPUR

FA0052404
SR0013871
AMOUNT PAID: $ 2,289.00

CONTRACTOR:
GOLDEN GATE TANK REMOVAL INC
1480 CARROLL AVE
SAN FRANCISCO

TANK REMOVAL
CC: FIRE/BLDG. - COLMA

TERMS & CONDITIONS:

LILIANA MEJIA

ENVIRONMENTAL HEALTH SPECIALIST

DATE ISSUED: 5/1/2015

EXPIRATION DATE: 11/1/2015

THIS PERMIT IS NONTRANSFERABLE AND MUST BE POSTED ON-SITE IN A CONSPICUOUS PLACE

APPENDIX I

Qualifications of Environmental Professional

APPENDIX I

SHAWN MUNGER, CHG
PRINCIPAL GEOLOGIST

EDUCATION

BS, Geology, U.C. Davis, 1985

EXPERIENCE

Years with ENGEO: 25
Years with Other Firms: 0

REGISTRATIONS & CERTIFICATIONS

Certified Hydrogeologist, CA, 413
40 Hour HAZWOPER Training, CA
Certified Environmental Manager, NV, 1332
Registered Environmental Assessor II, CA, 20201
Professional Geologist, CA, 5810

SPECIALIZATIONS

- Environmental Assessments and Remediation
- Environmental Restoration
- Water Quality Studies
- Water Wells/Hydrogeology

Since joining ENGEO in 1985, Mr. Munger has been managing groundwater supply evaluations, hydrogeologic studies, chemical assessments, phase I and II site assessment projects, UST site investigations, risk based corrective action (RBCA), VOC remediation, and agricultural impact evaluations. He serves as Principal-in-Charge or Project Manager for environmental and hazardous materials projects involving groundwater hydrology, contaminant fate and transport, and remediation. He is Principal-in-Charge of our on-call contract with DTSC and the environmental components of our on-call contracts with the City of Sacramento and the County of Sacramento.

Selected Project Experience

Seacliff Estates—Richmond, CA
Principal in Charge. Mr. Munger provided oversight, review, and consultation during preparation of phase I and II site assessments and soil remediation. The 12-acre site was formerly part of Kaiser Shipyard No. 3 and was used for ship repair and maintenance along with scrap metal and salvage yards. The property was developed as a single-family residential subdivision.

Renaissance Square—Concord, CA
Project Manager. Mr. Munger provided consultation, data analysis, and field observation. This former automotive dealership was redeveloped as a five-story multi-family residential structure supported on slab-on-grade foundations, with two levels of below-grade parking. Petroleum hydrocarbon-impacted soil was encountered during excavation of the parking structure, which required characterization and remediation. Soil impacts were attributed to former sumps, USTs and hydraulic lifts.

Pleasant Hill BART Station—Walnut Creek, CA
Principal in Charge. Mr. Munger provided oversight, data analysis and consultation during the preparation of a phase II environmental site assessment. The property is an existing BART station that encompasses 20 acres, including the platform/station area, electrical facilities, a parking garage and additional paved parking areas.

Mills Ranch—King City, CA
Principal in Charge. Mr. Munger provided principal oversight of phase I and II environmental site assessments and risk evaluations. The approximate 80-acre property is used for agricultural cultivation and commercial uses. The proposed mixed-use development includes over 400 single-family residential lots.

Select Foods Site/Cross Creek—Hayward, CA
Principal in Charge. Mr. Munger provided principal oversight, consultation, and data analysis. The property was a former processed food facility, a drum recycling business, battery manufacturing operation and a bus assembly plant. Following completion of soil remediation under RWQCB oversight, the property was developed into a single-family residential subdivision.

Southchase Property—West Sacramento, CA
Project Manager. Mr. Munger provided environmental consultation regarding soil contamination and site characterization work. The property is a former farm headquarters with storage structures and orchards.

Westshore—Richmond, CA
Project Manager. Mr. Munger conducted phase I and II site assessments, risk evaluations and prepared a soil management plan. The property was a former automotive manufacturing plant proposed for a multi-unit condominium development, including a 6-story podium structure to include five residential floors with 269 units and one parking floor.

Union Pacific Railroad Corridor—San Jose, CA.
Project Manager. Mr. Munger prepared a phase I and II environmental assessment. Work included a site reconnaissance, historical records research and recovery of soil samples with laboratory analysis. Lead impacted soil was identified which required risk evaluation. This former 1800 lineal foot section of the former Union Pacific Railroad Corridor was proposed for mixed-use development.

Sparklizing Cleaners and Laundry—Fremont, CA
Principal in Charge. Mr. Munger provided principal review and data analysis for this former dry cleaning facility which had released tetrachloroethylene (PCE) to site soil and groundwater. The project site consists of a drycleaning facility located within a commercial/retail center. Drycleaning operations have been conducted at the facility since 1974 and have resulted in chlorinated solvent impacts to soil and groundwater beneath the site. As a result, the CRWQCB opened a Spills, Leaks, Investigations, and Cleanups (SLIC) case and the site was referred to the Alameda County Water District (ACWD) for lead agency oversight. A series of soil and groundwater investigations identified a source area beneath the drycleaner suite and an adjoining retail suite. A CAP submitted to ACWD in 2009 involves using in-situ chemical oxidation (ISCO) to remediate groundwater and vadose zone soil impacts within the source area.

Mare Island, 3rd and Connelly Utility Corridor—Vallejo, CA
Principal in Charge. Mr. Munger provided principal oversight during demolition and soil excavation activities. The project consisted of utility demolition and soil excavation activities

required to prepare for construction of a 300 – foot water and sewer utility corridor along Connelly Street between 3rd Street and Azuar Drive.

Ivy Glen (Former Tredegar)—Fremont, CA
Principal in Charge. Mr. Munger provided oversight of site characterizations, risk evaluations and groundwater monitoring for this for this former industrial facility. The property was a former industrial facility with documented soil and groundwater contamination. Risk assessments allowed redevelopment of the site as a single-family residential subdivision. Groundwater monitoring continues to date as a result of residual docs beneath the property.

County Crossings Property—Antioch, CA
Principal in Charge. Mr. Munger provided environmental consultation and data review with regard to soil and groundwater contamination. Constituents of concern include petroleum hydrocarbons, nitrates and manganese. The approximately 264 acre site includes several former industrial facilities and petroleum pipelines. Soil and groundwater at the site has been impacted with petroleum hydrocarbons, nitrates and manganese. Planned uses include commercial, residential, retail, and a BART-oriented transit village. The center, which is currently in the entitlement phase, is estimated to break ground in 2011.

Arroyo Crossing—Livermore, CA
Principal in Charge. Mr. Munger provided oversight, data analysis and regulatory consultation while ENGEO provided geotechnical and environmental engineering services for this 34-acre site. This former corporation yard and quarry site was developed into a single-family residential subdivision.

620 North Ninth Street—San Jose, CA
Principal in Charge. Mr. Munger provided oversight of soil, groundwater and soil gad characterizations, risk evaluations and remedial action plan preparation. Mr. Munger also closely interacted with RWQCB staff to achieve approval for residential development. The property is a former fruit packing plant and food preparation facility. The proposed development consists of a single-family residential subdivision.

Former SFPP Alignment—Concord, CA
Project Manager. Mr. Munger prepared a Phase I and II environmental assessment for a ± 6,500-foot corridor formerly occupied by the Southern Pacific Railroad (SPRR). Kinder Morgan petroleum pipelines existed within an easement along the property. Work included the recovery of soil and groundwater samples along the SP right of way. The site was a former ± 6,500-foot corridor formerly occupied by the Southern Pacific Railroad. Kinder Morgan petroleum pipelines existed within an easement along the property. The southern portion of the site was crossed by East Bay Municipal Utilities District water distribution lines and a multi-lane highway overpass. The corridor was developed as a self-storage facility.

Gale Ranch Middle School—San Ramon, CA
Principal in Charge. Mr. Munger provided review and supervision of a Preliminary Endangerment Assessment prepared for this school site under the oversight of DTSC. This former site was developed into a public middle school.

Highlands Ranch—Antioch, CA
Principal in Charge. Mr. Munger provided oversight, data analysis, and collaboration with RWQCB personnel. The project site consists of a 140-acre portion of the former Chevron Los Medanos Tank Farm located in Pittsburg, California. The site was historically occupied by 24 crude oil tanks and four wax ponds. Remediation of the crude oil tank and wax pond locations was conducted according to a remedial action plan (RAP) and oversight was provided by the CRWQCB. Remediation was performed over a period of four months and consisted of excavating approximately 110,000 cubic yards of impacted soil and placing the material in windrows for ex-situ bioremediation.

Hercules Property—Hercules, CA
Project Manager. Mr. Munger provided oversight of a phase I environmental site assessment, site asbestos survey, site characterization, and demolition observation/contaminant assessment. The project area consists of ± 167 acres located near and along the southeastern shore of San Pablo Bay in Hercules. The property was once a portion of a 1300-acre manufacturing facility that was operated by DuPont from 1879 to 1913 and Hercules Incorporated from 1913 to 1979. The planned development includes single/multi family residential development with some commercial components.

Gold Rush Ranch and Golf Resort—Sutter creek, CA
Principal in Charge. Mr. Munger provided principal oversight during the preparation of a preliminary endangerment report, including soil, groundwater and surface water sampling. The project site consists of 945 acres of undeveloped land located near the City of Sutter Creek, California. The proposed development plan for the site involves the Gold Rush Ranch and Golf Resort, which includes an 18-hole championship golf course, 1,334 new homes, a commercial center, and open space. The client has entered into a VCA with the Department of Toxic Substances Control (DTSC) to address historic mine tailings at the site. A PEA was prepared to evaluate human health risks associated with elevated arsenic in tailings, soil, and surface water at the site. The PEA was approved by DTSC in 2009. Based on the findings of the PEA, a removal action workplan (RAW) will be prepared to address the human health risks associated with the arsenic impacts.

1000 Howe Road—Martinez, CA
Principal in Charge. Mr. Munger provided oversight and analysis for this soil remediation project. Mr. Munger worked closely with RWQCB personnel to develop a cost effective and timely closure for site closure and approval for residential development. The site is occupied by a general engineering contractor and was a former bus leasing company. Improvements at the property included an office/warehouse structure and an equipment yard. The proposed development consists of a single-family residential subdivision.

APPENDIX H:
PHASE II ENVIRONMENTAL SITE ASSESSMENT – JULY 10, 2015

Project No.
12054.000.000

July 10, 2015

Ms. Amanda Steinle
CenterPoint Integrated Solutions, LLC
1240 Bergen Parkway, Suite A-250
Evergreen, CO 80439

Subject: CarMax Automotive Dealership
435, 445 and 455 Serramonte Boulevard
Colma, California

PHASE II ENVIRONMENTAL SITE ASSESSMENT

Reference: ENGEO, DRAFT Phase I Environmental Site Assessment, CarMax Automotive Dealership, Colma, California, May 19, 2015.

Dear Ms. Steinle:

We are pleased to submit the findings of our phase II environmental site assessment (ESA) undertaken at the subject property (Property) in Colma, California. Based on the findings presented in our phase I ESA, the purpose of the phase II ESA is to address potential subsurface impairments associated with the past agricultural use and past/current automotive-related uses of the Property.

BACKGROUND

The approximately 8.8-acre Property is identified with Assessor's Parcel Numbers (APN) 011-341-340 and 011-341-350. Review of historical records indicates that the Property consisted of agricultural land that had been previously leased for the cultivation of primroses and other flowers, with several acres of the Property used for nursery facilities. Current development includes three large industrial buildings, constructed in the 1980s and 1990s, with appurtenant parking lots and landscaping.

As outlined in our phase I ESA, the following Recognized Environmental Conditions (RECs) were identified for the Property.

- A review of historical records found that the Property was used for agricultural purposes from the early 1940s until the mid-1980s. More specifically, the Property was leased for the cultivation of primroses and other flowers.

- Past hazardous materials business plans (HMBPs) depicted an old wash rack, identified as a sump/clarifier, on the Property until the early 2000s. No documentation regarding the removal of the sump/clarifier was identified.

- A sump located to the eastern side of 435 Serramonte Boulevard was observed at the time of our site reconnaissance.

- The presence and operation of a former underground waste oil tank at the Property.

A phase II environmental assessment was recommended to address potential subsurface impairments associated with these past agricultural and current automotive-related uses of the Property.

SCOPE OF FIELD EXPLORATION

Field sampling activities associated with the phase II ESA were performed on June 26, 2015. Prior to drilling, an ENGEO representative contacted USA North Service Alert for identification of underground utilities at the Property. Subsurface soil and soil gas borings were performed under permit and in accordance with San Mateo County Environmental Health requirements. The scope of the field exploration included soil and soil gas sampling. Details pertaining to each of these tasks are presented below.

PHASE II ESA EXPLORATION

Task 1 – Soil Characterization

A soil sampling study was performed to address potential subsurface impairments associated with the past agricultural use and past/current automotive-related uses of the Property.

A Geoprobe® truck-mounted rig was used to facilitate sample collection. Soil samples were retrieved within continuous Geoprobe acetate core liners measuring 4 feet in length. Specific soil samples were collected for laboratory analysis by cutting a 6-inch portion of the Geoprobe soil core liners from the desired sample depth.

Following recovery, the sample liners were sealed using Teflon® sheets secured by tight-fitting plastic end caps. Upon collection, a label was placed on the sample that included a unique sample number, sample location, time/date collected, laboratory analysis, and the sampler's identification. The soil samples were placed in an ice-cooled chest and submitted under documented chain-of-custody to Torrent Laboratory, Inc., a State-certified laboratory in Milpitas, California.

Task 1a - Soil Characterization: Past Agricultural Use of the Property

A near-surface sampling study was performed to address potential subsurface impairments associated with the past agricultural use of the Property.

Continuous soil cores were collected at six locations at the Property as depicted on Figure 2. Soil samples were collected to a maximum depth of 1.5 feet below the ground surface. Specifically,

samples were collected from each respective sampling location at depths of 0 to 6 inches, 6 to 12 inches, and 12 to 18 inches below the ground surface.

The shallow (0- to 6-inch and 6- to 12-inch) samples were initially analyzed while the deeper (1- to 18-inch) samples were placed on hold pending a review of the shallow sample laboratory results. The laboratory was instructed to homogenize each 6-inch sample sleeve before analyzing. The submitted soil samples were analyzed for organochlorine pesticides (EPA 8081A) and six of the soil samples were analyzed for total arsenic (EPA 6020B).

Following completion of the soil borings, the borings were grouted and abandoned in accordance with San Mateo County Environmental Health requirements.

Task 1b - Soil Characterization: Past and Current Automotive-Related Uses of the Property

The objective of Task 1b was to address potential subsurface impairments associated with the past and current automotive-related uses of the Property. Soil borings were advanced at two locations in the vicinity of the former wash rack and existing sump. Soil samples were collected to a maximum depth of 10 feet below the ground surface. Continuous soil cores were retrieved from each boring. Soil samples were collected at approximate depths of 1, 5, and 10 feet below the ground surface from each of the borings. While in the field, we were only able to recover samples from a depth of 1 and 10 feet in the vicinity of the existing sump.

The soil samples were submitted to Torrent Laboratory, Inc., a State-certified fixed laboratory based in Milpitas, California for analysis of total petroleum hydrocarbons as gasoline (TPH-g) and volatile organic compounds (VOCs) (EPA Method 8260), total petroleum hydrocarbons as diesel (TPH-d), and total petroleum hydrocarbons as motor-oil (EPA Method 8015 with silica gel cleanup), and LUFT metals (EPA Method 6010). The borings were filled with grout upon completion of sampling.

Task 2 - Soil Gas Assessment

In order to evaluate potential vapor intrusion concerns, a soil gas assessment was performed. Six temporary soil gas monitoring wells were installed at the Property and sampled on June 26, 2015. The soil gas well locations are presented on Figure 2.

The installation and sampling of the soil gas monitoring wells were performed in accordance with the Department of Toxic Substances Control (DTSC) Final Advisory Active Soil Gas Investigations (April 2012). The soil gas monitoring well casings were constructed with ¼-inch-diameter Teflon tubing equipped with a filter at the base of the tubing. The well installation was performed with a direct push probe rig, which advanced an approximately 2-inch-diameter boring to a depth of 6 feet below the ground surface. For each well, the bottom of the well casing was equipped with a filter situated at a depth of 5 feet below the ground surface, centered in the middle of a 2-foot-layer of No. 3 sand. The 2-foot-long sand pack was designed to provide adequate flow within potentially low permeability lithology at the Property.

Six inches of dry bentonite was installed on top of the sand, and the remaining annular space was filled with hydrated bentonite grout to the surface. Following installation of the annular seal, the well casings were equipped with a permanent Swagelok® ferrule and nut. A threaded plug was then screwed into the nut and the mandatory two-hour equilibration time began.

The sample train was connected to the well tubing by threading the permanent Swagelok® fitting on the well casing onto the manifold. The sample train consisted of a stainless steel twin summa manifold with a built-in flow controller set to 100 to 200 milliliters per minute (ml/min). A purge vacuum pump was attached to the manifold connection closest to the well casing and the sample canister was connected to the manifold fitting furthest away from the well casing. Prior to connecting the sample train to the well casing, a shut-in test was performed to assess for potential leaks. The shut-in test consisted of capping the end of the manifold, then applying a vacuum with the vacuum pump, closing the purge valve, and observing the vacuum gauge for two minutes to check for a drop in the vacuum. Once the sample train was connected to the well casing, all of the valves were closed, allowing a mandatory two-hour equilibration time to commence. After the two-hour equilibration time elapsed, three well volumes were purged from the wells. After purging was completed, the purge valve on the manifold was closed, and the vacuum pump was removed and connected to another well. Samples were collected by opening the sample canister valve and allowing the sample canister to extract soil gas until the vacuum in the sample canister reached approximately 5 inches of mercury. The leak detection compound 1,1-diflouroethane (1,1-DFA) was applied by wrapping a doused rag around the manifold fittings during sample collection.

Each sample canister was labeled with a unique identification number, sampling time, and pre- and post-sample vacuum readings. The six soil gas samples were submitted to Torrent Laboratory, Inc., a State-certified fixed laboratory, under documented chain-of-custody for analysis of VOCs by EPA Test Method TO-15.

ANALYTICAL RESULTS

Soil Sampling

Review of the laboratory test results found detectable concentrations of organochlorine pesticides (including DDD, DDE, DDT, dieldrin, heptachlor epoxide, and endrin aldehyde) in the six shallow samples (0 to 6 inches) and five of the six deeper samples (6 to 12 inches). The deepest soil samples (12 to 18 inches) were not analyzed. The reported concentrations for the above-referenced organochlorine pesticides are below the corresponding Regional Screening Levels (RSLs) established by the United States Environmental Protection Agency (USEPA) Region IX for industrial land use[1].

As presented in Table A, arsenic was detected in the six shallow soil samples collected from the Property. The reported concentrations of arsenic ranged from 2.3 milligrams per kilograms

[1] Regional Screening Levels, industrial soil, USEPA Region IX, June 2015.

(mg/kg) to 4.8 mg/kg. The reported arsenic concentrations in five of the six samples exceed the current industrial RSL; however, these concentrations are consistent with background soil concentrations found in this region of the State of California[2].

In addition, four metals, including chromium, lead, nickel, and zinc, were detected in the five soil samples collected in the vicinity of the former wash rack and sump. The reported concentrations for the above-referenced metals are below the corresponding RSLs for industrial land use.

VOCs and TPH-g were not detected in the soil samples collected from the Property. TPH-d and TPH-mo were detected at concentrations ranging from 2.4 to 12 milligrams per kilograms (mg/kg) and 16 to 96 mg/kg, respectively, in samples S1 at 10 feet, S2 at 1 foot, and S2 at 5 feet below the ground surface. These concentrations are below the RSLs for an industrial land use scenario.

Soil with a petroleum odor was encountered during the June 29, 2015, excavation of two of the four test pits. In test pits 1 and 2 (1TP-01 and 1TP-02), potentially impacted soil was encountered during the first 10 feet of excavation and at approximately 9 feet below the ground surface, respectively. The soil was not sampled at the time of the geotechnical exploration.

A summary of the soil sample analytical results is presented in Table A. The laboratory results are presented in their entirety in Appendix A.

Soil Gas Sampling

Concentrations of several VOCs were detected in the six soil gas samples collected from the Property. These analytes included 1,3-butadiene, carbon disulfide, acetone, 2-butanone, tert-butanol, 2-hexanone, hexane, toluene, 2-proponal, diisopropyl ether, 4-methyl-2-pentanone (MIBK), MTBE, benzene, 1,2,4-trimethylbenzene, ethyl acetate, ethyl benzene, m,p-xylene, and o-xylene. The leak check compound 1,1-DFA was not detected in any of the samples.

We compared the detected soil gas concentrations to the USEPA's RSLs established for industrial air.[3] The concentrations were below the corresponding screening levels. A summary of the soil gas analytical results is presented in Table B. The laboratory results are presented in their entirety in Appendix A.

DISCUSSION AND CONCLUSION

Review of the laboratory test results found detectable concentrations of several pesticides; however, the reported concentrations are below the applicable USEPA's RSLs for industrial

[2] Bradford, G.R., A.C. Chang, A.L. Page, D. Bakhtar. J.A. Frampton, and H. Wright; Background Concentrations of Trace and Major elements in California Soils; Kearney Foundation of Soil Science, Division of Agriculture and Natural resources, University of California; March 1996.
[3] Regional Screening Levels, industrial air, USEPA Region IX, June 2015.

screening levels. The Property does not appear to have been significantly impacted by the past agricultural use. However, the residual concentrations of OCPs detected on the Property may affect re-use and disposal options if the soil is to be removed and hauled offsite. We recommend providing the laboratory test results to potential recipients for their review and comment.

In addition, four metals (including chromium, lead, nickel, and zinc) were detected in the five soil samples collected in the vicinity of the former wash rack and sump. The detected concentrations were below their respective screening levels.

Although chromium concentrations were below screening levels and were considered typical of background conditions, one soil sample exhibited chromium concentrations exceeding 50 milligrams per kilogram (mg/kg), which is greater than 10 times the soluble threshold limit concentration (STLC) of 5 milligrams per liter (mg/l) for chromium. This concentration of chromium does not represent an environmental concern for the use of the Property. However, if the soil at the Property is excavated for disposal, additional characterization and testing to determine soluble chromium concentrations will need to be undertaken to determine appropriate transport, handling procedures and disposal options.

VOCs and TPH-g were not detected in the soil samples collected from the Property. TPH-d and TPH-mo were detected at concentrations below their corresponding screening levels.

Evidence of impacted soil with a petroleum odor was encountered during the excavation of test pits 1 and 2 (1-TP01 and 1-TP02) on June 29, 2015. The soil was not sampled at the time of the geotechnical exploration. However, two temporary soil gas wells (SV-3 and SV-4) were sampled in the vicinity of the test pits. In the two soil gas samples collected, residual VOC impacts (including 1,3-butadiene, carbon disulfide, acetone, 2-butanone, hexane, toluene, 4-methyl-2-pentanone (MIBK), benzene, ethyl acetate, ethyl benzene, m,p-xylene, and o-xylene) were detected at low concentrations, and below the corresponding screening levels. After a review of the laboratory test results for the two soil gas samples, we do not believe the petroleum-impacted soil encountered within TP-1 and TP-2 would affect the proposed use of the Property.

In the remaining four soil gas samples collected from the Property, VOCs (including 1,3-butadiene, carbon disulfide, acetone, 2-butanone, tert-butanol, 2- hexanone, hexane, toluene, 2-proponal, diisopropyl ether, 4-methyl-2-pentanone (MIBK), MTBE, benzene, 1,2,4-trimethylbenzene, ethyl acetate, ethyl benzene, m,p-xylene, and o-xylene) were detected at low concentrations, below the corresponding screening levels, assuming a commercial/industrial land use scenario. Therefore, vapor encroachment/intrusion would not be considered to pose a risk to future occupants associated with the proposed commercial land use redevelopment of the Property, and no mitigation (i.e., vapor intrusion mitigation systems) is recommended.

After reviewing the laboratory test results for the soil and soil vapor samples collected for this Phase II assessment, residual impacts associated with past agricultural use and past/current automotive-related uses of the Property are evident. However, provided the planned

commercial/industrial use of the Property remains unchanged, the site is suitable for development.

Given the past/current automotive-related uses of the Property, it is possible that small areas with potentially impacted soil could be encountered during future site development activities. If encountered, these materials should be handled in an appropriate manner under the observation of an environmental professional. We recommend the preparation of a Soil Management Plan (SMP) to outline procedures and protocols for handling potentially impacted soil.

If you have any questions regarding this report, please contact us.

Sincerely,

ENGEO Incorporated

Kelsey Gerhart, EIT Brian Flaherty, CHG
kg/bf/jf

Attachments: Figures 1 and 2
Tables A and B
Appendix A – Laboratory Analysis Report

FIGURES

Figure 1 – Vicinity Map
Figure 2 – Sampling Plan

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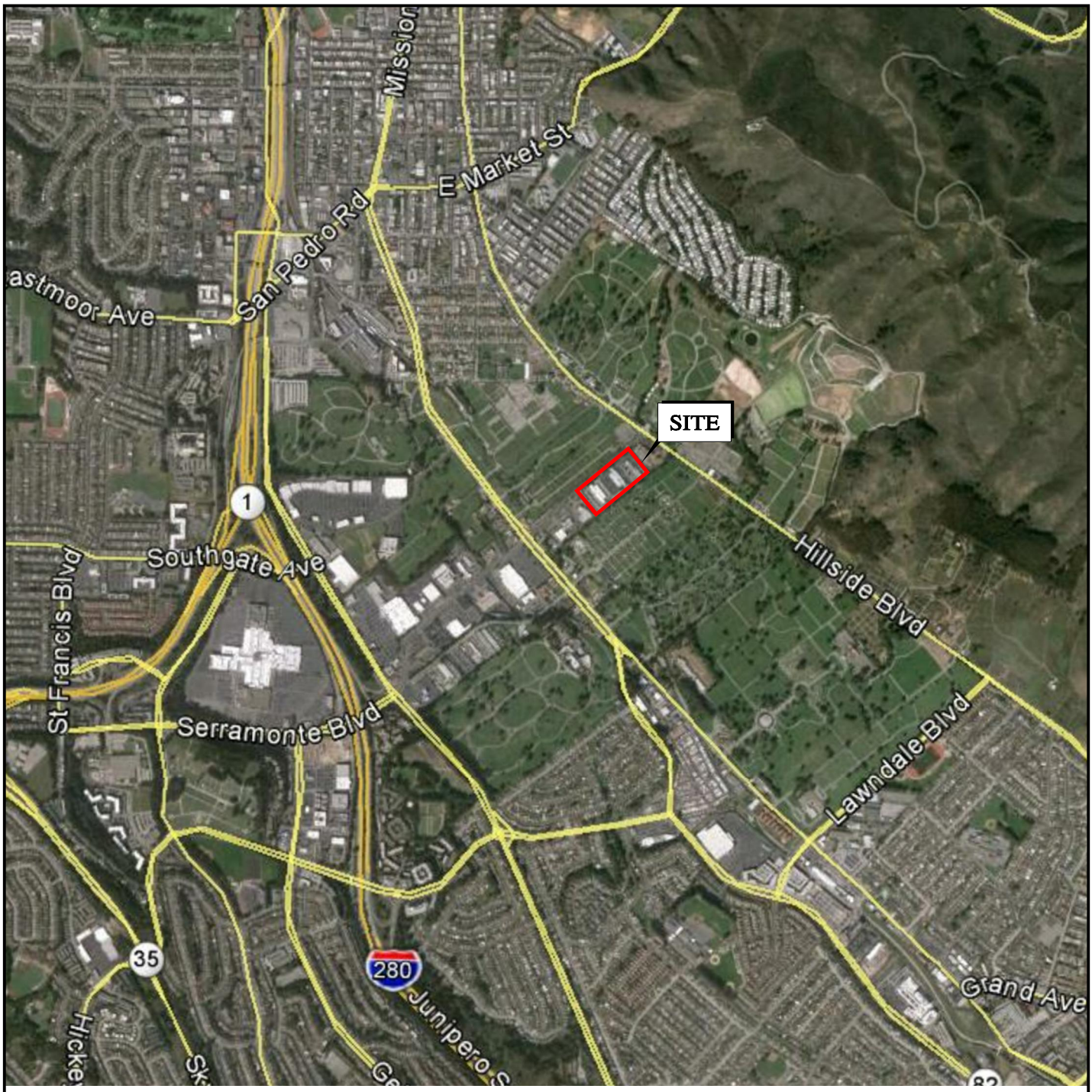

N

0 FEET 2000

0 METERS 1000

BASE MAP SOURCE: GOOGLE EARTH PRO

ENGEO
Expect Excellence

VICINITY MAP
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000		FIGURE NO.
SCALE: AS SHOWN		1
DRAWN BY: LL	CHECKED BY: AU	

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\12054\000\ESA Phase 2\12054000000-ESA2-1-VICMAP-0515.dwg Plot Date: 5-28-15 llee

ORIGINAL FIGURE PRINTED IN COLOR

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N

0 FEET 100
0 METERS 50

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- SV-6 — SOIL VAPOR SAMPLE
- AG-6 — AGRICHEMICAL SAMPLE
- S-2 — SOIL BORING TO A DEPTH OF 10'
- 1-TP04 — TEST PIT

BASE MAP SOURCE: GOOGLE EARTH PRO

ENGEO
Expect Excellence

SAMPLING PLAN
CARMAX COLMA
COLMA, CALIFORNIA

PROJECT NO.: 12054.000.000	FIGURE NO. 2
SCALE: AS SHOWN	
DRAWN BY: LL	CHECKED BY: AU

G:\Drafting\DRAFTING2_Dwg_10000 to 12999\12054\000\ESA Phase 2\12054000000-ESA2-2-SITEPLAN-0715.dwg Plot Date: 7-15-15 llee

ORIGINAL FIGURE PRINTED IN COLOR

TABLES

Tables A - Summary of Soil Sample Laboratory Analysis
Table B - Summary of Soil Vapor Sampling Results

12054.000.000
July 10, 2015

TABLE A - SUMMARY OF SOIL ANALYTICAL RESULTS

SAMPLE ID	DATE	DEPTH	Type of sample	Arsenic[4]						OCPs										
					Chromium	Lead[2]	Nickel	Zinc[2]	Other LUFT Metals	DDD	DDE	DDT	Dieldrin	Heptachlor Expoxide	Endrin Aldehyde	Other OCPs	Other VOCs	TPH-gasoline	TPH-diesel	TPH-motor-oil
		(ft.)		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	µg/kg	µg/kg	µg/Kg	µg/Kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg
Screening Level[1]				**3.0**	**N/A**	**320**	**N/A**	**1.0 E+05**	**N/A**	**9600**	**9300**	**8500**	**140**	**330**	**--**	**N/A**	**N/A**	**420**	**600**	**33000**
S1 @1'	6/26/2015	**1**	Discrete	ND	93	3.9	39	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
S1 @10'	6/26/2015	**10**	Discrete	ND	26	2.4	24	16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4	31
S2 @1'	6/26/2015	**1**	Discrete	ND	37	9.5	49	24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	96
S2 @5'	6/26/2015	**5**	Discrete	ND	36	5.4	17	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.7	16
S2 @10'	6/26/2015	**10**	Discrete	ND	34	3.1	37	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG1 @6"	6/26/2015	**0.5**	Discrete	4.3	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	ND
AG1 @12"	6/26/2015	**1**	Discrete	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AG2 @6"	6/26/2015	**0.5**	Discrete	ND	ND	ND	ND	ND	ND	ND	9.7	10	8.5	ND	ND	ND	ND	ND	ND	ND
AG2 @12"	6/26/2015	**1**	Discrete	2.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND
AG3 @6"	6/26/2015	**0.5**	Discrete	3.8	ND	ND	ND	ND	ND	ND	11	10	12	6.6	ND	ND	ND	ND	ND	ND
AG3 @12"	6/26/2015	**1**	Discrete	ND	ND	ND	ND	ND	ND	3.3	3.9	ND	3	ND	ND	ND	ND	ND	ND	ND
AG4 @6"	6/26/2015	**0.5**	Discrete	ND	ND	ND	ND	ND	ND	ND	15	ND	12	8	ND	ND	ND	ND	ND	ND
AG4 @12"	6/26/2015	**1**	Discrete	4	ND	ND	ND	ND	ND	8.7	15	ND	9.5	5.9	ND	ND	ND	ND	ND	ND
AG5 @6"	6/26/2015	**0.5**	Discrete	4.8	ND	ND	ND	ND	ND	ND	11	ND	8.2	4.4	ND	ND	ND	ND	ND	ND
AG5 @12"	6/26/2015	**1**	Discrete	ND	ND	ND	ND	ND	ND	17	17	ND	7.3	3.6	ND	ND	ND	ND	ND	ND
AG6 @6"	6/26/2015	**0.5**	Discrete	3.7	ND	ND	ND	ND	ND	ND	7,8	ND	7.9	5.6	ND	ND	ND	ND	ND	ND
AG6 @12"	6/26/2015	**1**	Discrete	ND	ND	ND	ND	ND	ND	13	15	ND	ND	4.2	ND	ND	ND	ND	ND	ND

Notes:

N/A = not applicable

NA = not analyzed

ND = not detected

[1] EPA Region 9 Regional Screening Levels (RSLs) for industrial soil, June 2015.

[2] California Human Health Screening Levels- CHHSLs (2010)

[3] Although Arsenic concentrations exceeded the RSLs, concentrations are within background concentrations found in the San Francisco Bay Area.

TABLE B - SUMMARY OF SOIL GAS ANALYTICAL RESULTS

Sample ID	Date	1,3-Butadiene	Carbon Disulfide	Acetone	2-Butanone (MEK)	tert-Butanol	2-Hexanone	Hexane	Toluene	2-Proponal (Isopropyl Alcohol)	Diisopropyl ether (DIPE)	4-Methyl-2-Pentanone (MIBK)	MTBE	Benzene	1,2,4-Trimethylbenzene	Ethyl Acetate	Ethyl Benzene	m,p-Xylene	o-Xylene	Other VOCs
		µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
EPA Region 9 2014 RSLs[1]		**4.10E+02**	**3.10E+06**	**1.40E+08**	**2.20E+07**	**--**	**1.30E+05**	**3.10E+06**	**2.20E+07**	**--**	**3.10E+06**	**1.30E+07**	**4.70E+04**	**1.60E+03**	**3.10E+04**	**3.10E+05**	**4.90E+03**	**8.80E+05**	**4.40E+05**	**N/A**
SV-1	6/27/2015	ND	ND	14.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.93	19.70	4.19	ND
SV-2	6/27/2015	ND	ND	11.8	ND	ND	ND	ND	ND	1.65	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SV-3	6/27/2015	ND	ND	7.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SV-4	6/27/2015	8.99	13.70	421	53.4	ND	ND	52.0	40.9	ND	ND	6.61	ND	43.6	ND	8.78	327	1260	369	ND
SV-5	6/27/2015	ND	2.87	196	1.80	4.73	4.41	ND	13	ND	ND	ND	ND	ND	6.86	ND	28.5	84.7	21	ND
SV-6	6/27/2015	9.08	6.16	453	41.2	ND	ND	125	24.9	ND	5.51	28.0	169	28.6	ND	263	35.5	127	42.1	ND

Notes:

N/A =Not Applicable

ND = not detected

[1] EPA Region 9 Regional Screening Levels for Indoor Air (June 2015) with an attenuation factor of 0.001 for future Industrial land use.

'--' means no RSL exists

APPENDIX A

Laboratory Analysis Report

12054.000.000
July 10, 2015

Engeo (San Ramon)
2010 Crow Canyon Place,#250
San Ramon, California 94583
Tel: (925) 866-9000
Fax: (925) 866-0199

RE: Carmax Colma

Work Order No.: 1506121

Dear Robert Peck:

Torrent Laboratory, Inc. received 6 sample(s) on June 27, 2015 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Yelena Brodskaya
Technical Manager

July 02, 2015
Date

Date: 7/2/2015

Client: Engeo (San Ramon)

Project: Carmax Colma

Work Order: 1506121

CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Analytical, Inc.

Sample Result Summary

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

SV-1 1506121-001A

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
Acetone	ETO15	1.5	1.3	29	14.7
Ethyl Benzene	ETO15	1.5	1.5	3.2	3.93
m,p-Xylene	ETO15	1.5	2.4	6.5	19.7
o-Xylene	ETO15	1.5	1.2	3.2	4.19

SV-2 1506121-002A

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
2-Propanol (Isopropyl Alcohol)	ETO15	1.5	1.5	30	1.65
Acetone	ETO15	1.5	1.3	29	11.8

SV-3 1506121-003A

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
Acetone	ETO15	1.5	1.3	29	7.27

SV-4 1506121-004A

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
1,3-Butadiene	ETO15	3.75	1.7	4.1	8.99
Carbon Disulfide	ETO15	3.75	3.0	12	13.7
Acetone	ETO15	3.75	3.3	72	421
Hexane	ETO15	3.75	2.0	6.6	52.0
2-Butanone (MEK)	ETO15	3.75	2.4	5.6	53.4
Ethyl Acetate	ETO15	3.75	2.8	6.8	8.78
Benzene	ETO15	3.75	2.6	6.0	43.6
Toluene	ETO15	3.75	3.6	7.1	40.9
4-Methyl-2-Pentanone (MIBK)	ETO15	3.75	3.2	7.7	6.61
Ethyl Benzene	ETO15	3.75	3.7	8.1	327
m,p-Xylene	ETO15	3.75	6.0	16	1260
o-Xylene	ETO15	3.75	3.0	8.1	369

Sample Result Summary

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

SV-5 1506121-005A

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
Carbon Disulfide	ETO15	2.5	2.0	7.8	2.87
Acetone	ETO15	2.5	2.2	48	196
tert-Butanol	ETO15	2.5	2.3	21	4.73
2-Butanone (MEK)	ETO15	2.5	1.6	3.8	1.80
Toluene	ETO15	2.5	2.4	4.8	13.0
2-Hexanone	ETO15	2.5	2.8	10	4.41
Ethyl Benzene	ETO15	2.5	2.5	5.4	28.5
m,p-Xylene	ETO15	2.5	4.0	11	84.7
o-Xylene	ETO15	2.5	2.0	5.4	21.0
1,2,4-Trimethylbenzene	ETO15	2.5	1.7	6.1	6.86

SV-6 1506121-006A

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
1,3-Butadiene	ETO15	3.75	1.7	4.1	9.08
Carbon Disulfide	ETO15	3.75	3.0	12	6.16
Acetone	ETO15	3.75	3.3	72	453
Hexane	ETO15	3.75	2.0	6.6	125
MTBE	ETO15	3.75	3.3	6.8	169
Diisopropyl ether (DIPE)	ETO15	3.75	3.3	7.9	5.51
2-Butanone (MEK)	ETO15	3.75	2.4	5.6	41.2
Ethyl Acetate	ETO15	3.75	2.8	6.8	263
Benzene	ETO15	3.75	2.6	6.0	28.6
Toluene	ETO15	3.75	3.6	7.1	24.9
4-Methyl-2-Pentanone (MIBK)	ETO15	3.75	3.2	7.7	28.0
Ethyl Benzene	ETO15	3.75	3.7	8.1	35.5
m,p-Xylene	ETO15	3.75	6.0	16	127
o-Xylene	ETO15	3.75	3.0	8.1	42.1

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-1	**Lab Sample ID:**	1506121-001A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 11:30	**Certified Clean WO # :**	
Canister/Tube ID:	A7554	**Received PSI :**	12.7
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Dichlorodifluoromethane	ETO15	NA	06/29/15	1.5	2.3	7.5	ND	ND		426004	NA
1,1-Difluoroethane	ETO15	NA	06/29/15	1.5	0.75	2.0	ND	ND		426004	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	06/29/15	1.5	7.4	21	ND	ND		426004	NA
Chloromethane	ETO15	NA	06/29/15	1.5	0.48	1.6	ND	ND		426004	NA
Vinyl Chloride	ETO15	NA	06/29/15	1.5	1.0	3.9	ND	ND		426004	NA
1,3-Butadiene	ETO15	NA	06/29/15	1.5	0.67	1.7	ND	ND		426004	NA
Bromomethane	ETO15	NA	06/29/15	1.5	1.1	2.9	ND	ND		426004	NA
Chloroethane	ETO15	NA	06/29/15	1.5	0.75	2.0	ND	ND		426004	NA
Trichlorofluoromethane	ETO15	NA	06/29/15	1.5	2.7	8.4	ND	ND		426004	NA
1,1-Dichloroethene	ETO15	NA	06/29/15	1.5	0.92	3.0	ND	ND		426004	NA
Freon 113	ETO15	NA	06/29/15	1.5	1.3	5.8	ND	ND		426004	NA
Carbon Disulfide	ETO15	NA	06/29/15	1.5	1.2	4.7	ND	ND		426004	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	06/29/15	1.5	1.5	30	ND	ND		426004	NA
Methylene Chloride	ETO15	NA	06/29/15	1.5	0.88	42	ND	ND		426004	NA
Acetone	ETO15	NA	06/29/15	1.5	1.3	29	14.7	6.13	J	426004	NA
trans-1,2-Dichloroethene	ETO15	NA	06/29/15	1.5	0.96	3.0	ND	ND		426004	NA
Hexane	ETO15	NA	06/29/15	1.5	0.79	2.6	ND	ND		426004	NA
MTBE	ETO15	NA	06/29/15	1.5	1.3	2.7	ND	ND		426004	NA
tert-Butanol	ETO15	NA	06/29/15	1.5	1.4	13	ND	ND		426004	NA
Diisopropyl ether (DIPE)	ETO15	NA	06/29/15	1.5	1.3	3.2	ND	ND		426004	NA
1,1-Dichloroethane	ETO15	NA	06/29/15	1.5	1.1	3.1	ND	ND		426004	NA
ETBE	ETO15	NA	06/29/15	1.5	1.0	3.2	ND	ND		426004	NA
cis-1,2-Dichloroethene	ETO15	NA	06/29/15	1.5	0.81	3.0	ND	ND		426004	NA
Chloroform	ETO15	NA	06/29/15	1.5	1.8	7.4	ND	ND		426004	NA
Vinyl Acetate	ETO15	NA	06/29/15	1.5	0.85	2.6	ND	ND		426004	NA
Carbon Tetrachloride	ETO15	NA	06/29/15	1.5	1.3	4.7	ND	ND		426004	NA
1,1,1-Trichloroethane	ETO15	NA	06/29/15	1.5	1.3	4.1	ND	ND		426004	NA
2-Butanone (MEK)	ETO15	NA	06/29/15	1.5	0.94	2.3	ND	ND		426004	NA
Ethyl Acetate	ETO15	NA	06/29/15	1.5	1.1	2.7	ND	ND		426004	NA
Tetrahydrofuran	ETO15	NA	06/29/15	1.5	0.45	2.3	ND	ND		426004	NA
Benzene	ETO15	NA	06/29/15	1.5	1.0	2.4	ND	ND		426004	NA
TAME	ETO15	NA	06/29/15	1.5	0.54	3.2	ND	ND		426004	NA
1,2-Dichloroethane (EDC)	ETO15	NA	06/29/15	1.5	1.5	3.1	ND	ND		426004	NA
Trichloroethylene	ETO15	NA	06/29/15	1.5	2.1	8.1	ND	ND		426004	NA
1,2-Dichloropropane	ETO15	NA	06/29/15	1.5	2.0	6.9	ND	ND		426004	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-1	**Lab Sample ID:**	1506121-001A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 11:30	**Certified Clean WO # :**	
Canister/Tube ID:	A7554	**Received PSI :**	12.7
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Bromodichloromethane	ETO15	NA	06/29/15	1.5	1.3	5.0	ND	ND		426004	NA
1,4-Dioxane	ETO15	NA	06/29/15	1.5	1.9	5.4	ND	ND		426004	NA
trans-1,3-Dichloropropene	ETO15	NA	06/29/15	1.5	1.3	3.4	ND	ND		426004	NA
Toluene	ETO15	NA	06/29/15	1.5	1.4	2.9	ND	ND		426004	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	06/29/15	1.5	1.3	3.1	ND	ND		426004	NA
cis-1,3-Dichloropropene	ETO15	NA	06/29/15	1.5	1.7	3.4	ND	ND		426004	NA
Tetrachloroethylene	ETO15	NA	06/29/15	1.5	1.4	5.1	ND	ND		426004	NA
1,1,2-Trichloroethane	ETO15	NA	06/29/15	1.5	1.4	4.1	ND	ND		426004	NA
Dibromochloromethane	ETO15	NA	06/29/15	1.5	2.6	6.4	ND	ND		426004	NA
1,2-Dibromoethane (EDB)	ETO15	NA	06/29/15	1.5	3.1	12	ND	ND		426004	NA

NOTE: The reporting limits were raised due to insufficient sample volume available (1L canister)

The results shown below are reported using their MDL.

2-Hexanone	ETO15	NA	06/29/15	1.5	1.7	6.2	ND	ND		426004	NA
Ethyl Benzene	ETO15	NA	06/29/15	1.5	1.5	3.2	3.93	0.91		426004	NA
Chlorobenzene	ETO15	NA	06/29/15	1.5	1.1	3.5	ND	ND		426004	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	06/29/15	1.5	1.6	5.2	ND	ND		426004	NA
m,p-Xylene	ETO15	NA	06/29/15	1.5	2.4	6.5	19.7	4.58		426004	NA
o-Xylene	ETO15	NA	06/29/15	1.5	1.2	3.2	4.19	0.97		426004	NA
Styrene	ETO15	NA	06/29/15	1.5	1.0	3.3	ND	ND		426004	NA
Bromoform	ETO15	NA	06/29/15	1.5	1.7	7.5	ND	ND		426004	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	06/29/15	1.5	1.1	5.2	ND	ND		426004	NA
4-Ethyl Toluene	ETO15	NA	06/29/15	1.5	1.2	3.7	ND	ND		426004	NA
1,3,5-Trimethylbenzene	ETO15	NA	06/29/15	1.5	1.1	3.7	ND	ND		426004	NA
1,2,4-Trimethylbenzene	ETO15	NA	06/29/15	1.5	1.0	3.7	ND	ND		426004	NA
1,4-Dichlorobenzene	ETO15	NA	06/29/15	1.5	0.97	4.5	ND	ND		426004	NA
1,3-Dichlorobenzene	ETO15	NA	06/29/15	1.5	1.3	4.5	ND	ND		426004	NA
1,2-Dichlorobenzene	ETO15	NA	06/29/15	1.5	1.4	4.5	ND	ND		426004	NA
Hexachlorobutadiene	ETO15	NA	06/29/15	1.5	3.6	8.3	ND	ND		426004	NA
1,2,4-Trichlorobenzene	ETO15	NA	06/29/15	1.5	5.1	11	ND	ND		426004	NA
Naphthalene	ETO15	NA	06/29/15	1.5	2.2	7.8	ND	ND		426004	NA
(S) 4-Bromofluorobenzene	ETO15	NA	06/29/15	1.5	65	135	87.1 %			426004	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-2	**Lab Sample ID:**	1506121-002A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 13:00	**Certified Clean WO # :**	
Canister/Tube ID:	6120	**Received PSI :**	12.7
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Dichlorodifluoromethane	ETO15	NA	06/29/15	1.5	2.3	7.5	ND	ND		426004	NA
1,1-Difluoroethane	ETO15	NA	06/29/15	1.5	0.75	2.0	ND	ND		426004	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	06/29/15	1.5	7.4	21	ND	ND		426004	NA
Chloromethane	ETO15	NA	06/29/15	1.5	0.48	1.6	ND	ND		426004	NA
Vinyl Chloride	ETO15	NA	06/29/15	1.5	1.0	3.9	ND	ND		426004	NA
1,3-Butadiene	ETO15	NA	06/29/15	1.5	0.67	1.7	ND	ND		426004	NA
Bromomethane	ETO15	NA	06/29/15	1.5	1.1	2.9	ND	ND		426004	NA
Chloroethane	ETO15	NA	06/29/15	1.5	0.75	2.0	ND	ND		426004	NA
Trichlorofluoromethane	ETO15	NA	06/29/15	1.5	2.7	8.4	ND	ND		426004	NA
1,1-Dichloroethene	ETO15	NA	06/29/15	1.5	0.92	3.0	ND	ND		426004	NA
Freon 113	ETO15	NA	06/29/15	1.5	1.3	5.8	ND	ND		426004	NA
Carbon Disulfide	ETO15	NA	06/29/15	1.5	1.2	4.7	ND	ND		426004	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	06/29/15	1.5	1.5	30	1.65	0.66	J	426004	NA
Methylene Chloride	ETO15	NA	06/29/15	1.5	0.88	42	ND	ND		426004	NA
Acetone	ETO15	NA	06/29/15	1.5	1.3	29	11.8	4.92	J	426004	NA
trans-1,2-Dichloroethene	ETO15	NA	06/29/15	1.5	0.96	3.0	ND	ND		426004	NA
Hexane	ETO15	NA	06/29/15	1.5	0.79	2.6	ND	ND		426004	NA
MTBE	ETO15	NA	06/29/15	1.5	1.3	2.7	ND	ND		426004	NA
tert-Butanol	ETO15	NA	06/29/15	1.5	1.4	13	ND	ND		426004	NA
Diisopropyl ether (DIPE)	ETO15	NA	06/29/15	1.5	1.3	3.2	ND	ND		426004	NA
1,1-Dichloroethane	ETO15	NA	06/29/15	1.5	1.1	3.1	ND	ND		426004	NA
ETBE	ETO15	NA	06/29/15	1.5	1.0	3.2	ND	ND		426004	NA
cis-1,2-Dichloroethene	ETO15	NA	06/29/15	1.5	0.81	3.0	ND	ND		426004	NA
Chloroform	ETO15	NA	06/29/15	1.5	1.8	7.4	ND	ND		426004	NA
Vinyl Acetate	ETO15	NA	06/29/15	1.5	0.85	2.6	ND	ND		426004	NA
Carbon Tetrachloride	ETO15	NA	06/29/15	1.5	1.3	4.7	ND	ND		426004	NA
1,1,1-Trichloroethane	ETO15	NA	06/29/15	1.5	1.3	4.1	ND	ND		426004	NA
2-Butanone (MEK)	ETO15	NA	06/29/15	1.5	0.94	2.3	ND	ND		426004	NA
Ethyl Acetate	ETO15	NA	06/29/15	1.5	1.1	2.7	ND	ND		426004	NA
Tetrahydrofuran	ETO15	NA	06/29/15	1.5	0.45	2.3	ND	ND		426004	NA
Benzene	ETO15	NA	06/29/15	1.5	1.0	2.4	ND	ND		426004	NA
TAME	ETO15	NA	06/29/15	1.5	0.54	3.2	ND	ND		426004	NA
1,2-Dichloroethane (EDC)	ETO15	NA	06/29/15	1.5	1.5	3.1	ND	ND		426004	NA
Trichloroethylene	ETO15	NA	06/29/15	1.5	2.1	8.1	ND	ND		426004	NA
1,2-Dichloropropane	ETO15	NA	06/29/15	1.5	2.0	6.9	ND	ND		426004	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-2	**Lab Sample ID:**	1506121-002A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 13:00	**Certified Clean WO # :**	
Canister/Tube ID:	6120	**Received PSI :**	12.7
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Bromodichloromethane	ETO15	NA	06/29/15	1.5	1.3	5.0	ND	ND		426004	NA
1,4-Dioxane	ETO15	NA	06/29/15	1.5	1.9	5.4	ND	ND		426004	NA
trans-1,3-Dichloropropene	ETO15	NA	06/29/15	1.5	1.3	3.4	ND	ND		426004	NA
Toluene	ETO15	NA	06/29/15	1.5	1.4	2.9	ND	ND		426004	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	06/29/15	1.5	1.3	3.1	ND	ND		426004	NA
cis-1,3-Dichloropropene	ETO15	NA	06/29/15	1.5	1.7	3.4	ND	ND		426004	NA
Tetrachloroethylene	ETO15	NA	06/29/15	1.5	1.4	5.1	ND	ND		426004	NA
1,1,2-Trichloroethane	ETO15	NA	06/29/15	1.5	1.4	4.1	ND	ND		426004	NA
Dibromochloromethane	ETO15	NA	06/29/15	1.5	2.6	6.4	ND	ND		426004	NA
1,2-Dibromoethane (EDB)	ETO15	NA	06/29/15	1.5	3.1	12	ND	ND		426004	NA

NOTE: The reporting limits were raised due to insufficient sample volume available (1L canister)

The results shown below are reported using their MDL.

2-Hexanone	ETO15	NA	06/29/15	1.5	1.7	6.2	ND	ND		426004	NA
Ethyl Benzene	ETO15	NA	06/29/15	1.5	1.5	3.2	ND	ND		426004	NA
Chlorobenzene	ETO15	NA	06/29/15	1.5	1.1	3.5	ND	ND		426004	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	06/29/15	1.5	1.6	5.2	ND	ND		426004	NA
m,p-Xylene	ETO15	NA	06/29/15	1.5	2.4	6.5	ND	ND		426004	NA
o-Xylene	ETO15	NA	06/29/15	1.5	1.2	3.2	ND	ND		426004	NA
Styrene	ETO15	NA	06/29/15	1.5	1.0	3.3	ND	ND		426004	NA
Bromoform	ETO15	NA	06/29/15	1.5	1.7	7.5	ND	ND		426004	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	06/29/15	1.5	1.1	5.2	ND	ND		426004	NA
4-Ethyl Toluene	ETO15	NA	06/29/15	1.5	1.2	3.7	ND	ND		426004	NA
1,3,5-Trimethylbenzene	ETO15	NA	06/29/15	1.5	1.1	3.7	ND	ND		426004	NA
1,2,4-Trimethylbenzene	ETO15	NA	06/29/15	1.5	1.0	3.7	ND	ND		426004	NA
1,4-Dichlorobenzene	ETO15	NA	06/29/15	1.5	0.97	4.5	ND	ND		426004	NA
1,3-Dichlorobenzene	ETO15	NA	06/29/15	1.5	1.3	4.5	ND	ND		426004	NA
1,2-Dichlorobenzene	ETO15	NA	06/29/15	1.5	1.4	4.5	ND	ND		426004	NA
Hexachlorobutadiene	ETO15	NA	06/29/15	1.5	3.6	8.3	ND	ND		426004	NA
1,2,4-Trichlorobenzene	ETO15	NA	06/29/15	1.5	5.1	11	ND	ND		426004	NA
Naphthalene	ETO15	NA	06/29/15	1.5	2.2	7.8	ND	ND		426004	NA
(S) 4-Bromofluorobenzene	ETO15	NA	06/29/15	1.5	65	135	89.4 %			426004	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-3	**Lab Sample ID:**	1506121-003A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 12:00	**Certified Clean WO # :**	
Canister/Tube ID:	A7467	**Received PSI :**	12.8
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Dichlorodifluoromethane	ETO15	NA	06/30/15	1.5	2.3	7.5	ND	ND		426021	NA
1,1-Difluoroethane	ETO15	NA	06/30/15	1.5	0.75	2.0	ND	ND		426021	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	06/30/15	1.5	7.4	21	ND	ND		426021	NA
Chloromethane	ETO15	NA	06/30/15	1.5	0.48	1.6	ND	ND		426021	NA
Vinyl Chloride	ETO15	NA	06/30/15	1.5	1.0	3.9	ND	ND		426021	NA
1,3-Butadiene	ETO15	NA	06/30/15	1.5	0.67	1.7	ND	ND		426021	NA
Bromomethane	ETO15	NA	06/30/15	1.5	1.1	2.9	ND	ND		426021	NA
Chloroethane	ETO15	NA	06/30/15	1.5	0.75	2.0	ND	ND		426021	NA
Trichlorofluoromethane	ETO15	NA	06/30/15	1.5	2.7	8.4	ND	ND		426021	NA
1,1-Dichloroethene	ETO15	NA	06/30/15	1.5	0.92	3.0	ND	ND		426021	NA
Freon 113	ETO15	NA	06/30/15	1.5	1.3	5.8	ND	ND		426021	NA
Carbon Disulfide	ETO15	NA	06/30/15	1.5	1.2	4.7	ND	ND		426021	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	06/30/15	1.5	1.5	30	ND	ND		426021	NA
Methylene Chloride	ETO15	NA	06/30/15	1.5	0.88	42	ND	ND		426021	NA
Acetone	ETO15	NA	06/30/15	1.5	1.3	29	7.27	3.03	J	426021	NA
trans-1,2-Dichloroethene	ETO15	NA	06/30/15	1.5	0.96	3.0	ND	ND		426021	NA
Hexane	ETO15	NA	06/30/15	1.5	0.79	2.6	ND	ND		426021	NA
MTBE	ETO15	NA	06/30/15	1.5	1.3	2.7	ND	ND		426021	NA
tert-Butanol	ETO15	NA	06/30/15	1.5	1.4	13	ND	ND		426021	NA
Diisopropyl ether (DIPE)	ETO15	NA	06/30/15	1.5	1.3	3.2	ND	ND		426021	NA
1,1-Dichloroethane	ETO15	NA	06/30/15	1.5	1.1	3.1	ND	ND		426021	NA
ETBE	ETO15	NA	06/30/15	1.5	1.0	3.2	ND	ND		426021	NA
cis-1,2-Dichloroethene	ETO15	NA	06/30/15	1.5	0.81	3.0	ND	ND		426021	NA
Chloroform	ETO15	NA	06/30/15	1.5	1.8	7.4	ND	ND		426021	NA
Vinyl Acetate	ETO15	NA	06/30/15	1.5	0.85	2.6	ND	ND		426021	NA
Carbon Tetrachloride	ETO15	NA	06/30/15	1.5	1.3	4.7	ND	ND		426021	NA
1,1,1-Trichloroethane	ETO15	NA	06/30/15	1.5	1.3	4.1	ND	ND		426021	NA
2-Butanone (MEK)	ETO15	NA	06/30/15	1.5	0.94	2.3	ND	ND		426021	NA
Ethyl Acetate	ETO15	NA	06/30/15	1.5	1.1	2.7	ND	ND		426021	NA
Tetrahydrofuran	ETO15	NA	06/30/15	1.5	0.45	2.3	ND	ND		426021	NA
Benzene	ETO15	NA	06/30/15	1.5	1.0	2.4	ND	ND		426021	NA
TAME	ETO15	NA	06/30/15	1.5	0.54	3.2	ND	ND		426021	NA
1,2-Dichloroethane (EDC)	ETO15	NA	06/30/15	1.5	1.5	3.1	ND	ND		426021	NA
Trichloroethylene	ETO15	NA	06/30/15	1.5	2.1	8.1	ND	ND		426021	NA
1,2-Dichloropropane	ETO15	NA	06/30/15	1.5	2.0	6.9	ND	ND		426021	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-3	**Lab Sample ID:**	1506121-003A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 12:00	**Certified Clean WO # :**	
Canister/Tube ID:	A7467	**Received PSI :**	12.8
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Bromodichloromethane	ETO15	NA	06/30/15	1.5	1.3	5.0	ND	ND		426021	NA
1,4-Dioxane	ETO15	NA	06/30/15	1.5	1.9	5.4	ND	ND		426021	NA
trans-1,3-Dichloropropene	ETO15	NA	06/30/15	1.5	1.3	3.4	ND	ND		426021	NA
Toluene	ETO15	NA	06/30/15	1.5	1.4	2.9	ND	ND		426021	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	06/30/15	1.5	1.3	3.1	ND	ND		426021	NA
cis-1,3-Dichloropropene	ETO15	NA	06/30/15	1.5	1.7	3.4	ND	ND		426021	NA
Tetrachloroethylene	ETO15	NA	06/30/15	1.5	1.4	5.1	ND	ND		426021	NA
1,1,2-Trichloroethane	ETO15	NA	06/30/15	1.5	1.4	4.1	ND	ND		426021	NA
Dibromochloromethane	ETO15	NA	06/30/15	1.5	2.6	6.4	ND	ND		426021	NA
1,2-Dibromoethane (EDB)	ETO15	NA	06/30/15	1.5	3.1	12	ND	ND		426021	NA

NOTE: The reporting limits were raised due to insufficient sample volume available (1L canister)

The results shown below are reported using their MDL.

2-Hexanone	ETO15	NA	06/30/15	1.5	1.7	6.2	ND	ND		426021	NA
Ethyl Benzene	ETO15	NA	06/30/15	1.5	1.5	3.2	ND	ND		426021	NA
Chlorobenzene	ETO15	NA	06/30/15	1.5	1.1	3.5	ND	ND		426021	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	06/30/15	1.5	1.6	5.2	ND	ND		426021	NA
m,p-Xylene	ETO15	NA	06/30/15	1.5	2.4	6.5	ND	ND		426021	NA
o-Xylene	ETO15	NA	06/30/15	1.5	1.2	3.2	ND	ND		426021	NA
Styrene	ETO15	NA	06/30/15	1.5	1.0	3.3	ND	ND		426021	NA
Bromoform	ETO15	NA	06/30/15	1.5	1.7	7.5	ND	ND		426021	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	06/30/15	1.5	1.1	5.2	ND	ND		426021	NA
4-Ethyl Toluene	ETO15	NA	06/30/15	1.5	1.2	3.7	ND	ND		426021	NA
1,3,5-Trimethylbenzene	ETO15	NA	06/30/15	1.5	1.1	3.7	ND	ND		426021	NA
1,2,4-Trimethylbenzene	ETO15	NA	06/30/15	1.5	1.0	3.7	ND	ND		426021	NA
1,4-Dichlorobenzene	ETO15	NA	06/30/15	1.5	0.97	4.5	ND	ND		426021	NA
1,3-Dichlorobenzene	ETO15	NA	06/30/15	1.5	1.3	4.5	ND	ND		426021	NA
1,2-Dichlorobenzene	ETO15	NA	06/30/15	1.5	1.4	4.5	ND	ND		426021	NA
Hexachlorobutadiene	ETO15	NA	06/30/15	1.5	3.6	8.3	ND	ND		426021	NA
1,2,4-Trichlorobenzene	ETO15	NA	06/30/15	1.5	5.1	11	ND	ND		426021	NA
Naphthalene	ETO15	NA	06/30/15	1.5	2.2	7.8	ND	ND		426021	NA
(S) 4-Bromofluorobenzene	ETO15	NA	06/30/15	1.5	65	135	82.3 %			426021	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-4	**Lab Sample ID:**	1506121-004A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 12:30	**Certified Clean WO # :**	
Canister/Tube ID:	A7547	**Received PSI :**	12.1
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Dichlorodifluoromethane	ETO15	NA	06/29/15	3.75	5.7	19	ND	ND		426004	NA
1,1-Difluoroethane	ETO15	NA	06/29/15	3.75	1.9	5.1	ND	ND		426004	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	06/29/15	3.75	19	53	ND	ND		426004	NA
Chloromethane	ETO15	NA	06/29/15	3.75	1.2	3.9	ND	ND		426004	NA
Vinyl Chloride	ETO15	NA	06/29/15	3.75	2.5	9.8	ND	ND		426004	NA
1,3-Butadiene	ETO15	NA	06/29/15	3.75	1.7	4.1	8.99	4.09		426004	NA
Bromomethane	ETO15	NA	06/29/15	3.75	2.7	7.3	ND	ND		426004	NA
Chloroethane	ETO15	NA	06/29/15	3.75	1.9	4.9	ND	ND		426004	NA
Trichlorofluoromethane	ETO15	NA	06/29/15	3.75	6.8	21	ND	ND		426004	NA
1,1-Dichloroethene	ETO15	NA	06/29/15	3.75	2.3	7.5	ND	ND		426004	NA
Freon 113	ETO15	NA	06/29/15	3.75	3.2	14	ND	ND		426004	NA
Carbon Disulfide	ETO15	NA	06/29/15	3.75	3.0	12	13.7	4.42		426004	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	06/29/15	3.75	3.6	75	ND	ND		426004	NA
Methylene Chloride	ETO15	NA	06/29/15	3.75	2.2	110	ND	ND		426004	NA
Acetone	ETO15	NA	06/29/15	3.75	3.3	72	421	175.42		426004	NA
trans-1,2-Dichloroethene	ETO15	NA	06/29/15	3.75	2.4	7.5	ND	ND		426004	NA
Hexane	ETO15	NA	06/29/15	3.75	2.0	6.6	52.0	14.86		426004	NA
MTBE	ETO15	NA	06/29/15	3.75	3.3	6.8	ND	ND		426004	NA
tert-Butanol	ETO15	NA	06/29/15	3.75	3.4	32	ND	ND		426004	NA
Diisopropyl ether (DIPE)	ETO15	NA	06/29/15	3.75	3.3	7.9	ND	ND		426004	NA
1,1-Dichloroethane	ETO15	NA	06/29/15	3.75	2.8	7.7	ND	ND		426004	NA
ETBE	ETO15	NA	06/29/15	3.75	2.5	7.9	ND	ND		426004	NA
cis-1,2-Dichloroethene	ETO15	NA	06/29/15	3.75	2.0	7.5	ND	ND		426004	NA
Chloroform	ETO15	NA	06/29/15	3.75	4.6	18	ND	ND		426004	NA
Vinyl Acetate	ETO15	NA	06/29/15	3.75	2.1	6.6	ND	ND		426004	NA
Carbon Tetrachloride	ETO15	NA	06/29/15	3.75	3.2	12	ND	ND		426004	NA
1,1,1-Trichloroethane	ETO15	NA	06/29/15	3.75	3.2	10	ND	ND		426004	NA
2-Butanone (MEK)	ETO15	NA	06/29/15	3.75	2.4	5.6	53.4	17.80		426004	NA
Ethyl Acetate	ETO15	NA	06/29/15	3.75	2.8	6.8	8.78	2.44		426004	NA
Tetrahydrofuran	ETO15	NA	06/29/15	3.75	1.1	5.6	ND	ND		426004	NA
Benzene	ETO15	NA	06/29/15	3.75	2.6	6.0	43.6	13.63		426004	NA
TAME	ETO15	NA	06/29/15	3.75	1.4	7.9	ND	ND		426004	NA
1,2-Dichloroethane (EDC)	ETO15	NA	06/29/15	3.75	3.7	7.7	ND	ND		426004	NA
Trichloroethylene	ETO15	NA	06/29/15	3.75	5.2	20	ND	ND		426004	NA
1,2-Dichloropropane	ETO15	NA	06/29/15	3.75	4.9	17	ND	ND		426004	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-4	**Lab Sample ID:**	1506121-004A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 12:30	**Certified Clean WO # :**	
Canister/Tube ID:	A7547	**Received PSI :**	12.1
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Bromodichloromethane	ETO15	NA	06/29/15	3.75	3.3	13	ND	ND		426004	NA
1,4-Dioxane	ETO15	NA	06/29/15	3.75	4.7	14	ND	ND		426004	NA
trans-1,3-Dichloropropene	ETO15	NA	06/29/15	3.75	3.3	8.4	ND	ND		426004	NA
Toluene	ETO15	NA	06/29/15	3.75	3.6	7.1	40.9	10.76		426004	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	06/29/15	3.75	3.2	7.7	6.61	1.61	J	426004	NA
cis-1,3-Dichloropropene	ETO15	NA	06/29/15	3.75	4.2	8.4	ND	ND		426004	NA
Tetrachloroethylene	ETO15	NA	06/29/15	3.75	3.4	13	ND	ND		426004	NA
1,1,2-Trichloroethane	ETO15	NA	06/29/15	3.75	3.5	10	ND	ND		426004	NA
Dibromochloromethane	ETO15	NA	06/29/15	3.75	6.5	16	ND	ND		426004	NA
1,2-Dibromoethane (EDB)	ETO15	NA	06/29/15	3.75	7.7	29	ND	ND		426004	NA
The results shown below are reported using their MDL.											
2-Hexanone	ETO15	NA	06/29/15	3.75	4.2	15	ND	ND		426004	NA
Ethyl Benzene	ETO15	NA	06/29/15	3.75	3.7	8.1	327	76.05		426004	NA
Chlorobenzene	ETO15	NA	06/29/15	3.75	2.7	8.6	ND	ND		426004	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	06/29/15	3.75	3.9	13	ND	ND		426004	NA
m,p-Xylene	ETO15	NA	06/29/15	3.75	6.0	16	1260	293.02		426004	NA
o-Xylene	ETO15	NA	06/29/15	3.75	3.0	8.1	369	85.81		426004	NA
Styrene	ETO15	NA	06/29/15	3.75	2.6	8.3	ND	ND		426004	NA
Bromoform	ETO15	NA	06/29/15	3.75	4.2	19	ND	ND		426004	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	06/29/15	3.75	2.6	13	ND	ND		426004	NA
4-Ethyl Toluene	ETO15	NA	06/29/15	3.75	3.1	9.2	ND	ND		426004	NA
1,3,5-Trimethylbenzene	ETO15	NA	06/29/15	3.75	2.8	9.2	ND	ND		426004	NA
1,2,4-Trimethylbenzene	ETO15	NA	06/29/15	3.75	2.6	9.2	ND	ND		426004	NA
1,4-Dichlorobenzene	ETO15	NA	06/29/15	3.75	2.4	11	ND	ND		426004	NA
1,3-Dichlorobenzene	ETO15	NA	06/29/15	3.75	3.1	11	ND	ND		426004	NA
1,2-Dichlorobenzene	ETO15	NA	06/29/15	3.75	3.4	11	ND	ND		426004	NA
Hexachlorobutadiene	ETO15	NA	06/29/15	3.75	9.1	21	ND	ND		426004	NA
1,2,4-Trichlorobenzene	ETO15	NA	06/29/15	3.75	13	28	ND	ND		426004	NA
Naphthalene	ETO15	NA	06/29/15	3.75	5.4	20	ND	ND		426004	NA
(S) 4-Bromofluorobenzene	ETO15	NA	06/29/15	3.75	65	135	84.7 %			426004	NA

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Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-5	**Lab Sample ID:**	1506121-005A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 14:10	**Certified Clean WO # :**	
Canister/Tube ID:	6123	**Received PSI :**	13.9
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Dichlorodifluoromethane	ETO15	NA	06/30/15	2.5	3.8	13	ND	ND		426021	NA
1,1-Difluoroethane	ETO15	NA	06/30/15	2.5	1.2	3.4	ND	ND		426021	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	06/30/15	2.5	12	35	ND	ND		426021	NA
Chloromethane	ETO15	NA	06/30/15	2.5	0.80	2.6	ND	ND		426021	NA
Vinyl Chloride	ETO15	NA	06/30/15	2.5	1.7	6.5	ND	ND		426021	NA
1,3-Butadiene	ETO15	NA	06/30/15	2.5	1.1	2.8	ND	ND		426021	NA
Bromomethane	ETO15	NA	06/30/15	2.5	1.8	4.9	ND	ND		426021	NA
Chloroethane	ETO15	NA	06/30/15	2.5	1.3	3.3	ND	ND		426021	NA
Trichlorofluoromethane	ETO15	NA	06/30/15	2.5	4.5	14	ND	ND		426021	NA
1,1-Dichloroethene	ETO15	NA	06/30/15	2.5	1.5	5.0	ND	ND		426021	NA
Freon 113	ETO15	NA	06/30/15	2.5	2.1	9.6	ND	ND		426021	NA
Carbon Disulfide	ETO15	NA	06/30/15	2.5	2.0	7.8	2.87	0.93	J	426021	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	06/30/15	2.5	2.4	50	ND	ND		426021	NA
Methylene Chloride	ETO15	NA	06/30/15	2.5	1.5	70	ND	ND		426021	NA
Acetone	ETO15	NA	06/30/15	2.5	2.2	48	196	81.67		426021	NA
trans-1,2-Dichloroethene	ETO15	NA	06/30/15	2.5	1.6	5.0	ND	ND		426021	NA
Hexane	ETO15	NA	06/30/15	2.5	1.3	4.4	ND	ND		426021	NA
MTBE	ETO15	NA	06/30/15	2.5	2.2	4.5	ND	ND		426021	NA
tert-Butanol	ETO15	NA	06/30/15	2.5	2.3	21	4.73	1.13	J	426021	NA
Diisopropyl ether (DIPE)	ETO15	NA	06/30/15	2.5	2.2	5.3	ND	ND		426021	NA
1,1-Dichloroethane	ETO15	NA	06/30/15	2.5	1.9	5.1	ND	ND		426021	NA
ETBE	ETO15	NA	06/30/15	2.5	1.7	5.3	ND	ND		426021	NA
cis-1,2-Dichloroethene	ETO15	NA	06/30/15	2.5	1.3	5.0	ND	ND		426021	NA
Chloroform	ETO15	NA	06/30/15	2.5	3.1	12	ND	ND		426021	NA
Vinyl Acetate	ETO15	NA	06/30/15	2.5	1.4	4.4	ND	ND		426021	NA
Carbon Tetrachloride	ETO15	NA	06/30/15	2.5	2.2	7.9	ND	ND		426021	NA
1,1,1-Trichloroethane	ETO15	NA	06/30/15	2.5	2.1	6.9	ND	ND		426021	NA
2-Butanone (MEK)	ETO15	NA	06/30/15	2.5	1.6	3.8	1.80	0.60	J	426021	NA
Ethyl Acetate	ETO15	NA	06/30/15	2.5	1.9	4.5	ND	ND		426021	NA
Tetrahydrofuran	ETO15	NA	06/30/15	2.5	0.75	3.8	ND	ND		426021	NA
Benzene	ETO15	NA	06/30/15	2.5	1.7	4.0	ND	ND		426021	NA
TAME	ETO15	NA	06/30/15	2.5	0.91	5.3	ND	ND		426021	NA
1,2-Dichloroethane (EDC)	ETO15	NA	06/30/15	2.5	2.5	5.1	ND	ND		426021	NA
Trichloroethylene	ETO15	NA	06/30/15	2.5	3.5	14	ND	ND		426021	NA
1,2-Dichloropropane	ETO15	NA	06/30/15	2.5	3.3	12	ND	ND		426021	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-5	**Lab Sample ID:**	1506121-005A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 14:10	**Certified Clean WO # :**	
Canister/Tube ID:	6123	**Received PSI :**	13.9
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Bromodichloromethane	ETO15	NA	06/30/15	2.5	2.2	8.4	ND	ND		426021	NA
1,4-Dioxane	ETO15	NA	06/30/15	2.5	3.1	9.0	ND	ND		426021	NA
trans-1,3-Dichloropropene	ETO15	NA	06/30/15	2.5	2.2	5.6	ND	ND		426021	NA
Toluene	ETO15	NA	06/30/15	2.5	2.4	4.8	13.0	3.42		426021	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	06/30/15	2.5	2.1	5.1	ND	ND		426021	NA
cis-1,3-Dichloropropene	ETO15	NA	06/30/15	2.5	2.8	5.6	ND	ND		426021	NA
Tetrachloroethylene	ETO15	NA	06/30/15	2.5	2.3	8.5	ND	ND		426021	NA
1,1,2-Trichloroethane	ETO15	NA	06/30/15	2.5	2.3	6.9	ND	ND		426021	NA
Dibromochloromethane	ETO15	NA	06/30/15	2.5	4.3	11	ND	ND		426021	NA
1,2-Dibromoethane (EDB)	ETO15	NA	06/30/15	2.5	5.1	19	ND	ND		426021	NA

NOTE: The reporting limits were raised due to insufficient sample volume available (1L canister)

The results shown below are reported using their MDL.

2-Hexanone	ETO15	NA	06/30/15	2.5	2.8	10	4.41	1.08	J	426021	NA
Ethyl Benzene	ETO15	NA	06/30/15	2.5	2.5	5.4	28.5	6.63		426021	NA
Chlorobenzene	ETO15	NA	06/30/15	2.5	1.8	5.8	ND	ND		426021	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	06/30/15	2.5	2.6	8.6	ND	ND		426021	NA
m,p-Xylene	ETO15	NA	06/30/15	2.5	4.0	11	84.7	19.70		426021	NA
o-Xylene	ETO15	NA	06/30/15	2.5	2.0	5.4	21.0	4.88		426021	NA
Styrene	ETO15	NA	06/30/15	2.5	1.7	5.5	ND	ND		426021	NA
Bromoform	ETO15	NA	06/30/15	2.5	2.8	13	ND	ND		426021	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	06/30/15	2.5	1.8	8.6	ND	ND		426021	NA
4-Ethyl Toluene	ETO15	NA	06/30/15	2.5	2.0	6.1	ND	ND		426021	NA
1,3,5-Trimethylbenzene	ETO15	NA	06/30/15	2.5	1.9	6.1	ND	ND		426021	NA
1,2,4-Trimethylbenzene	ETO15	NA	06/30/15	2.5	1.7	6.1	6.86	1.40		426021	NA
1,4-Dichlorobenzene	ETO15	NA	06/30/15	2.5	1.6	7.5	ND	ND		426021	NA
1,3-Dichlorobenzene	ETO15	NA	06/30/15	2.5	2.1	7.5	ND	ND		426021	NA
1,2-Dichlorobenzene	ETO15	NA	06/30/15	2.5	2.3	7.5	ND	ND		426021	NA
Hexachlorobutadiene	ETO15	NA	06/30/15	2.5	6.0	14	ND	ND		426021	NA
1,2,4-Trichlorobenzene	ETO15	NA	06/30/15	2.5	8.5	19	ND	ND		426021	NA
Naphthalene	ETO15	NA	06/30/15	2.5	3.6	13	ND	ND		426021	NA
(S) 4-Bromofluorobenzene	ETO15	NA	06/30/15	2.5	65	135	88.0 %			426021	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-6	**Lab Sample ID:**	1506121-006A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 14:40	**Certified Clean WO # :**	
Canister/Tube ID:	A7567	**Received PSI :**	13.5
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Dichlorodifluoromethane	ETO15	NA	06/29/15	3.75	5.7	19	ND	ND		426004	NA
1,1-Difluoroethane	ETO15	NA	06/29/15	3.75	1.9	5.1	ND	ND		426004	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	06/29/15	3.75	19	53	ND	ND		426004	NA
Chloromethane	ETO15	NA	06/29/15	3.75	1.2	3.9	ND	ND		426004	NA
Vinyl Chloride	ETO15	NA	06/29/15	3.75	2.5	9.8	ND	ND		426004	NA
1,3-Butadiene	ETO15	NA	06/29/15	3.75	1.7	4.1	9.08	4.13		426004	NA
Bromomethane	ETO15	NA	06/29/15	3.75	2.7	7.3	ND	ND		426004	NA
Chloroethane	ETO15	NA	06/29/15	3.75	1.9	4.9	ND	ND		426004	NA
Trichlorofluoromethane	ETO15	NA	06/29/15	3.75	6.8	21	ND	ND		426004	NA
1,1-Dichloroethene	ETO15	NA	06/29/15	3.75	2.3	7.5	ND	ND		426004	NA
Freon 113	ETO15	NA	06/29/15	3.75	3.2	14	ND	ND		426004	NA
Carbon Disulfide	ETO15	NA	06/29/15	3.75	3.0	12	6.16	1.99	J	426004	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	06/29/15	3.75	3.6	75	ND	ND		426004	NA
Methylene Chloride	ETO15	NA	06/29/15	3.75	2.2	110	ND	ND		426004	NA
Acetone	ETO15	NA	06/29/15	3.75	3.3	72	453	188.75		426004	NA
trans-1,2-Dichloroethene	ETO15	NA	06/29/15	3.75	2.4	7.5	ND	ND		426004	NA
Hexane	ETO15	NA	06/29/15	3.75	2.0	6.6	125	35.71		426004	NA
MTBE	ETO15	NA	06/29/15	3.75	3.3	6.8	169	46.94		426004	NA
tert-Butanol	ETO15	NA	06/29/15	3.75	3.4	32	ND	ND		426004	NA
Diisopropyl ether (DIPE)	ETO15	NA	06/29/15	3.75	3.3	7.9	5.51	1.31	J	426004	NA
1,1-Dichloroethane	ETO15	NA	06/29/15	3.75	2.8	7.7	ND	ND		426004	NA
ETBE	ETO15	NA	06/29/15	3.75	2.5	7.9	ND	ND		426004	NA
cis-1,2-Dichloroethene	ETO15	NA	06/29/15	3.75	2.0	7.5	ND	ND		426004	NA
Chloroform	ETO15	NA	06/29/15	3.75	4.6	18	ND	ND		426004	NA
Vinyl Acetate	ETO15	NA	06/29/15	3.75	2.1	6.6	ND	ND		426004	NA
Carbon Tetrachloride	ETO15	NA	06/29/15	3.75	3.2	12	ND	ND		426004	NA
1,1,1-Trichloroethane	ETO15	NA	06/29/15	3.75	3.2	10	ND	ND		426004	NA
2-Butanone (MEK)	ETO15	NA	06/29/15	3.75	2.4	5.6	41.2	13.73		426004	NA
Ethyl Acetate	ETO15	NA	06/29/15	3.75	2.8	6.8	263	73.06		426004	NA
Tetrahydrofuran	ETO15	NA	06/29/15	3.75	1.1	5.6	ND	ND		426004	NA
Benzene	ETO15	NA	06/29/15	3.75	2.6	6.0	28.6	8.94		426004	NA
TAME	ETO15	NA	06/29/15	3.75	1.4	7.9	ND	ND		426004	NA
1,2-Dichloroethane (EDC)	ETO15	NA	06/29/15	3.75	3.7	7.7	ND	ND		426004	NA
Trichloroethylene	ETO15	NA	06/29/15	3.75	5.2	20	ND	ND		426004	NA
1,2-Dichloropropane	ETO15	NA	06/29/15	3.75	4.9	17	ND	ND		426004	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	SV-6	**Lab Sample ID:**	1506121-006A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil Vapor
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 14:40	**Certified Clean WO # :**	
Canister/Tube ID:	A7567	**Received PSI :**	13.5
Collection Volume (L):	0.00	**Corrected PSI :**	0.0

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Bromodichloromethane	ETO15	NA	06/29/15	3.75	3.3	13	ND	ND		426004	NA
1,4-Dioxane	ETO15	NA	06/29/15	3.75	4.7	14	ND	ND		426004	NA
trans-1,3-Dichloropropene	ETO15	NA	06/29/15	3.75	3.3	8.4	ND	ND		426004	NA
Toluene	ETO15	NA	06/29/15	3.75	3.6	7.1	24.9	6.55		426004	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	06/29/15	3.75	3.2	7.7	28.0	6.83		426004	NA
cis-1,3-Dichloropropene	ETO15	NA	06/29/15	3.75	4.2	8.4	ND	ND		426004	NA
Tetrachloroethylene	ETO15	NA	06/29/15	3.75	3.4	13	ND	ND		426004	NA
1,1,2-Trichloroethane	ETO15	NA	06/29/15	3.75	3.5	10	ND	ND		426004	NA
Dibromochloromethane	ETO15	NA	06/29/15	3.75	6.5	16	ND	ND		426004	NA
1,2-Dibromoethane (EDB)	ETO15	NA	06/29/15	3.75	7.7	29	ND	ND		426004	NA
The results shown below are reported using their MDL.											
2-Hexanone	ETO15	NA	06/29/15	3.75	4.2	15	ND	ND		426004	NA
Ethyl Benzene	ETO15	NA	06/29/15	3.75	3.7	8.1	35.5	8.26		426004	NA
Chlorobenzene	ETO15	NA	06/29/15	3.75	2.7	8.6	ND	ND		426004	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	06/29/15	3.75	3.9	13	ND	ND		426004	NA
m,p-Xylene	ETO15	NA	06/29/15	3.75	6.0	16	127	29.53		426004	NA
o-Xylene	ETO15	NA	06/29/15	3.75	3.0	8.1	42.1	9.79		426004	NA
Styrene	ETO15	NA	06/29/15	3.75	2.6	8.3	ND	ND		426004	NA
Bromoform	ETO15	NA	06/29/15	3.75	4.2	19	ND	ND		426004	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	06/29/15	3.75	2.6	13	ND	ND		426004	NA
4-Ethyl Toluene	ETO15	NA	06/29/15	3.75	3.1	9.2	ND	ND		426004	NA
1,3,5-Trimethylbenzene	ETO15	NA	06/29/15	3.75	2.8	9.2	ND	ND		426004	NA
1,2,4-Trimethylbenzene	ETO15	NA	06/29/15	3.75	2.6	9.2	ND	ND		426004	NA
1,4-Dichlorobenzene	ETO15	NA	06/29/15	3.75	2.4	11	ND	ND		426004	NA
1,3-Dichlorobenzene	ETO15	NA	06/29/15	3.75	3.1	11	ND	ND		426004	NA
1,2-Dichlorobenzene	ETO15	NA	06/29/15	3.75	3.4	11	ND	ND		426004	NA
Hexachlorobutadiene	ETO15	NA	06/29/15	3.75	9.1	21	ND	ND		426004	NA
1,2,4-Trichlorobenzene	ETO15	NA	06/29/15	3.75	13	28	ND	ND		426004	NA
Naphthalene	ETO15	NA	06/29/15	3.75	5.4	20	ND	ND		426004	NA
(S) 4-Bromofluorobenzene	ETO15	NA	06/29/15	3.75	65	135	90.3 %			426004	NA

MB Summary Report

Work Order:	1506121	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426004
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	0.30	1.00	ND	
1,1-Difluoroethane	0.18	10.0	ND	
1,2-Dichlorotetrafluoroethane	0.70	2.00	ND	
Chloromethane	0.15	0.500	ND	
Vinyl Chloride	0.26	1.00	ND	
1,3-Butadiene	0.20	0.500	ND	
Bromomethane	0.18	0.500	ND	
Chloroethane	0.19	0.500	ND	
Trichlorofluoromethane	0.32	1.00	ND	
1,1-Dichloroethene	0.15	0.500	ND	
Freon 113	0.11	0.500	ND	
Carbon Disulfide	0.26	1.00	ND	
2-Propanol (Isopropyl Alcohol)	0.39	10.0	ND	
Methylene Chloride	0.17	8.00	ND	
Acetone	0.37	8.00	ND	
trans-1,2-Dichloroethene	0.16	0.500	ND	
Hexane	0.15	0.500	ND	
MTBE	0.24	0.500	ND	
tert-Butanol	0.22	2.00	ND	
Diisopropyl ether (DIPE)	0.21	0.500	ND	
1,1-Dichloroethane	0.18	0.500	ND	
ETBE	0.16	0.500	ND	
cis-1,2-Dichloroethene	0.13	0.500	ND	
Chloroform	0.25	1.00	ND	
Vinyl Acetate	0.16	0.500	ND	
Carbon Tetrachloride	0.14	0.500	ND	
1,1,1-Trichloroethane	0.15	0.500	ND	
2-Butanone (MEK)	0.21	0.500	ND	
Ethyl Acetate	0.21	0.500	ND	
Tetrahydrofuran	0.10	0.500	0.230	
Benzene	0.21	0.500	ND	
TAME	0.086	0.500	ND	
1,2-Dichloroethane (EDC)	0.24	0.500	ND	
Trichloroethylene	0.26	1.00	ND	
1,2-Dichloropropane	0.29	1.00	ND	
Bromodichloromethane	0.13	0.500	ND	
1,4-Dioxane	0.35	1.00	ND	
trans-1,3-Dichloropropene	0.19	0.500	ND	
Toluene	0.25	0.500	ND	
4-Methyl-2-Pentanone (MIBK)	0.21	0.500	ND	
cis-1,3-Dichloropropene	0.25	0.500	ND	

MB Summary Report

Work Order:	1506121	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426004
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Tetrachloroethylene	0.13	0.500	ND	
1,1,2-Trichloroethane	0.17	0.500	ND	
Dibromochloromethane	0.20	0.500	ND	
1,2-Dibromoethane (EDB)	0.27	1.00	ND	
2-Hexanone	0.27	1.00	ND	
Ethyl Benzene	0.23	0.500	ND	
Chlorobenzene	0.15	0.500	ND	
1,1,1,2-Tetrachloroethane	0.15	0.500	ND	
m,p-Xylene	0.38	1.00	ND	
o-Xylene	0.19	0.500	ND	
Styrene	0.16	0.500	ND	
Bromoform	0.11	0.500	ND	
1,1,2,2-Tetrachloroethane	0.10	0.500	ND	
4-Ethyl Toluene	0.17	0.500	ND	
1,3,5-Trimethylbenzene	0.15	0.500	ND	
1,2,4-Trimethylbenzene	0.14	0.500	ND	
1,4-Dichlorobenzene	0.11	0.500	ND	
1,3-Dichlorobenzene	0.14	0.500	ND	
1,2-Dichlorobenzene	0.15	0.500	ND	
Hexachlorobutadiene	0.22	0.500	ND	
1,2,4-Trichlorobenzene	0.46	1.00	ND	
Naphthalene	0.28	1.00	ND	
(S) 4-Bromofluorobenzene			86.9	

MB Summary Report

Work Order:	1506121	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	06/30/15	**Analytical Batch:**	426021
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	0.30	1.00	ND	
1,1-Difluoroethane	0.18	10.0	ND	
1,2-Dichlorotetrafluoroethane	0.70	2.00	ND	
Chloromethane	0.15	0.500	ND	
Vinyl Chloride	0.26	1.00	ND	
1,3-Butadiene	0.20	0.500	ND	
Bromomethane	0.18	0.500	ND	
Chloroethane	0.19	0.500	ND	
Trichlorofluoromethane	0.32	1.00	ND	
1,1-Dichloroethene	0.15	0.500	ND	
Freon 113	0.11	0.500	ND	
Carbon Disulfide	0.26	1.00	ND	
2-Propanol (Isopropyl Alcohol)	0.39	10.0	ND	
Methylene Chloride	0.17	8.00	ND	
Acetone	0.37	8.00	ND	
trans-1,2-Dichloroethene	0.16	0.500	ND	
Hexane	0.15	0.500	ND	
MTBE	0.24	0.500	ND	
tert-Butanol	0.22	2.00	ND	
Diisopropyl ether (DIPE)	0.21	0.500	ND	
1,1-Dichloroethane	0.18	0.500	ND	
ETBE	0.16	0.500	ND	
cis-1,2-Dichloroethene	0.13	0.500	ND	
Chloroform	0.25	1.00	ND	
Vinyl Acetate	0.16	0.500	ND	
Carbon Tetrachloride	0.14	0.500	ND	
1,1,1-Trichloroethane	0.15	0.500	ND	
2-Butanone (MEK)	0.21	0.500	ND	
Ethyl Acetate	0.21	0.500	ND	
Tetrahydrofuran	0.10	0.500	ND	
Benzene	0.21	0.500	ND	
TAME	0.086	0.500	ND	
1,2-Dichloroethane (EDC)	0.24	0.500	ND	
Trichloroethylene	0.26	1.00	ND	
1,2-Dichloropropane	0.29	1.00	ND	
Bromodichloromethane	0.13	0.500	ND	
1,4-Dioxane	0.35	1.00	ND	
trans-1,3-Dichloropropene	0.19	0.500	ND	
Toluene	0.25	0.500	ND	
4-Methyl-2-Pentanone (MIBK)	0.21	0.500	ND	
cis-1,3-Dichloropropene	0.25	0.500	ND	

MB Summary Report

Work Order:	1506121	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	06/30/15	**Analytical Batch:**	426021
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Tetrachloroethylene	0.13	0.500	ND	
1,1,2-Trichloroethane	0.17	0.500	ND	
Dibromochloromethane	0.20	0.500	ND	
1,2-Dibromoethane (EDB)	0.27	1.00	ND	
2-Hexanone	0.27	1.00	ND	
Ethyl Benzene	0.23	0.500	ND	
Chlorobenzene	0.15	0.500	ND	
1,1,1,2-Tetrachloroethane	0.15	0.500	ND	
m,p-Xylene	0.38	1.00	ND	
o-Xylene	0.19	0.500	ND	
Styrene	0.16	0.500	ND	
Bromoform	0.11	0.500	ND	
1,1,2,2-Tetrachloroethane	0.10	0.500	ND	
4-Ethyl Toluene	0.17	0.500	ND	
1,3,5-Trimethylbenzene	0.15	0.500	ND	
1,2,4-Trimethylbenzene	0.14	0.500	ND	
1,4-Dichlorobenzene	0.11	0.500	ND	
1,3-Dichlorobenzene	0.14	0.500	ND	
1,2-Dichlorobenzene	0.15	0.500	ND	
Hexachlorobutadiene	0.22	0.500	ND	
1,2,4-Trichlorobenzene	0.46	1.00	ND	
Naphthalene	0.28	1.00	ND	
(S) 4-Bromofluorobenzene			90.7	

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1506121	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426004
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.15	0.500	ND	8	71.8	80.3	11.2	65 - 135	30	
Benzene	0.21	0.500	ND	8	74.1	78.4	5.57	65 - 135	30	
Trichloroethylene	0.26	1.00	ND	8	73.3	76.1	3.85	65 - 135	30	
Toluene	0.25	0.500	ND	8	77.5	74.6	3.78	65 - 135	30	
Chlorobenzene	0.15	0.500	ND	8	71.3	74.3	4.12	65 - 135	30	
(S) 4-Bromofluorobenzene			ND	8	85.0	85.0		65 - 135		

Work Order:	1506121	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	06/30/15	**Analytical Batch:**	426021
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.15	0.500	ND	8	90.1	97.3	7.61	65 - 135	30	
Benzene	0.21	0.500	ND	8	81.0	91.9	12.6	65 - 135	30	
Trichloroethylene	0.26	1.00	ND	8	86.4	85.4	1.16	65 - 135	30	
Toluene	0.25	0.500	ND	8	89.8	89.3	0.559	65 - 135	30	
Chlorobenzene	0.15	0.500	ND	8	83.9	76.5	9.20	65 - 135	30	
(S) 4-Bromofluorobenzene			ND	8	93.8	92.5		65 - 135		

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg.m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS:

B - Indicates when the anlayte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Engeo (San Ramon)

Project Name: Carmax Colma

Work Order No.: 1506121

Date and Time Received: 6/27/2015 14:20

Received By: ps

Physically Logged By: ng

Checklist Completed By: ng

Carrier Name: Client Drop Off

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes		
Container/Temp Blank temperature in compliance?	Yes	Temperature:	°C
Water-VOA vials have zero headspace?	No VOA vials submitted		
Water-pH acceptable upon receipt?	N/A		

pH Checked by: na

pH Adjusted by: na

Torrent LABORATORY, INC.

CHAIN OF CUSTODY RECORD

1506121

PROJECT NUMBER: 12054.000.000
PROJECT NAME: Carmax Colma
SAMPLED BY: (SIGNATURE/PRINT): Robert Peck, Connie Ing
PROJECT MANAGER: (SIGNATURE/PRINT):
ROUTING: E-MAIL rpeck@engeo.com HARD COPY

SAMPLE NUMBER	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE	PRESERVATIVE	TO-15	OCP	Arsenic (6020)	TPH-g	VOC	TPH dmo w/ silica gel cleanup	LUFT Metals (6010)		REMARKS REQUIRED DETECTION LIMITS
SV-1	6-26-15	11:30	vapor	1	1L Summa		X							-001A	
SV-2		13:00		1			X							-002A	
SV-3		12:00		1			X							-003A	
SV-4		12:30		1			X							-004A	
SV-5		14:10		1			X							-005A	
SV-6		14:40		1			X							-006A	
S-1@1'		10:15	Soil		Liner	ICE				X	X	X	X		
S-1@5'															
S-1@10'		10:45		1						X	X	X	X		
S-2@1'		15:45		1						X	X	X	X		Tmf.
S-2@5'		16:00		1						X	X	X	X		LFUC
S-2@10'		16:15		1						X	X	X	X		Chilling dep
AG-1@6"		11:00		1				X	X						
AG-1@12"		11:05		1				X							
AG-1@18"		11:10		1											Hold
AG-2@6'		14:10		1				X							
AG-2@12"		14:15		1				X	X						
AG-2@18"		14:20		1											Hold

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
	6/27/15 14:20				3 DAY
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE) STANDARD
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE/TIME	REMARKS	

REMARKS:
Standard TAT.
* Homogenize OCP & Arsenic samples
* Hold 18" AG samples

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO PROJECT FIELD FILES

ENGEO INCORPORATED
RECNGLINGIRINGIIR

2010 CROW CANYON PLACE SUITE 250
SAN RAMON, CALIFORNIA 94583
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WWW.ENGEO.COM

Engeo (San Ramon)
2010 Crow Canyon Place,#250
San Ramon, California 94583
Tel: (925) 866-9000
Fax: (925) 866-0199

RE: Carmax Colma

Work Order No.: 1506122

Dear Robert Peck:

Torrent Laboratory, Inc. received 22 sample(s) on June 27, 2015 for the analyses presented in the following Report.

Per Chain of Custody instruction, six samples were placed on hold.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Yelena Brodskaya
Technical Manager

July 02, 2015
Date

Date: 7/2/2015

Client: Engeo (San Ramon)

Project: Carmax Colma

Work Order: 1506122

CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Analytical, Inc.

Sample Result Summary

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

S1 @ 1' 1506122-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Chromium	SW6010B	1	0.0500	5.0	93	mg/Kg
Lead	SW6010B	1	0.14	1.0	3.9	mg/Kg
Nickel	SW6010B	1	0.0500	5.0	39	mg/Kg
Zinc	SW6010B	1	0.25	5.0	19	mg/Kg

S1 @ 10' 1506122-002

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
TPH as Diesel (SG)	SW8015B(M)	1	0.66	2.0	2.4	mg/Kg
TPH as Motor Oil (SG)	SW8015B(M)	1	1.0	10	31	mg/Kg
Chromium	SW6010B	1	0.0500	5.0	26	mg/Kg
Lead	SW6010B	1	0.14	1.0	2.4	mg/Kg
Nickel	SW6010B	1	0.0500	5.0	24	mg/Kg
Zinc	SW6010B	1	0.25	5.0	16	mg/Kg

S2 @ 1' 1506122-003

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
TPH as Diesel (SG)	SW8015B(M)	1	0.66	2.0	12	mg/Kg
TPH as Motor Oil (SG)	SW8015B(M)	1	1.0	10	96	mg/Kg
Chromium	SW6010B	1	0.0500	5.0	37	mg/Kg
Lead	SW6010B	1	0.14	1.0	9.5	mg/Kg
Nickel	SW6010B	1	0.0500	5.0	49	mg/Kg
Zinc	SW6010B	1	0.25	5.0	24	mg/Kg

Sample Result Summary

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

S2 @ 5' 1506122-004

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
TPH as Diesel (SG)	SW8015B(M)	1	0.66	2.0	5.7	mg/Kg
TPH as Motor Oil (SG)	SW8015B(M)	1	1.0	10	16	mg/Kg
Chromium	SW6010B	1	0.0500	5.0	36	mg/Kg
Lead	SW6010B	1	0.14	1.0	5.4	mg/Kg
Nickel	SW6010B	1	0.0500	5.0	17	mg/Kg
Zinc	SW6010B	1	0.25	5.0	19	mg/Kg

S2 @ 10' 1506122-005

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Chromium	SW6010B	1	0.0500	5.0	34	mg/Kg
Lead	SW6010B	1	0.14	1.0	3.1	mg/Kg
Nickel	SW6010B	1	0.0500	5.0	37	mg/Kg
Zinc	SW6010B	1	0.25	5.0	20	mg/Kg

AG 1 @ 6" 1506122-006

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6020	5	0.0036	1.0	4.3	mg/Kg
Dieldrin	SW8081A	10	5.8	20	11	ug/Kg

AG 1 @ 12" 1506122-007

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit

All compounds were non-detectable for this sample.

Sample Result Summary

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

AG 2 @ 6" 1506122-009

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
4,4'-DDE	SW8081A	10	5.1	20	9.7	ug/Kg
Dieldrin	SW8081A	10	5.8	20	8.5	ug/Kg
4,4'-DDT	SW8081A	10	6.7	20	10	ug/Kg

AG 2 @ 12" 1506122-010

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6020	5	0.0036	1.0	2.3	mg/Kg
Endrin aldehyde	SW8081A	4	1.8	8.0	1.8	ug/Kg

AG 3 @ 6" 1506122-012

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Heptachlor epoxide	SW8081A	10	3.6	20	6.6	ug/Kg
4,4'-DDE	SW8081A	10	5.1	20	11	ug/Kg
Dieldrin	SW8081A	10	5.8	20	12	ug/Kg
4,4'-DDT	SW8081A	10	6.7	20	10	ug/Kg
Arsenic	SW6020	5	0.0036	1.0	3.8	mg/Kg

AG 3 @ 12" 1506122-013

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
4,4'-DDE	SW8081A	4	2.0	8.0	3.9	ug/Kg
Dieldrin	SW8081A	4	2.3	8.0	3.0	ug/Kg
4,4'-DDD	SW8081A	4	3.0	8.0	3.3	ug/Kg

AG 4 @ 6" 1506122-015

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Heptachlor epoxide	SW8081A	10	3.6	20	8.0	ug/Kg
4,4'-DDE	SW8081A	10	5.1	20	15	ug/Kg
Dieldrin	SW8081A	10	5.8	20	12	ug/Kg

Sample Result Summary

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

AG 4 @ 12" 1506122-016

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Heptachlor epoxide	SW8081A	10	3.6	20	5.9	ug/Kg
4,4'-DDE	SW8081A	10	5.1	20	15	ug/Kg
Dieldrin	SW8081A	10	5.8	20	9.5	ug/Kg
4,4'-DDD	SW8081A	10	7.6	20	8.7	ug/Kg
Arsenic	SW6020	5	0.0036	1.0	4.0	mg/Kg

AG 5 @ 6" 1506122-018

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Heptachlor epoxide	SW8081A	10	3.6	20	4.4	ug/Kg
4,4'-DDE	SW8081A	10	5.1	20	11	ug/Kg
Dieldrin	SW8081A	10	5.8	20	8.2	ug/Kg
Arsenic	SW6020	5	0.0036	1.0	4.8	mg/Kg

AG 5 @ 12" 1506122-019

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Heptachlor epoxide	SW8081A	10	3.6	20	3.6	ug/Kg
4,4'-DDE	SW8081A	10	5.1	20	17	ug/Kg
Dieldrin	SW8081A	10	5.8	20	7.3	ug/Kg
4,4'-DDD	SW8081A	10	7.6	20	17	ug/Kg

AG 6 @ 6" 1506122-021

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Heptachlor epoxide	SW8081A	10	3.6	20	5.6	ug/Kg
4,4'-DDE	SW8081A	10	5.1	20	7.8	ug/Kg
Dieldrin	SW8081A	10	5.8	20	7.9	ug/Kg
Arsenic	SW6020	5	0.0036	1.0	3.7	mg/Kg

Sample Result Summary

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

AG 6 @ 12" 1506122-022

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Heptachlor epoxide	SW8081A	10	3.6	20	4.2	ug/Kg
4,4'-DDE	SW8081A	10	5.1	20	15	ug/Kg
4,4'-DDD	SW8081A	10	7.6	20	13	ug/Kg

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S1 @ 1'	**Lab Sample ID:**	1506122-001A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 10:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Cadmium	SW6010B	6/30/15	07/01/15	1	0.0550	1.0	ND		mg/Kg	426026	14754
Chromium	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	93		mg/Kg	426026	14754
Lead	SW6010B	6/30/15	07/01/15	1	0.14	1.0	3.9		mg/Kg	426026	14754
Nickel	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	39		mg/Kg	426026	14754
Zinc	SW6010B	6/30/15	07/01/15	1	0.25	5.0	19		mg/Kg	426026	14754

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/29/15	1	4.4	10	ND		ug/Kg	426008	NA
Chloromethane	SW8260B	NA	06/29/15	1	4.6	10	ND		ug/Kg	426008	NA
Vinyl Chloride	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
Bromomethane	SW8260B	NA	06/29/15	1	4.7	10	ND		ug/Kg	426008	NA
Trichlorofluoromethane	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
1,1-Dichloroethene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
Freon 113	SW8260B	NA	06/29/15	1	3.7	10	ND		ug/Kg	426008	NA
Methylene Chloride	SW8260B	NA	06/29/15	1	2.0	50	ND		ug/Kg	426008	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
MTBE	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
tert-Butanol	SW8260B	NA	06/29/15	1	21	50	ND		ug/Kg	426008	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,1-Dichloroethane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
ETBE	SW8260B	NA	06/29/15	1	2.4	10	ND		ug/Kg	426008	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
2,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Bromochloromethane	SW8260B	NA	06/29/15	1	2.3	10	ND		ug/Kg	426008	NA
Chloroform	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Carbon Tetrachloride	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
1,1,1-Trichloroethane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Benzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
TAME	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dichloroethane	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Trichloroethylene	SW8260B	NA	06/29/15	1	3.9	10	ND		ug/Kg	426008	NA
Dibromomethane	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
Bromodichloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S1 @ 1'	**Lab Sample ID:**	1506122-001A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 10:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
cis-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Toluene	SW8260B	NA	06/29/15	1	0.98	10	ND		ug/Kg	426008	NA
Tetrachloroethylene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2-Trichloroethane	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
Dibromochloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,3-Dichloropropane	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dibromoethane	SW8260B	NA	06/29/15	1	1.7	10	ND		ug/Kg	426008	NA
Ethyl Benzene	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
Chlorobenzene	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
m,p-Xylene	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
o-Xylene	SW8260B	NA	06/29/15	1	0.66	5.0	ND		ug/Kg	426008	NA
Styrene	SW8260B	NA	06/29/15	1	0.77	10	ND		ug/Kg	426008	NA
Bromoform	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Isopropyl Benzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
n-Propylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Bromobenzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	3.0	10	ND		ug/Kg	426008	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,2,3-Trichloropropane	SW8260B	NA	06/29/15	1	3.3	10	ND		ug/Kg	426008	NA
4-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
2-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
tert-Butylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
sec-Butyl Benzene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
p-Isopropyltoluene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
1,3-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
1,4-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
n-Butylbenzene	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
Hexachlorobutadiene	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
Naphthalene	SW8260B	NA	06/29/15	1	2.8	10	ND		ug/Kg	426008	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
(S) Dibromofluoromethane	SW8260B	NA	06/29/15	1	59.8	148	84.0		%	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S1 @ 1'	**Lab Sample ID:**	1506122-001A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 10:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
(S) Toluene-d8	SW8260B	NA	06/29/15	1	55.2	133	93.0		%	426008	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/29/15	1	55.8	141	88.8		%	426008	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/29/15	06/29/15	1	30	100	ND		ug/Kg	426008	14740
(S) 4-Bromofluorobenzene	8260TPH	6/29/15	06/29/15	1	43.9	127	93.9		%	426008	14740

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	6/29/15	06/29/15	1	0.66	2.0	ND		mg/Kg	425987	14729
TPH as Motor Oil (SG)	SW8015B(M)	6/29/15	06/29/15	1	1.0	10	ND		mg/Kg	425987	14729
Pentacosane (S)	SW8015B(M)	6/29/15	06/29/15	1	49.9	144	78.8		%	425987	14729

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S1 @ 10'	**Lab Sample ID:**	1506122-002A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 10:45		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Cadmium	SW6010B	6/30/15	07/01/15	1	0.0550	1.0	ND		mg/Kg	426026	14754
Chromium	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	26		mg/Kg	426026	14754
Lead	SW6010B	6/30/15	07/01/15	1	0.14	1.0	2.4		mg/Kg	426026	14754
Nickel	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	24		mg/Kg	426026	14754
Zinc	SW6010B	6/30/15	07/01/15	1	0.25	5.0	16		mg/Kg	426026	14754

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/29/15	1	4.4	10	ND		ug/Kg	426008	NA
Chloromethane	SW8260B	NA	06/29/15	1	4.6	10	ND		ug/Kg	426008	NA
Vinyl Chloride	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
Bromomethane	SW8260B	NA	06/29/15	1	4.7	10	ND		ug/Kg	426008	NA
Trichlorofluoromethane	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
1,1-Dichloroethene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
Freon 113	SW8260B	NA	06/29/15	1	3.7	10	ND		ug/Kg	426008	NA
Methylene Chloride	SW8260B	NA	06/29/15	1	2.0	50	ND		ug/Kg	426008	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
MTBE	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
tert-Butanol	SW8260B	NA	06/29/15	1	21	50	ND		ug/Kg	426008	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,1-Dichloroethane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
ETBE	SW8260B	NA	06/29/15	1	2.4	10	ND		ug/Kg	426008	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
2,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Bromochloromethane	SW8260B	NA	06/29/15	1	2.3	10	ND		ug/Kg	426008	NA
Chloroform	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Carbon Tetrachloride	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
1,1,1-Trichloroethane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Benzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
TAME	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dichloroethane	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Trichloroethylene	SW8260B	NA	06/29/15	1	3.9	10	ND		ug/Kg	426008	NA
Dibromomethane	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
Bromodichloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S1 @ 10'	**Lab Sample ID:**	1506122-002A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 10:45		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
cis-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Toluene	SW8260B	NA	06/29/15	1	0.98	10	ND		ug/Kg	426008	NA
Tetrachloroethylene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2-Trichloroethane	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
Dibromochloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,3-Dichloropropane	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dibromoethane	SW8260B	NA	06/29/15	1	1.7	10	ND		ug/Kg	426008	NA
Ethyl Benzene	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
Chlorobenzene	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
m,p-Xylene	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
o-Xylene	SW8260B	NA	06/29/15	1	0.66	5.0	ND		ug/Kg	426008	NA
Styrene	SW8260B	NA	06/29/15	1	0.77	10	ND		ug/Kg	426008	NA
Bromoform	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Isopropyl Benzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
n-Propylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Bromobenzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	3.0	10	ND		ug/Kg	426008	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,2,3-Trichloropropane	SW8260B	NA	06/29/15	1	3.3	10	ND		ug/Kg	426008	NA
4-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
2-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
tert-Butylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
sec-Butyl Benzene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
p-Isopropyltoluene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
1,3-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
1,4-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
n-Butylbenzene	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
Hexachlorobutadiene	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
Naphthalene	SW8260B	NA	06/29/15	1	2.8	10	ND		ug/Kg	426008	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
(S) Dibromofluoromethane	SW8260B	NA	06/29/15	1	59.8	148	84.0		%	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S1 @ 10'	**Lab Sample ID:**	1506122-002A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 10:45		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
(S) Toluene-d8	SW8260B	NA	06/29/15	1	55.2	133	93.1		%	426008	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/29/15	1	55.8	141	88.4		%	426008	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/29/15	06/29/15	1	30	100	ND		ug/Kg	426008	14740
(S) 4-Bromofluorobenzene	8260TPH	6/29/15	06/29/15	1	43.9	127	84.8		%	426008	14740

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	6/29/15	06/29/15	1	0.66	2.0	2.4	x	mg/Kg	425987	14729
TPH as Motor Oil (SG)	SW8015B(M)	6/29/15	06/29/15	1	1.0	10	31		mg/Kg	425987	14729
Pentacosane (S)	SW8015B(M)	6/29/15	06/29/15	1	49.9	144	74.0		%	425987	14729

NOTE: x- Diesel result due to over-lapping of oil range organics within diesel quantified range

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 1'	**Lab Sample ID:**	1506122-003A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 15:45		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Cadmium	SW6010B	6/30/15	07/01/15	1	0.0550	1.0	ND		mg/Kg	426026	14754
Chromium	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	37		mg/Kg	426026	14754
Lead	SW6010B	6/30/15	07/01/15	1	0.14	1.0	9.5		mg/Kg	426026	14754
Nickel	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	49		mg/Kg	426026	14754
Zinc	SW6010B	6/30/15	07/01/15	1	0.25	5.0	24		mg/Kg	426026	14754

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/29/15	1	4.4	10	ND		ug/Kg	426008	NA
Chloromethane	SW8260B	NA	06/29/15	1	4.6	10	ND		ug/Kg	426008	NA
Vinyl Chloride	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
Bromomethane	SW8260B	NA	06/29/15	1	4.7	10	ND		ug/Kg	426008	NA
Trichlorofluoromethane	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
1,1-Dichloroethene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
Freon 113	SW8260B	NA	06/29/15	1	3.7	10	ND		ug/Kg	426008	NA
Methylene Chloride	SW8260B	NA	06/29/15	1	2.0	50	ND		ug/Kg	426008	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
MTBE	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
tert-Butanol	SW8260B	NA	06/29/15	1	21	50	ND		ug/Kg	426008	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,1-Dichloroethane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
ETBE	SW8260B	NA	06/29/15	1	2.4	10	ND		ug/Kg	426008	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
2,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Bromochloromethane	SW8260B	NA	06/29/15	1	2.3	10	ND		ug/Kg	426008	NA
Chloroform	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Carbon Tetrachloride	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
1,1,1-Trichloroethane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Benzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
TAME	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dichloroethane	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Trichloroethylene	SW8260B	NA	06/29/15	1	3.9	10	ND		ug/Kg	426008	NA
Dibromomethane	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
Bromodichloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 1'	**Lab Sample ID:**	1506122-003A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 15:45		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
cis-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Toluene	SW8260B	NA	06/29/15	1	0.98	10	ND		ug/Kg	426008	NA
Tetrachloroethylene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2-Trichloroethane	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
Dibromochloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,3-Dichloropropane	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dibromoethane	SW8260B	NA	06/29/15	1	1.7	10	ND		ug/Kg	426008	NA
Ethyl Benzene	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
Chlorobenzene	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
m,p-Xylene	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
o-Xylene	SW8260B	NA	06/29/15	1	0.66	5.0	ND		ug/Kg	426008	NA
Styrene	SW8260B	NA	06/29/15	1	0.77	10	ND		ug/Kg	426008	NA
Bromoform	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Isopropyl Benzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
n-Propylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Bromobenzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	3.0	10	ND		ug/Kg	426008	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,2,3-Trichloropropane	SW8260B	NA	06/29/15	1	3.3	10	ND		ug/Kg	426008	NA
4-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
2-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
tert-Butylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
sec-Butyl Benzene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
p-Isopropyltoluene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
1,3-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
1,4-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
n-Butylbenzene	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
Hexachlorobutadiene	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
Naphthalene	SW8260B	NA	06/29/15	1	2.8	10	ND		ug/Kg	426008	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
(S) Dibromofluoromethane	SW8260B	NA	06/29/15	1	59.8	148	85.1		%	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 1'	**Lab Sample ID:**	1506122-003A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 15:45		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
(S) Toluene-d8	SW8260B	NA	06/29/15	1	55.2	133	93.2		%	426008	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/29/15	1	55.8	141	92.2		%	426008	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/29/15	06/29/15	1	30	100	ND		ug/Kg	426008	14740
(S) 4-Bromofluorobenzene	8260TPH	6/29/15	06/29/15	1	43.9	127	85.9		%	426008	14740

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	6/29/15	06/29/15	1	0.66	2.0	12	x	mg/Kg	425987	14729
TPH as Motor Oil (SG)	SW8015B(M)	6/29/15	06/29/15	1	1.0	10	96		mg/Kg	425987	14729
Pentacosane (S)	SW8015B(M)	6/29/15	06/29/15	1	49.9	144	81.6		%	425987	14729

NOTE: x- Diesel result due to over-lapping of oil range organics within diesel quantified range

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 5'	**Lab Sample ID:**	1506122-004A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Cadmium	SW6010B	6/30/15	07/01/15	1	0.0550	1.0	ND		mg/Kg	426026	14754
Chromium	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	36		mg/Kg	426026	14754
Lead	SW6010B	6/30/15	07/01/15	1	0.14	1.0	5.4		mg/Kg	426026	14754
Nickel	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	17		mg/Kg	426026	14754
Zinc	SW6010B	6/30/15	07/01/15	1	0.25	5.0	19		mg/Kg	426026	14754

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/29/15	1	4.4	10	ND		ug/Kg	426008	NA
Chloromethane	SW8260B	NA	06/29/15	1	4.6	10	ND		ug/Kg	426008	NA
Vinyl Chloride	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
Bromomethane	SW8260B	NA	06/29/15	1	4.7	10	ND		ug/Kg	426008	NA
Trichlorofluoromethane	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
1,1-Dichloroethene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
Freon 113	SW8260B	NA	06/29/15	1	3.7	10	ND		ug/Kg	426008	NA
Methylene Chloride	SW8260B	NA	06/29/15	1	2.0	50	ND		ug/Kg	426008	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
MTBE	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
tert-Butanol	SW8260B	NA	06/29/15	1	21	50	ND		ug/Kg	426008	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,1-Dichloroethane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
ETBE	SW8260B	NA	06/29/15	1	2.4	10	ND		ug/Kg	426008	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
2,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Bromochloromethane	SW8260B	NA	06/29/15	1	2.3	10	ND		ug/Kg	426008	NA
Chloroform	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Carbon Tetrachloride	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
1,1,1-Trichloroethane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Benzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
TAME	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dichloroethane	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Trichloroethylene	SW8260B	NA	06/29/15	1	3.9	10	ND		ug/Kg	426008	NA
Dibromomethane	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
Bromodichloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 5'	**Lab Sample ID:**	1506122-004A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
cis-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Toluene	SW8260B	NA	06/29/15	1	0.98	10	ND		ug/Kg	426008	NA
Tetrachloroethylene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2-Trichloroethane	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
Dibromochloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,3-Dichloropropane	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dibromoethane	SW8260B	NA	06/29/15	1	1.7	10	ND		ug/Kg	426008	NA
Ethyl Benzene	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
Chlorobenzene	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
m,p-Xylene	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
o-Xylene	SW8260B	NA	06/29/15	1	0.66	5.0	ND		ug/Kg	426008	NA
Styrene	SW8260B	NA	06/29/15	1	0.77	10	ND		ug/Kg	426008	NA
Bromoform	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Isopropyl Benzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
n-Propylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Bromobenzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	3.0	10	ND		ug/Kg	426008	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,2,3-Trichloropropane	SW8260B	NA	06/29/15	1	3.3	10	ND		ug/Kg	426008	NA
4-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
2-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
tert-Butylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
sec-Butyl Benzene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
p-Isopropyltoluene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
1,3-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
1,4-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
n-Butylbenzene	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
Hexachlorobutadiene	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
Naphthalene	SW8260B	NA	06/29/15	1	2.8	10	ND		ug/Kg	426008	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
(S) Dibromofluoromethane	SW8260B	NA	06/29/15	1	59.8	148	85.2		%	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 5'	**Lab Sample ID:**	1506122-004A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
(S) Toluene-d8	SW8260B	NA	06/29/15	1	55.2	133	93.9		%	426008	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/29/15	1	55.8	141	88.3		%	426008	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/29/15	06/29/15	1	30	100	ND		ug/Kg	426008	14740
(S) 4-Bromofluorobenzene	8260TPH	6/29/15	06/29/15	1	43.9	127	87.8		%	426008	14740

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	6/29/15	06/29/15	1	0.66	2.0	5.7	x	mg/Kg	425987	14729
TPH as Motor Oil (SG)	SW8015B(M)	6/29/15	06/29/15	1	1.0	10	16		mg/Kg	425987	14729
Pentacosane (S)	SW8015B(M)	6/29/15	06/29/15	1	49.9	144	89.7		%	425987	14729

NOTE: x- Diesel result due to over-lapping of oil range organics within diesel quantified range

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 10'	**Lab Sample ID:**	1506122-005A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Cadmium	SW6010B	6/30/15	07/01/15	1	0.0550	1.0	ND		mg/Kg	426026	14754
Chromium	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	34		mg/Kg	426026	14754
Lead	SW6010B	6/30/15	07/01/15	1	0.14	1.0	3.1		mg/Kg	426026	14754
Nickel	SW6010B	6/30/15	07/01/15	1	0.0500	5.0	37		mg/Kg	426026	14754
Zinc	SW6010B	6/30/15	07/01/15	1	0.25	5.0	20		mg/Kg	426026	14754

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Dichlorodifluoromethane	SW8260B	NA	06/29/15	1	4.4	10	ND		ug/Kg	426008	NA
Chloromethane	SW8260B	NA	06/29/15	1	4.6	10	ND		ug/Kg	426008	NA
Vinyl Chloride	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
Bromomethane	SW8260B	NA	06/29/15	1	4.7	10	ND		ug/Kg	426008	NA
Trichlorofluoromethane	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
1,1-Dichloroethene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
Freon 113	SW8260B	NA	06/29/15	1	3.7	10	ND		ug/Kg	426008	NA
Methylene Chloride	SW8260B	NA	06/29/15	1	2.0	50	ND		ug/Kg	426008	NA
trans-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
MTBE	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
tert-Butanol	SW8260B	NA	06/29/15	1	21	50	ND		ug/Kg	426008	NA
Diisopropyl ether (DIPE)	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,1-Dichloroethane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
ETBE	SW8260B	NA	06/29/15	1	2.4	10	ND		ug/Kg	426008	NA
cis-1,2-Dichloroethene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
2,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Bromochloromethane	SW8260B	NA	06/29/15	1	2.3	10	ND		ug/Kg	426008	NA
Chloroform	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
Carbon Tetrachloride	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
1,1,1-Trichloroethane	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Benzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
TAME	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dichloroethane	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Trichloroethylene	SW8260B	NA	06/29/15	1	3.9	10	ND		ug/Kg	426008	NA
Dibromomethane	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichloropropane	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
Bromodichloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 10'	**Lab Sample ID:**	1506122-005A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
cis-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Toluene	SW8260B	NA	06/29/15	1	0.98	10	ND		ug/Kg	426008	NA
Tetrachloroethylene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
trans-1,3-Dichloropropene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2-Trichloroethane	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
Dibromochloromethane	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,3-Dichloropropane	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
1,2-Dibromoethane	SW8260B	NA	06/29/15	1	1.7	10	ND		ug/Kg	426008	NA
Ethyl Benzene	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
Chlorobenzene	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
1,1,1,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	0.86	10	ND		ug/Kg	426008	NA
m,p-Xylene	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
o-Xylene	SW8260B	NA	06/29/15	1	0.66	5.0	ND		ug/Kg	426008	NA
Styrene	SW8260B	NA	06/29/15	1	0.77	10	ND		ug/Kg	426008	NA
Bromoform	SW8260B	NA	06/29/15	1	1.9	10	ND		ug/Kg	426008	NA
Isopropyl Benzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
n-Propylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
Bromobenzene	SW8260B	NA	06/29/15	1	1.2	10	ND		ug/Kg	426008	NA
1,1,2,2-Tetrachloroethane	SW8260B	NA	06/29/15	1	3.0	10	ND		ug/Kg	426008	NA
1,3,5-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
1,2,3-Trichloropropane	SW8260B	NA	06/29/15	1	3.3	10	ND		ug/Kg	426008	NA
4-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
2-Chlorotoluene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
tert-Butylbenzene	SW8260B	NA	06/29/15	1	1.4	10	ND		ug/Kg	426008	NA
1,2,4-Trimethylbenzene	SW8260B	NA	06/29/15	1	1.1	10	ND		ug/Kg	426008	NA
sec-Butyl Benzene	SW8260B	NA	06/29/15	1	1.6	10	ND		ug/Kg	426008	NA
p-Isopropyltoluene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
1,3-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.8	10	ND		ug/Kg	426008	NA
1,4-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.5	10	ND		ug/Kg	426008	NA
n-Butylbenzene	SW8260B	NA	06/29/15	1	2.2	10	ND		ug/Kg	426008	NA
1,2-Dichlorobenzene	SW8260B	NA	06/29/15	1	1.3	10	ND		ug/Kg	426008	NA
1,2-Dibromo-3-Chloropropane	SW8260B	NA	06/29/15	1	4.2	10	ND		ug/Kg	426008	NA
Hexachlorobutadiene	SW8260B	NA	06/29/15	1	2.6	10	ND		ug/Kg	426008	NA
1,2,4-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.1	10	ND		ug/Kg	426008	NA
Naphthalene	SW8260B	NA	06/29/15	1	2.8	10	ND		ug/Kg	426008	NA
1,2,3-Trichlorobenzene	SW8260B	NA	06/29/15	1	2.9	10	ND		ug/Kg	426008	NA
(S) Dibromofluoromethane	SW8260B	NA	06/29/15	1	59.8	148	91.5		%	426008	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	S2 @ 10'	**Lab Sample ID:**	1506122-005A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
(S) Toluene-d8	SW8260B	NA	06/29/15	1	55.2	133	95.1		%	426008	NA
(S) 4-Bromofluorobenzene	SW8260B	NA	06/29/15	1	55.8	141	84.8		%	426008	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Gasoline	8260TPH	6/29/15	06/29/15	1	30	100	ND		ug/Kg	426008	14740
(S) 4-Bromofluorobenzene	8260TPH	6/29/15	06/29/15	1	43.9	127	78.9		%	426008	14740

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel (SG)	SW8015B(M)	6/29/15	06/29/15	1	0.66	2.0	ND		mg/Kg	425987	14729
TPH as Motor Oil (SG)	SW8015B(M)	6/29/15	06/29/15	1	1.0	10	ND		mg/Kg	425987	14729
Pentacosane (S)	SW8015B(M)	6/29/15	06/29/15	1	49.9	144	91.8		%	425987	14729

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 1 @ 6"	**Lab Sample ID:**	1506122-006A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 11:00		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	6/30/15	07/01/15	5	0.0036	1.0	4.3		mg/Kg	426007	14739

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	ND		ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	ND		ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	11	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	71.1		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	72.2		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 1 @ 12"	**Lab Sample ID:**	1506122-007A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 11:05		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	4	2.4	8.0	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	4	2.5	8.0	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	4	1.6	8.0	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	4	1.4	8.0	ND		ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	4	3.8	8.0	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	4	2.6	8.0	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	4	2.0	8.0	ND		ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	4	3.4	8.0	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	4	3.0	8.0	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	4	3.3	8.0	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	4	2.7	8.0	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	4	1.8	8.0	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	4	2.5	20	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	4	41	80	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	4	33	400	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	4	52.5	139	77.0		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	4	50.2	139	66.0		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 2 @ 6"	**Lab Sample ID:**	1506122-009A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 14:10		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	ND		ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	9.7	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	8.5	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	10	J	ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	77.1		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	73.8		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 2 @ 12"	**Lab Sample ID:**	1506122-010A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 14:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	6/30/15	07/01/15	5	0.0036	1.0	2.3		mg/Kg	426007	14739

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	4	2.4	8.0	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	4	2.5	8.0	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	4	1.6	8.0	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	4	1.4	8.0	ND		ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	4	3.8	8.0	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	4	2.6	8.0	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	4	2.0	8.0	ND		ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	4	3.4	8.0	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	4	3.0	8.0	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	4	3.3	8.0	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	4	2.7	8.0	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	4	1.8	8.0	1.8		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	4	2.5	20	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	4	41	80	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	4	33	400	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	4	52.5	139	85.5		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	4	50.2	139	72.0		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 3 @ 6"	**Lab Sample ID:**	1506122-012A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 13:30		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	6/30/15	07/01/15	5	0.0036	1.0	3.8		mg/Kg	426007	14739

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	6.6	J	ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	11	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	12	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	10	J	ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	79.7		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	67.3		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 3 @ 12"	**Lab Sample ID:**	1506122-013A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 13:35		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	4	2.4	8.0	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	4	2.5	8.0	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	4	1.6	8.0	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	4	1.4	8.0	ND		ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	4	3.2	8.0	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	4	3.8	8.0	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	4	2.6	8.0	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	4	2.0	8.0	3.9	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	4	2.3	8.0	3.0	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	4	3.4	8.0	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	4	3.0	8.0	3.3	J	ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	4	3.3	8.0	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	4	2.7	8.0	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	4	1.8	8.0	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	4	2.5	20	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	4	2.3	8.0	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	4	41	80	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	4	33	400	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	4	52.5	139	82.5		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	4	50.2	139	70.4		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 4 @ 6"	**Lab Sample ID:**	1506122-015A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:45		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	8.0	J	ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	15	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	12	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	77.7		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	68.6		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 4 @ 12"	**Lab Sample ID:**	1506122-016A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 16:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	6/30/15	07/01/15	5	0.0036	1.0	4.0		mg/Kg	426007	14739

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	5.9	J	ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	15	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	9.5	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	8.7	J	ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	70.9		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	60.6		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 5 @ 6"	**Lab Sample ID:**	1506122-018A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 17:15		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	6/30/15	07/01/15	5	0.0036	1.0	4.8		mg/Kg	426007	14739

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	4.4	J	ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	11	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	8.2	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	67.6		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	70.3		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 5 @ 12"	**Lab Sample ID:**	1506122-019A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 17:20		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	3.6	J	ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	17	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	7.3	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	17	J	ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	75.8		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	57.0		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 6 @ 6"	**Lab Sample ID:**	1506122-021A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 12:50		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6020	6/30/15	07/01/15	5	0.0036	1.0	3.7		mg/Kg	426007	14739

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	5.6	J	ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	7.8	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	7.9	J	ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	ND		ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	83.0		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	70.5		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Robert Peck
Engeo (San Ramon)

Date Received: 06/27/15
Date Reported: 07/02/15

Client Sample ID:	AG 6 @ 12"	**Lab Sample ID:**	1506122-022A
Project Name/Location:	Carmax Colma	**Sample Matrix:**	Soil
Project Number:	12054.000.000		
Date/Time Sampled:	06/26/15 / 12:55		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
alpha-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
gamma-BHC	SW8081A	6/30/15	07/01/15	10	6.1	20	ND		ug/Kg	426032	14736
beta-BHC	SW8081A	6/30/15	07/01/15	10	5.6	20	ND		ug/Kg	426032	14736
delta-BHC	SW8081A	6/30/15	07/01/15	10	4.0	20	ND		ug/Kg	426032	14736
Heptachlor	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
Aldrin	SW8081A	6/30/15	07/01/15	10	8.1	20	ND		ug/Kg	426032	14736
Heptachlor epoxide	SW8081A	6/30/15	07/01/15	10	3.6	20	4.2	J	ug/Kg	426032	14736
gamma-Chlordane	SW8081A	6/30/15	07/01/15	10	7.9	20	ND		ug/Kg	426032	14736
alpha-Chlordane	SW8081A	6/30/15	07/01/15	10	9.4	20	ND		ug/Kg	426032	14736
Endosulfan I	SW8081A	6/30/15	07/01/15	10	6.4	20	ND		ug/Kg	426032	14736
4,4'-DDE	SW8081A	6/30/15	07/01/15	10	5.1	20	15	J	ug/Kg	426032	14736
Dieldrin	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Endrin	SW8081A	6/30/15	07/01/15	10	8.6	20	ND		ug/Kg	426032	14736
4,4'-DDD	SW8081A	6/30/15	07/01/15	10	7.6	20	13	J	ug/Kg	426032	14736
Endosulfan II	SW8081A	6/30/15	07/01/15	10	8.2	20	ND		ug/Kg	426032	14736
4,4'-DDT	SW8081A	6/30/15	07/01/15	10	6.7	20	ND		ug/Kg	426032	14736
Endrin aldehyde	SW8081A	6/30/15	07/01/15	10	4.6	20	ND		ug/Kg	426032	14736
Endosulfan sulfate	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Methoxychlor	SW8081A	6/30/15	07/01/15	10	6.1	50	ND		ug/Kg	426032	14736
Endrin Ketone	SW8081A	6/30/15	07/01/15	10	5.8	20	ND		ug/Kg	426032	14736
Chlordane	SW8081A	6/30/15	07/01/15	10	100	200	ND		ug/Kg	426032	14736
Toxaphene	SW8081A	6/30/15	07/01/15	10	82	1000	ND		ug/Kg	426032	14736
TCMX (S)	SW8081A	6/30/15	07/01/15	10	52.5	139	82.7		%	426032	14736
DCBP (S)	SW8081A	6/30/15	07/01/15	10	50.2	139	66.2		%	426032	14736

NOTE: Reporting limits increased due to nature of the matrix (viscous/dark color extract)

MB Summary Report

Work Order:	1506122	**Prep Method:**	3546_TPHSG	**Prep Date:**	06/29/15	**Prep Batch:**	14729
Matrix:	Soil	**Analytical Method:**	SW8015B(M)	**Analyzed Date:**	06/29/15	**Analytical Batch:**	425987
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Diesel (SG)	0.66	2.0	ND	
TPH as Motor Oil (SG)	1.0	10	ND	
Pentacosane (S)			99.1	

Work Order:	1506122	**Prep Method:**	3546_OCP	**Prep Date:**	06/30/15	**Prep Batch:**	14736
Matrix:	Soil	**Analytical Method:**	SW8081A	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426032
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
alpha-BHC	0.61	2.0	ND	
gamma-BHC	0.61	2.0	ND	
beta-BHC	0.56	2.0	ND	
delta-BHC	0.40	2.0	ND	
Heptachlor	0.79	2.0	ND	
Aldrin	0.81	2.0	ND	
Heptachlor epoxide	0.36	2.0	ND	
gamma-Chlordane	0.79	2.0	ND	
alpha-Chlordane	0.94	2.0	ND	
Endosulfan I	0.64	2.0	ND	
4,4'-DDE	0.51	2.0	ND	
Dieldrin	0.58	2.0	ND	
Endrin	0.86	2.0	ND	
4,4'-DDD	0.76	2.0	ND	
Endosulfan II	0.82	2.0	ND	
4,4'-DDT	0.67	2.0	ND	
Endrin aldehyde	0.46	2.0	ND	
Endosulfan sulfate	0.58	2.0	ND	
Methoxychlor	0.61	5.0	ND	
Endrin Ketone	0.58	2.0	ND	
Chlordane	10	20	ND	
Toxaphene	8.2	100	ND	
TCMX (S)			96.4	
DCBP (S)			85.6	

MB Summary Report

Work Order:	1506122	**Prep Method:**	6020S	**Prep Date:**	06/30/15	**Prep Batch:**	14739
Matrix:	Soil	**Analytical Method:**	SW6020	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426007
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Arsenic	3.6	1000	4.0	

Work Order:	1506122	**Prep Method:**	5035	**Prep Date:**	06/29/15	**Prep Batch:**	14740
Matrix:	Soil	**Analytical Method:**	8260TPH	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426008
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Gasoline	30	100	38	
(S) 4-Bromofluorobenzene			110	

Work Order:	1506122	**Prep Method:**	3050	**Prep Date:**	06/30/15	**Prep Batch:**	14754
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426026
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony	0.20	5.0	ND	
Arsenic	0.25	1.7	ND	
Barium	0.07	5.0	0.45	
Beryllium	0.0800	2.0	ND	
Cadmium	0.055	1.0	ND	
Chromium	0.050	5.0	0.15	
Cobalt	0.055	5.0	ND	
Copper	0.65	5.0	ND	
Lead	0.14	1.0	0.36	
Molybdenum	0.12	5.0	0.26	
Nickel	0.050	5.0	ND	
Selenium	0.42	5.0	ND	
Silver	0.37	5.0	ND	
Thallium	0.49	5.0	ND	
Vanadium	0.18	5.0	ND	
Zinc	0.25	5.0	ND	

MB Summary Report

Work Order:	1506122	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426008
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dichlorodifluoromethane	4.4	10	ND	
Chloromethane	4.6	10	ND	
Vinyl Chloride	2.6	10	ND	
Bromomethane	4.7	10	ND	
Trichlorofluoromethane	2.9	10	ND	
1,1-Dichloroethene	1.5	10	ND	
Freon 113	3.7	10	ND	
Methylene Chloride	2.0	50	ND	
trans-1,2-Dichloroethene	1.1	10	ND	
MTBE	2.6	10	ND	
tert-Butanol	21	50	ND	
Diisopropyl ether (DIPE)	2.2	10	ND	
1,1-Dichloroethane	1.3	10	ND	
ETBE	2.4	10	ND	
cis-1,2-Dichloroethene	1.8	10	ND	
2,2-Dichloropropane	1.2	10	ND	
Bromochloromethane	2.3	10	ND	
Chloroform	1.2	10	ND	
Carbon Tetrachloride	1.6	10	ND	
1,1,1-Trichloroethane	1.2	10	ND	
1,1-Dichloropropene	1.4	10	ND	
Benzene	1.5	10	ND	
TAME	2.1	10	ND	
1,2-Dichloroethane	1.9	10	ND	
Trichloroethylene	3.9	10	ND	
Dibromomethane	2.2	10	ND	
1,2-Dichloropropane	1.3	10	ND	
Bromodichloromethane	1.1	10	ND	
cis-1,3-Dichloropropene	1.4	10	ND	
Toluene	0.98	10	ND	
Tetrachloroethylene	1.8	10	ND	
trans-1,3-Dichloropropene	1.2	10	ND	
1,1,2-Trichloroethane	1.8	10	ND	
Dibromochloromethane	1.1	10	ND	
1,3-Dichloropropane	2.1	10	ND	
1,2-Dibromoethane	1.7	10	ND	
Ethyl Benzene	0.86	10	ND	
Chlorobenzene	4.2	10	ND	
1,1,1,2-Tetrachloroethane	0.86	10	ND	
m,p-Xylene	1.9	10	ND	
o-Xylene	0.66	5.0	ND	

MB Summary Report

Work Order:	1506122	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426008
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Styrene	0.77	10	ND	
Bromoform	1.9	10	ND	
Isopropyl Benzene	1.2	10	ND	
n-Propylbenzene	1.4	10	ND	
Bromobenzene	1.2	10	ND	
1,1,2,2-Tetrachloroethane	3.0	10	ND	
1,3,5-Trimethylbenzene	1.1	10	ND	
1,2,3-Trichloropropane	3.3	10	ND	
4-Chlorotoluene	1.6	10	ND	
2-Chlorotoluene	1.6	10	ND	
tert-Butylbenzene	1.4	10	ND	
1,2,4-Trimethylbenzene	1.1	10	ND	
sec-Butyl Benzene	1.6	10	ND	
p-Isopropyltoluene	1.5	10	ND	
1,3-Dichlorobenzene	1.8	10	ND	
1,4-Dichlorobenzene	1.5	10	ND	
n-Butylbenzene	2.2	10	ND	
1,2-Dichlorobenzene	1.3	10	ND	
1,2-Dibromo-3-Chloropropane	4.2	10	ND	
Hexachlorobutadiene	2.6	10	ND	
1,2,4-Trichlorobenzene	2.1	10	ND	
Naphthalene	2.8	10	ND	
1,2,3-Trichlorobenzene	2.9	10	ND	
Ethanol	5.0	20	ND	TIC
(S) Dibromofluoromethane			80.9	
(S) Toluene-d8			91.0	
(S) 4-Bromofluorobenzene			84.5	

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1506122	**Prep Method:**	3546_TPHSG	**Prep Date:**	06/29/15	**Prep Batch:**	14729
Matrix:	Soil	**Analytical Method:**	SW8015B(M)	**Analyzed Date:**	06/29/15	**Analytical Batch:**	425987
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel (SG)	0.66	2.0	ND	25	66.3	65.2	1.72	50.8 - 111	30	
Pentacosane (S)			ND	200	82.2	79.4		49.9 - 144		

Work Order:	1506122	**Prep Method:**	3546_OCP	**Prep Date:**	06/30/15	**Prep Batch:**	14736
Matrix:	Soil	**Analytical Method:**	SW8081A	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426032
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
gamma-BHC	0.61	2.0	ND	40	91.3	90.2	1.24	56.9 - 120	30	
Heptachlor	0.79	2.0	ND	40	88.0	90.0	2.29	63.6 - 117	30	
Aldrin	0.81	2.0	ND	40	89.7	88.8	0.997	53 - 123	30	
Dieldrin	0.58	2.0	ND	40	89.2	88.9	0.410	44 - 130	30	
Endrin	0.86	2.0	ND	40	88.9	88.9	0.0503	44.1 - 121	30	
4,4'-DDT	0.67	2.0	ND	40	90.1	89.0	1.23	52.8 - 134	30	
TCMX (S)			ND	100	88.5	88.6		52.5 - 139		
DCBP (S)			ND	100	81.5	81.4		50.2 - 139		

Work Order:	1506122	**Prep Method:**	6020S	**Prep Date:**	06/30/15	**Prep Batch:**	14739
Matrix:	Soil	**Analytical Method:**	SW6020	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426007
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Arsenic	3.6	1000	4.0	25000	105	105	0.533	80 - 120	20	

Work Order:	1506122	**Prep Method:**	5035	**Prep Date:**	06/29/15	**Prep Batch:**	14740
Matrix:	Soil	**Analytical Method:**	8260TPH	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426008
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Gasoline	30	100	38	1000	98.7	105	6.47	64.0 - 133.2	30	
(S) 4-Bromofluorobenzene			110	50	104	84.9		43.9 - 127		

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1506122	**Prep Method:**	3050	**Prep Date:**	06/30/15	**Prep Batch:**	14754
Matrix:	Soil	**Analytical Method:**	SW6010B	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426026
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.20	5.0	ND	50	97.2	96.4	0.868	30.7 - 130	30	
Arsenic	0.25	1.7	ND	50	97.8	98.2	0.408	71 - 121	30	
Barium	0.07	5.0	0.45	50	101	102	0.985	70.2 - 130	30	
Beryllium	0.0800	2.0	ND	50	100	100	0.100	73.3 - 115	30	
Cadmium	0.055	1.0	ND	50	97.1	95.4	1.72	68.7 - 110	30	
Chromium	0.050	5.0	0.15	50	101	99.8	1.24	76 - 116	30	
Cobalt	0.055	5.0	ND	50	98.8	98.6	0.182	57.4 - 122	30	
Copper	0.65	5.0	ND	50	104	104	0.385	74.8 - 119	30	
Lead	0.14	1.0	0.36	50	96.3	96.9	0.621	67.9 - 118	30	
Molybdenum	0.12	5.0	0.26	50	102	101	1.48	62.9 - 123	30	
Nickel	0.050	5.0	ND	50	98.4	97.8	0.632	61.5 - 122	30	
Selenium	0.42	5.0	ND	50	97.3	96.3	1.01	62 - 111	30	
Silver	0.37	5.0	ND	50	98.9	99.2	0.252	81.1 - 109	30	
Thallium	0.49	5.0	ND	50	95.9	95.2	0.722	39.2 - 125	30	
Vanadium	0.18	5.0	ND	50	103	103	0.388	65.8 - 122	30	
Zinc	0.25	5.0	ND	50	97.7	97.0	0.678	59.9 - 122	30	

Work Order:	1506122	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Soil	**Analytical Method:**	SW8260B	**Analyzed Date:**	06/29/15	**Analytical Batch:**	426008
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	1.5	10	ND	50	114	108	5.86	53.7 - 139	30	
Benzene	1.5	10	ND	50	107	103	4.12	66.5 - 135	30	
Trichloroethylene	3.9	10	ND	50	96.5	93.4	3.14	57.5 - 150	30	
Toluene	0.98	10	ND	50	109	102	5.87	56.8 - 134	30	
Chlorobenzene	4.2	10	ND	50	105	100	4.46	57.4 - 134	30	
(S) Dibromofluoromethane			ND	50	93.5	89.6		59.8 - 148		
(S) Toluene-d8			ND	50	96.0	90.2		55.2 - 133		
(S) 4-Bromofluorobenzene			ND	50	95.3	92.7		55.8 - 141		

MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1506122	**Prep Method:**	6020S	**Prep Date:**	06/30/15	**Prep Batch:**	14739
Matrix:	**Soil**	**Analytical Method:**	SW6020	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426007
Spiked Sample:	1506122-006A						
Units:	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Arsenic	3.6	1000	8.6	25000	117	121	2.75	75 - 125	20	

Work Order:	1506122	**Prep Method:**	3546_OCP	**Prep Date:**	06/30/15	**Prep Batch:**	14736
Matrix:	**Soil**	**Analytical Method:**	SW8081A	**Analyzed Date:**	07/01/15	**Analytical Batch:**	426032
Spiked Sample:	1506122-022A						
Units:	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aldrin	8.1	20	0	40	87.2	98.6	12.3	53 - 123	30	
gamma-BHC	6.1	20	0	40	91.4	104	12.9	56.9 - 120	30	
Heptachlor	7.9	20	0	40	94.6	108	13.0	63.6 - 117	30	
Dieldrin	5.8	20	0	40	81.9	96.5	16.3	44 - 130	30	
Endrin	8.6	20	0	40	80.2	88.8	10.2	44.1 - 121	30	
4,4'-DDT	6.7	20	0	40	68.8	74.3	7.72	52.8 - 134	30	
TCMX (S)				100	80.3	90.7		52.5 - 139	,"	
DCBP (S)				100	54.7	86.2		50.2 - 139	,"	

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg.m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS:

B - Indicates when the anlayte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Engeo (San Ramon)

Project Name: Carmax Colma

Work Order No.: 1506122

Date and Time Received: 6/27/2015 14:20

Received By: ps

Physically Logged By: ng

Checklist Completed By: ng

Carrier Name: Client Drop Off

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes			
Container/Temp Blank temperature in compliance?	No	Temperature:	18	°C
Water-VOA vials have zero headspace?	No VOA vials submitted			
Water-pH acceptable upon receipt?	N/A			

pH Checked by: na

pH Adjusted by: na

Temperature upon receipt was out compliance. Chilling has begun.

Login Summary Report

Client ID:	TL5123	Engeo (San Ramon)	**QC Level:**	
Project Name:	Carmax Colma		**TAT Requested:**	3 day:25
Project # :	12054.000.000		**Date Received:**	6/27/2015
Report Due Date:	7/2/2015		**Time Received:**	14:20

Comments:

Work Order # : ***1506122***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
1506122-001A	S1 @ 1'	06/26/15 10:15	Soil	12/24/15			S_6010BCAM17 S_8260Full S_GCMS-GRO S_TPHDOSG	
Sample Note:	3 day STD TAT. For TPH g, TPH d/mo w/scgu, VOCs, Luft metals							
1506122-002A	S1 @ 10'	06/26/15 10:45	Soil	12/24/15			S_6010BCAM17 S_8260Full S_TPHDOSG S_GCMS-GRO	
1506122-003A	S2 @ 1'	06/26/15 15:45	Soil	12/24/15			S_6010BCAM17 S_GCMS-GRO S_TPHDOSG S_8260Full	
1506122-004A	S2 @ 5'	06/26/15 16:00	Soil	12/24/15			S_6010BCAM17 S_GCMS-GRO S_8260Full S_TPHDOSG	
1506122-005A	S2 @ 10'	06/26/15 16:15	Soil	12/24/15			S_6010BCAM17 S_8260Full S_GCMS-GRO S_TPHDOSG	
1506122-006A	AG 1 @ 6"	06/26/15 11:00	Soil	12/24/15			S_6020 Arsenic Homogenize S_8081AOCP	
Sample Note:	Standard 3-Day TAT. Homogenize. OCPs, As(6020)							
1506122-007A	AG 1 @ 12"	06/26/15 11:05	Soil	12/24/15			Homogenize S_8081AOCP	
1506122-008A	AG 1 @ 18"	06/26/15 11:10	Soil	12/24/15			Hold Samples	

Login Summary Report

Client ID:	TL5123	Engeo (San Ramon)	**QC Level:**	
Project Name:	Carmax Colma		**TAT Requested:**	3 day:25
Project # :	12054.000.000		**Date Received:**	6/27/2015
Report Due Date:	7/2/2015		**Time Received:**	14:20

Comments:

Work Order # : ***1506122***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
1506122-009A	AG 2 @ 6"	06/26/15 14:10	Soil	12/24/15				
							Homogenize	
							S_8081AOCP	
Sample Note:	OCPs.							
1506122-010A	AG 2 @ 12"	06/26/15 14:15	Soil	12/24/15				
							S_6020 Arsenic	
							S_8081AOCP	
							Homogenize	
1506122-011A	AG 2 @ 18"	06/26/15 14:20	Soil	12/24/15				
							Hold Samples	
1506122-012A	AG 3 @ 6"	06/26/15 13:30	Soil	12/24/15				
							S_6020 Arsenic	
							S_8081AOCP	
							Homogenize	
1506122-013A	AG 3 @ 12"	06/26/15 13:35	Soil	12/24/15				
							Homogenize	
							S_8081AOCP	
1506122-014A	AG 3 @ 18"	06/26/15 13:40	Soil	12/24/15				
							Hold Samples	
1506122-015A	AG 4 @ 6"	06/26/15 16:45	Soil	12/24/15				
							Homogenize	
							S_8081AOCP	
1506122-016A	AG 4 @ 12"	06/26/15 16:50	Soil	12/24/15				
							S_6020 Arsenic	
							Homogenize	
							S_8081AOCP	
1506122-017A	AG 4 @ 18"	06/26/15 16:55	Soil	12/24/15				
							Hold Samples	
1506122-018A	AG 5 @ 6"	06/26/15 17:15	Soil	12/24/15				
							S_6020 Arsenic	
							S_8081AOCP	
							Homogenize	
1506122-019A	AG 5 @ 12"	06/26/15 17:20	Soil	12/24/15				
							Homogenize	
							S_8081AOCP	
1506122-020A	AG 5 @ 18"	06/26/15 17:25	Soil	12/24/15				

Login Summary Report

Client ID:	TL5123	Engeo (San Ramon)	**QC Level:**	
Project Name:	Carmax Colma		**TAT Requested:**	3 day:25
Project # :	12054.000.000		**Date Received:**	6/27/2015
Report Due Date:	7/2/2015		**Time Received:**	14:20

Comments:

Work Order # : ***1506122***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
1506122-021A	AG 6 @ 6"	06/26/15 12:50	Soil	12/24/15			Hold Samples S_6020 Arsenic S_8081AOCP Homogenize	
1506122-022A	AG 6 @ 12"	06/26/15 12:55	Soil	12/24/15			Homogenize S_8081AOCP	
1506122-023A	AG 6 @ 18"	06/26/15 13:00	Soil	12/24/15			Hold Samples	

Torrent LABORATORY, INC.

CHAIN OF CUSTODY RECORD

1506122

PROJECT NUMBER: 12054.000.000
PROJECT NAME: Carmax Colma
SAMPLED BY: (SIGNATURE/PRINT): Robert Peck, Connie Ing
PROJECT MANAGER: (SIGNATURE/PRINT):
ROUTING: E-MAIL rpeck@engeo.com HARD COPY

SAMPLE NUMBER	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE	PRESERVATIVE	TO-15	OCP	Arsenic (6020)	TPH-g	VOC	TPH diesel w/ silica gel cleanup	LUFT Metals (6010)								REMARKS REQUIRED DETECTION LIMITS
SV-1	6-26-15	11:30	vapor	1	1L Summa		X														
SV-2		13:00		1			X														
SV-3		12:00		1			X														
SV-4		12:30		1			X														
SV-5		14:10		1			X														
SV-6		14:40		1			X														
S-1@1'		10:15	Soil		Liner	ICE				X	X	X	X						-001A		
~~S-1@5'~~																					
S-1@10'		10:45		1						X	X	X	X				-001A		-002A		
S-2@1'		15:45		1						X	X	X	X				-002A		-003A		Tmp
S-2@5'		16:00		1						X	X	X	X				-003A		-004A		18°C
S-2@10'		16:15		1						X	X	X	X				-004A		-005A		Chilling depth
AG-1@6"		11:00		1				X	X								-005A		-006A		
AG-1@12"		11:05		1				X									-006A		-007A		
AG-1@18"		11:10		1													-007A		-008A		Hold
AG-2@6'		14:10		1				X									-008A		-009A		
AG-2@12"		14:15		1				X	X								-009A		-010A		
AG-2@18"		14:20		1													-010A		-011A		Hold

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
	6/27/15 14:20				3 DAY STANDARD
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE/TIME	REMARKS	
				Standard TAT. * Homogenize OCP & Arsenic samples * Hold 18" AG samples	

DISTRIBUTION: ORIGINAL ACCOMPANIES SHIPMENT; COPY TO PROJECT FIELD FILES

ENGEO INCORPORATED

2010 CROW CANYON PLACE SUITE 250
SAN RAMON, CALIFORNIA 94583
(925) 866-9000 FAX (888) 279-2698
WWW.ENGEO.COM

REC PS LIN LBL LIR

Torrent LABORATORY, INC.

CHAIN OF CUSTODY RECORD

1506122

PROJECT NUMBER: 12054.000.000
PROJECT NAME: Carmax Colma
SAMPLED BY: (SIGNATURE/PRINT): Robert Peck, Connie Ing
PROJECT MANAGER: (SIGNATURE/PRINT):
ROUTING: E-MAIL rpeck@engeo.com HARD COPY

SAMPLE NUMBER	DATE	TIME	MATRIX	NUMBER OF CONTAINERS	CONTAINER SIZE	PRESERVATIVE	OCP	Arsenic (6020)											REMARKS REQUIRED DETECTION LIMITS
AG-3@6"	6-26-15	13:30	Soil	1	liner	ICE	X	X					-011A		-012A				
AG-3@12"		13:35					X						-012A		-013A				
AG-3@18"		13:40											-013A		-014A				Hold
AG-4@6"		16:45					X						-014A		-015A				
AG-4@12"		16:50					X	X					-015A		-016A				
AG-4@18"		16:55											-016A		-017A				Hold
AG-5@6"		17:15					X	X					-017A		-018A				
AG-5@12"		17:20					X						-018A		-019A				
AG-5@18"		17:25											-019A		-020A				Hold
AG-6@6"		12:50					X	X					-020A		-021A				
AG-6@12"		12:55					X						-021A		-022A				
AG-6@18"		13:00											-022A		-023A				Hold

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	6/27/15 14:20				3 DAY STANDARD
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE/TIME	REMARKS	
				Standard TAT * Homogenize OCP & Arsenic samples * Hold 18" AG samples	

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APPENDIX I:
TRANSPORTATION IMPACT ANALYSIS – NOVEMBER 19, 2015

HEXAGON TRANSPORTATION CONSULTANTS, INC.

CarMax, Colma, CA

Transportation Impact Analysis

Prepared for:

Placeworks

November 19, 2015

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Executive Summary

This report presents the results of the transportation impact analysis (TIA) conducted for the proposed CarMax auto retailer on Serramonte Boulevard in the town of Colma, California. The proposed project would include a building with a total of 20,213 square feet (s.f.), with 11,171 s.f. of sales, 6,141 s.f. of service, 936 s.f. carwash, and a 1,965 s.f. "presentation" area where cars are exchanged after servicing or presented to customers when they make a purchase. The project site is located on the south side of Serramonte Boulevard between El Camino Real and Hillside Boulevard. Access to the project would be provided via a single full access driveway on Serramonte Boulevard. The project would replace three existing buildings on the site, including a former Hyundai service center and an auto-body shop that is currently in operation.

Significance criteria are used to establish what constitutes an impact. For this analysis, the criteria used to determine impacts on intersections are based on the thresholds established by the Town of Colma, the County of San Mateo, Caltrans, and South San Francisco. The traffic study includes an analysis of weekday AM and PM peak hour traffic conditions and Saturday midday peak hour traffic conditions. The site access and circulation analyses were based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Project Trip Generation Estimates

Trip generation for the proposed auto dealership was based on published trip rates presented in the Institute of Transportation Engineers' (ITE), *Trip Generation Manual, 9th Edition, 2012*, for Automobile Sales (Land Use Code 841). Whenever applicable, fitted curve equations were used. Otherwise, average rates were used to determine the magnitude of trips that would be generated by the project.

The proposed project would receive credit for trips generated by existing active uses on site. After receiving trip credit for existing uses on site, the project is estimated to generated 293 net weekday daily trips with 8 trips occurring during the AM peak hour (4 in and 4 out) and 26 trips occurring during the PM peak hour (11 in and 15 out). For Saturdays, the project is estimated to generate 351 net daily trips with 56 trips occurring during the midday peak hour (28 in and 8 out).

Intersection Level of Service Analysis

The results of the intersection Level of Service analysis under all studied scenarios are summarized in Table ES-1.

Under existing conditions, all signalized intersections currently operate at acceptable LOS D or better during the weekday AM and PM peak hours and Saturday midday peak hour. The analysis showed that

the unsignalized intersection of Serra Center Driveway/Serramonte Boulevard currently operates at unacceptable LOS F during the Saturday midday peak hour.

The results of the intersection Level of Service analysis under Background conditions show that all signalized study intersections would operate at acceptable LOS D or better during the weekday AM and PM peak hours and Saturday mid-day peak hour. The unsignalized intersection of Serra Center Driveway/Serramonte Boulevard would operate at unacceptable LOS E during the weekday PM peak hour and LOS F during the Saturday midday peak hour under Background conditions.

Under Background Plus Project conditions, all signalized study intersections would continue to operate at acceptable conditions during the weekday AM and PM peak hours and Saturday midday peak hour. The unsignalized intersection of Serra Center Driveway/Serramonte Boulevard would continue to operate at an unacceptable Level of Service during the weekday PM peak hour and Saturday midday peak hour under Background Plus Project conditions. However, the proposed CarMax project would not create a significant impact at this intersection. The Serramonte Ford project[1] would implement the following improvements at this intersection.

- *The project applicant shall fund traffic counts and a localized traffic assessment of the new four-way intersection. The applicant will fund a pro-rata share of improvements to the four-way intersection found necessary based on the incremental increase in traffic at the main project driveway, as determined by the Town of Colma to reduce to acceptable levels any increased stacking lengths and delays that may arise on Serramonte Boulevard, on the Serra Center driveway, and/or at the project site driveway. Such improvements may require modifications or additions of signage, intersection signalization, modification to the Serra Center driveway for a dedicated right-turn lane or signal phasing adjustments to existing signalized intersections in the project vicinity. The Town may also determine that the project impacts and increased project traffic are insignificant and that a contribution for improvements may not be warranted.*

The results of the intersection Level of Service analysis under Cumulative conditions show that the following three intersections would operate below the acceptable LOS D standard during at least one peak hour.

- Junipero Serra Boulevard/Serramonte Boulevard (Saturday)
- Serra Center Driveway/Serramonte Boulevard (AM, PM, and Saturday)
- El Camino Real/Serramonte Boulevard (Saturday)

With the proposed project, the above intersections would continue to operate below the acceptable Level of Service threshold. In spite of the LOS standard at the Serra Center driveway, the Town of Colma has found that the existing stop sign serves to meter traffic at the Junipero Serra/Serramonte Boulevard intersection, and the stop signs are considered to be the most appropriate control device at this location. The installation of a signalized intersection at the Serra Center/Serramonte Boulevard intersection would likely create undesirable stacking in the Serra Center parking lot and on Serramonte Boulevard.

[1] The Serramonte Ford Project includes a showroom expansion and service center expansion at the existing Ford dealership at 999 Serramonte Boulevard, west of the project site. The project includes the creation of a 4-way intersection at Serramonte Boulevard and the Serra Center driveway, currently a three-way intersection. The first phase of the project, which includes the intersection improvement, is expected to begin construction in the first quarter of 2016.

Junipero Serra Boulevard/Serramonte Boulevard

The CarMax project would add 42 trips to this intersection during the Saturday midday peak hour which is less than 1% of the cumulative no project traffic volumes entering this intersection. The project would increase the average intersection delay by 3.0 seconds during the Saturday midday peak hour and the intersection would continue to operate at LOS F. According to the Town of Colma General Plan, LOS E and LOS F should be tolerated during the peak hour periods. Based on this criteria, the proposed CarMax project would not cause a significant impact at this intersection. A significant regional project that affects study intersections in Colma is the Serramonte Shopping Center expansion project[2]. The *Serramonte Shopping Center Expansion EIR* found that this project would create a significant impact at this intersection and recommended the following improvement:

- *Optimize the traffic signal green time to better accommodate Cumulative traffic volumes.*

Implementation of this improvement would improve the traffic operations under cumulative conditions.

Serra Center Driveway/Serramonte Boulevard

The implementation of the improvements from the *Serramonte Ford Initial Study* would improve traffic operations at this intersection.

El Camino Real/Serramonte Boulevard

The CarMax project would add 50 trips to this intersection during the Saturday midday peak hour which is around 1% of the cumulative no project traffic volumes entering this intersection. The project would increase the average intersection delay by 3.6 seconds during the Saturday midday peak hour and the intersection would continue to operate at LOS F. According to the Town of Colma General Plan, LOS E and LOS F should be tolerated during the peak hour periods. Based on this criteria, the proposed CarMax project would not cause a significant impact at this intersection. The *Serramonte Shopping Center Expansion EIR* was found to create a significant impact at this intersection and recommended the following improvement:

- *Optimize the traffic signal green time to better accommodate Cumulative traffic volumes.*

Implementation of this improvement would improve the traffic operations under cumulative conditions.

[2] The Serramonte Shopping Center is located west of the project site and west of Interstate 280, with primary access from Serramonte Boulevard. The 10 year plan includes the addition of 329,000 square feet of retail, entertainment, and restaurant space to the existing mall; a 75,000 square foot hotel; a 65,000 square foot medical building; and associated parking. Phase 1 construction of the project began in summer of 2015.

Site Access, On-Site Circulation, and Parking Supply

Site Access

The project proposes a single full access driveway on Serramonte Boulevard. This driveway would provide access to the customer/employee parking lot. The proposed project is estimated to generate 39 trips during the weekday AM peak hour (29 in and 10 out), 62 trips during the weekday PM peak hour (25 in and 37 out), and 81 trips during the Saturday midday peak hour (41 in and 40 out) at the project driveway. This driveway will be used by employees, customers, vehicles entering and exiting for test drives, and occasional auto deliveries via a car carrier.

The project is not expected to cause any queuing delays due to project traffic turning into the site from Serramonte Boulevard. It is estimated that the intersection of Serramonte Boulevard/project driveway would operate at LOS C or better for the worst movement during all three analysis periods under all scenarios.

Site Circulation

The proposed plan would provide adequate connectivity through the parking area for vehicles. The internal drive aisles would include four east-west aisles and 3 north-south aisles that are all wide enough to accommodate one vehicle in each direction. The width of the drive aisles within the parking should allow sufficient room for vehicles to maneuver in and out of the parking spaces.

Parking Supply

The Colma Municipal Code (Section 5.03.290) specifies that commercial and vehicle service parking shall be provided such that the ratio of parking spaces to gross leasable building area shall be five parking spaces for each 1,000 square feet. For the project, this translates to 87 required parking spaces. The carwash and presentation areas are not subject to parking requirements. The site plan shows a parking lot for customers and employees that would include 126 standard parking spaces plus 4 accessible spaces. With parking in the inventory lot and elsewhere on the site, the total parking provided on the project site is 598 spaces. Thus, based on Town of Colma Municipal Code, the proposed project would provide adequate parking.

Table ES 1
Intersection Level of Service Summary

		Existing					Background					Cumulative				
	Peak	No Project		With Project			No Project		With Project			No Project		With Project		
Intersection	Hour	Avg. Delay	LOS	Avg. Delay	LOS	Increase in Delay	Avg. Delay	LOS	Avg. Delay	LOS	Increase in Delay	Avg. Delay	LOS	Avg. Delay	LOS	Increase in Delay
I-280 SB Off-Ramp & Serramonte Boulevard	AM	6.7	A	6.7	A	0.0	6.9	A	7.0	A	0.1	8.0	A	8.0	A	0.0
	PM	13.5	B	13.5	B	0.0	15.0	B	15.0	B	0.0	15.6	D	15.6	B	0.0
	SAT	26.2	C	26.2	C	0.0	35.0	D	35.1	D	0.1	38.4	D	38.5	D	0.1
I-280 NB On-Ramp & Serramonte Boulevard	AM	1.5	A	1.5	A	0.0	1.6	A	1.6	A	0.0	1.8	A	1.8	A	0.0
	PM	3.3	A	3.3	A	0.0	3.6	A	3.6	A	0.0	4.4	A	4.4	A	0.0
	SAT	3.8	A	3.8	A	0.0	4.3	A	4.3	A	0.0	5.5	A	5.5	A	0.0
Junipero Serra Boulevard & Serramonte Boulevard	AM	27.1	C	27.2	C	0.1	28.4	C	28.4	C	0.0	37.9	D	38.0	D	0.1
	PM	36.1	D	36.2	D	0.1	37.0	D	37.1	D	0.1	75.6	E	76.8	E	1.2
	SAT	42.4	D	42.8	D	0.4	45.7	D	46.1	D	0.4	**94.2**	**F**	**97.2**	**F**	**3.0**
Serra Center Driveway & Serramonte Boulevard (unsignalized)	**AM**	13.7	B	13.7	B	0.0	14.3	B	14.4	B	0.1	**36.1**	**E**	**36.2**	**E**	**0.1**
	PM	31.9	D	33.6	D	1.7	**35.2**	**E**	**35.7**	**E**	**0.5**	**67.6**	**F**	**67.7**	**F**	**0.1**
	SAT	**51.8**	**F**	**53.1**	**F**	**1.3**	**53.3**	**F**	**55.2**	**F**	**1.9**	**66.6**	**F**	**66.6**	**F**	**0.0**
El Camino Real & Serramonte Boulevard	AM	22.5	C	22.5	C	0.0	22.7	C	22.8	C	0.1	28.6	C	28.7	C	0.1
	PM	26.4	C	26.8	C	0.4	27.0	C	27.3	C	0.3	49.8	D	51.1	D	1.3
	SAT	31.7	C	32.5	C	0.8	32.6	C	33.4	C	0.8	**105.6**	**F**	**109.2**	**F**	**3.6**
Hillside Boulevard & Serramonte Boulevard	AM	20.3	C	20.3	C	0.0	20.4	C	20.4	C	0.0	20.4	C	20.4	C	0.0
	PM	22.1	C	22.5	C	0.4	22.7	C	22.8	C	0.1	25.9	C	29.0	C	3.1
	SAT	37.4	D	37.8	D	0.4	38.5	D	38.6	D	0.1	49.5	D	50.0	D	0.5
I-280 SB Ramps & Hickey Boulevard	AM	10.4	B	10.4	B	0.0	10.3	B	10.3	B	0.0	10.6	B	10.6	B	0.0
	PM	15.1	B	15.2	B	0.1	15.1	B	15.2	B	0.1	17.1	B	17.2	B	0.1
	SAT	13.9	A	14.0	B	0.1	13.9	B	14.0	B	0.1	14.5	B	14.6	B	0.1
I-280 NB Ramps & Hickey Boulevard	AM	26.3	C	26.3	C	0.0	26.5	C	26.5	C	0.0	28.6	C	28.6	C	0.0
	PM	39.2	D	39.4	D	0.2	39.9	D	40.1	D	0.2	46.7	D	46.9	D	0.2
	SAT	37.8	D	37.9	D	0.1	38.4	D	38.6	D	0.2	45.7	D	45.8	D	0.1
Junipero Serra Boulevard & Hickey Boulevard	AM	35.7	D	35.7	D	0.0	36.0	D	36.0	D	0.0	42.0	D	42.0	D	0.0
	PM	38.0	D	38.0	D	0.0	38.8	D	38.9	D	0.1	48.3	D	48.4	D	0.1
	SAT	13.6	B	13.5	B	-0.1	15.4	B	15.5	B	0.1	23.0	C	22.9	C	-0.1
Hillside Boulevard & Lawndale Boulevard	AM	13.0	B	13.0	B	0.0	12.9	B	12.9	B	0.0	12.8	B	12.8	B	0.0
	PM	10.8	B	10.8	B	0.0	10.8	B	10.8	B	0.0	10.5	B	10.5	B	0.0
	SAT	10.4	B	10.4	A	0.0	10.3	B	10.3	B	0.0	9.9	A	9.8	A	-0.1

Bold indicates a substandard Level of Service.

1. Introduction

This report presents the results of the transportation impact analysis (TIA) conducted for the proposed CarMax auto retailer on Serramonte Boulevard in the town of Colma, California. The proposed project would include a building with a total of 20,213 square feet (s.f.), with 11,171 s.f. of sales, 6,141 s.f. of service, 936 s.f. carwash, and a 1,965 s.f. “presentation” area where cars are exchanged after servicing or presented to customers when they make a purchase. The project site is located on the south side of Serramonte Boulevard between El Camino Real and Hillside Boulevard. Access to the project would be provided via a single full access driveway on Serramonte Boulevard. The project would replace three existing buildings on the site, including a former Hyundai service center and an auto-body shop that is currently in operation.

The site location and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

Scope of Study

The potential impacts related to the proposed car retailer were evaluated following the standards and methodologies set forth by the Town of Colma, County of San Mateo, the California Department of Transportation (Caltrans), and the city of South San Francisco. The traffic study included an analysis of traffic operations for nine signalized intersections and one unsignalized intersection in the vicinity of the project site.

The study intersections were identified based on the traffic operations analysis presented in the recently completed *Serramonte Shopping Center Expansion EIR, March 2015* and consultation with the Town of Colma staff. The study intersections are listed below:

Study Intersections

1. I-280 SB Off-Ramp and Serramonte Boulevard
2. I-280 NB On-Ramp and Serramonte Boulevard
3. Junipero Serra Boulevard and Serramonte Boulevard
4. Serra Center Driveway and Serramonte Boulevard (unsignalized)
5. El Camino Real and Serramonte Boulevard
6. Hillside Boulevard and Serramonte Boulevard

7. I-280 SB Ramps and Hickey Boulevard
8. I-280 NB Ramps and Hickey Boulevard
9. Junipero Serra Boulevard and Hickey Boulevard
10. Hillside Boulevard and Lawndale Boulevard

Analysis Time Periods

Traffic conditions at the study intersections were analyzed for the weekday AM peak hour (between 7-9 AM) and PM peak hour (between 4-6 PM). It is during these periods that the most congested traffic conditions occur on an average weekday. Traffic conditions were also analyzed for the Saturday midday (between 12-2 PM), during which most congested traffic conditions occur on a weekend.

Analysis Scenarios

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing traffic volumes for the study intersections were obtained from the Town of Colma, *Serramonte Shopping Center Expansion EIR*, and new manual turning movement counts where necessary.

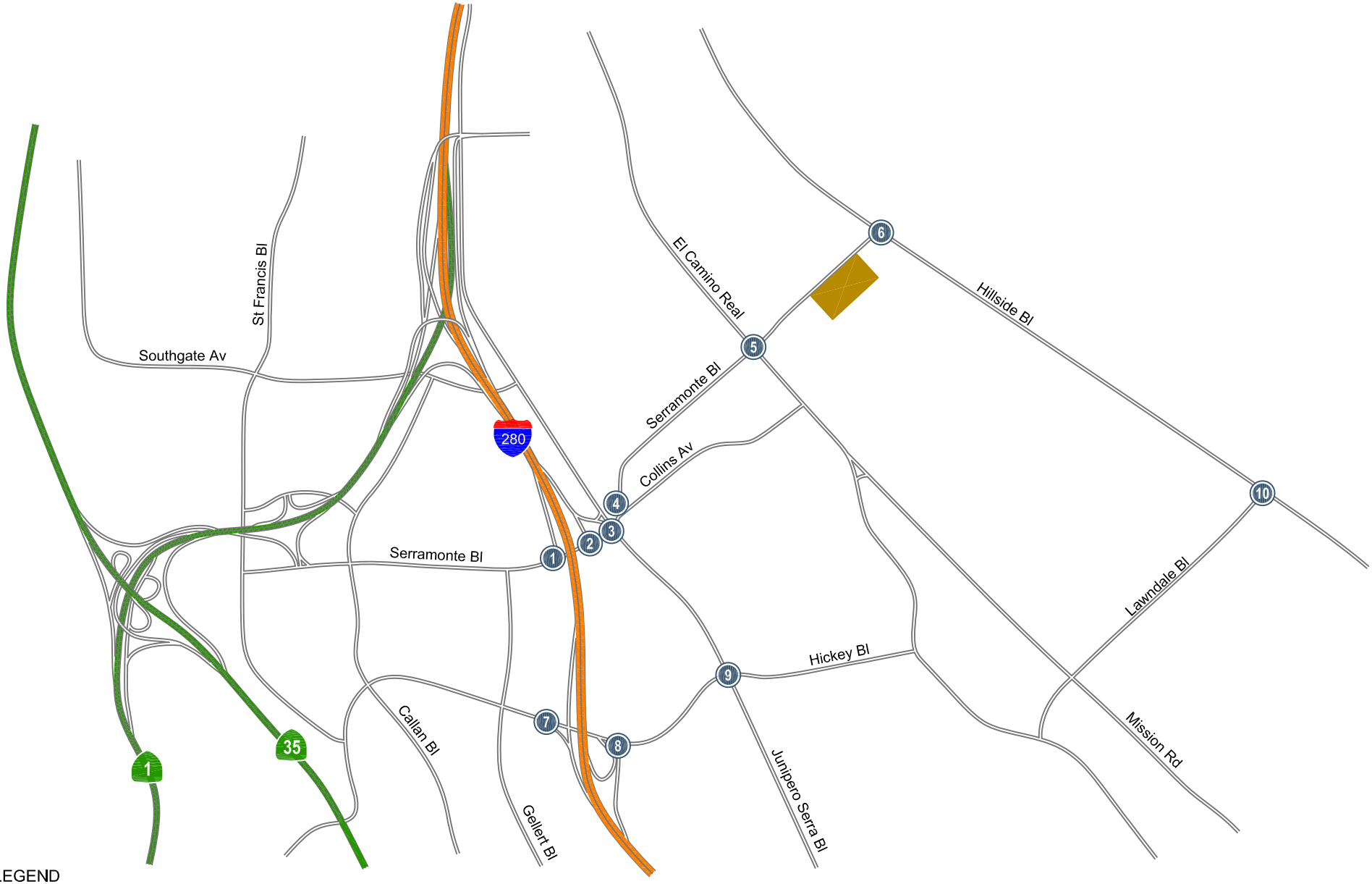
Scenario 2: *Existing Plus Project Conditions.* Project-generated traffic volumes were added to existing traffic volumes to estimate Existing Plus Project conditions. Project generated traffic was estimated using the vehicular trip generation rates recommended by the Institute of Transportation Engineers (ITE) manual entitled *Trip Generation, 9th Edition*. Driveway counts were conducted during all three analysis time periods to estimate trips generated by existing uses on site. These trips were deducted from the total trips that would be generated by the project to estimate the net trips that would be added to the roadway network. Existing Plus Project conditions were evaluated relative to Existing Conditions in order to determine potential project impacts.

Scenario 3: *Background Conditions.* Background traffic volumes were based on the Baseline Plus Project conditions scenario from the *Serramonte Shopping Center Expansion EIR*. For intersections not analyzed in the *Serramonte Shopping Center Expansion EIR*, Background traffic volumes were estimated based on overall growth in the study area as shown in the *Serramonte Shopping Center Expansion EIR*.

Scenario 4: *Background Plus Project Conditions.* Project-generated traffic volumes were added to Background traffic volumes to estimate Background Plus Project conditions. Background Plus Project conditions were evaluated relative to Background Conditions in order to determine potential project impacts.

Scenario 5: *Cumulative Conditions.* Cumulative traffic volumes were based on the Cumulative Plus Project conditions from the *Serramonte Shopping Center Expansion EIR*. For intersections not analyzed in the *Serramonte Shopping Center Expansion EIR*, cumulative traffic volumes were estimated based on cumulative growth projections in the study area presented in the *Serramonte Shopping Center Expansion EIR*.

Scenario 6: *Cumulative Plus Project Conditions.* Project-generated traffic volumes were added to Cumulative traffic volumes to estimate Cumulative Plus Project conditions. Cumulative Plus Project conditions were evaluated relative to Cumulative Conditions in order to determine potential project impacts



LEGEND

= Project Site Location

= Study Intersection

Figure 1
Site Location and Study Intersections

HEXAGON

NORTH
Not to Scale

Figure 2
Project Site Plan

Methodology

This section describes the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from the Town of Colma, the *Serramonte Shopping Center Expansion EIR*, *Serramonte Ford Initial Study*, field observations, and new traffic counts. The following data were obtained from these sources:

- existing peak-hour intersection turning-movement volumes
- lane configurations
- intersection signal timing, phasing, and peak hour factors
- background and cumulative traffic volumes

Level of Service Standards and Methodology

Traffic conditions at the study intersections were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various analysis methods are described below.

Signalized Intersections

The level of service at signalized intersections were evaluated based on the *2000 Highway Capacity Manual* (HCM) level of service methodology. This method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. This study utilizes the Synchro (Version 9) software developed by Trafficware to analyze the level of service for signalized intersections. To remain consistent with the *Serramonte Shopping Center Expansion EIR*, the 2000 HCM methodology was used to evaluate the signalized intersections in this study. The correlation between average delay and level of service for signalized intersections is shown in Table 1.

Unsignalized Intersections

The study intersections include one unsignalized intersection, which is controlled by an all-way stop. For all-way stop controlled intersections, level of service is determined by the average delay of all movements through the intersection. This average delay can then be correlated to a Level of Service based on the *Highway Capacity Manual* (HCM) methodology for unsignalized intersections. The unsignalized intersection was analyzed using the HCM 2010 methodology due to the limitations in the HCM 2000 methodology in handling intersections with more than two lanes per approach. Table 2 summarizes the relationship between LOS and average delay for unsignalized intersections. Synchro was used to analyze the unsignalized study intersection.

Level of Service Thresholds

The study intersections were analyzed based on the Level of Service thresholds identified for each jurisdiction. Described below is the Level of Service thresholds that were applied to the study intersections, for both the signalized and unsignalized intersections, based on their jurisdiction:

Town of Colma Intersections

The Town of Colma 2014 General Plan specifies that all intersections should seek to achieve LOS D or better and Levels of Service E and F should be tolerated during peak demand periods.

County of San Mateo Intersections

According to the County of San Mateo Traffic Impact Study Requirements (9/1/2013), the minimum Level of Service (LOS) standard for County intersections is typically LOS C or better, however, an LOS D standard may be allowed for peak periods in very dense urban conditions per the County's discretion. Because the study area is considered urban, a LOS D standard applies.

Caltrans Intersections

According to the Caltrans Guide for the Preparation of Traffic Impact Studies, the LOS guideline for State highway facilities is to maintain a LOS between the transition of LOS C and LOS D on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. In addition, Caltrans states that for existing State highway facilities operating at less than the target LOS, the existing LOS should be maintained.

South San Francisco Intersections

The City of South San Francisco defines LOS A through D as acceptable, and LOS E and F as unacceptable. The following guidelines are outlined in the City of South San Francisco General Plan (City of South San Francisco 1999):

- Strive to maintain LOS D or better on arterial and collector streets
- Accept LOS E or F after finding that there is no feasible and practical way to mitigate the lower Level of Service, and the uses resulting in the lower Level of Service are of clear overall public benefit
- Exempt development within 0.25 miles of a Caltrain or BART station, or ferry terminal from LOS standards

Table 1
Signalized Intersection Level of Service Definitions Based on Delay

Level of Service	Description	Average Stopped Delay Per Vehicle (Sec.)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	Up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.0 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lenghts, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurences. This is considered to be the limit of acceptable delay.	55.1 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	Greater than 80.0

Source: Transportation Research Board, *2000 Highway Capacity Manual* , (Washington, D.C., 2000).

Table 2
Unsignalized Intersection Level of Service

Level of Service	Description	Average Delay Per Vehicle (sec.)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *2010 Highway Capacity Manual* , (Washington, D.C., 2010), CH. 20 p. 3

Report Organization

The remainder of this report is divided into five chapters. Chapter 2 describes Existing conditions on the existing roadway network. Chapter 3 presents the intersection operations under Background conditions. Chapter 4 presents the method used to estimate Existing Plus Project traffic and its impact on the roadway network. Also in Chapter 4 are estimates of Background Plus Project traffic, a discussion of potentially significant project impacts under Background Plus Project conditions, and an analysis of the site access and on-site circulation. Chapter 5 presents Cumulative and Cumulative Plus Project conditions and their impact on the roadway network. Chapter 6 presents the conclusions of the transportation impact analysis.

2. Existing Conditions

This chapter describes the Existing conditions of the major roadway network in the vicinity of the site.

Roadway Network

Regional access to the project site is provided by Interstate 280, State Route 1, and State Route 35.

Interstate 280 (I-280) is a north/south freeway that extends from San Francisco to San Jose. In the vicinity of the project, I-280 has four lanes in each direction and has posted speed limit of 65 miles per hour. The project is served by interchanges at Serramonte Boulevard and Hickey Boulevard. The Serramonte Boulevard interchange contains southbound off-ramps and northbound on-ramps to I-280. The Hickey Boulevard interchange provides full access with on- and off-ramps to both northbound and southbound I-280.

State Route 1 is a north/south freeway that runs along most of the Pacific coast of California. State Route 1 provides regional access to the project site from San Francisco in the north and Half Moon Bay in the south via an interchange with I-280.

State Route 35 (Skyline Boulevard) is a north-south route that extends from State Route 1 in the San Francisco to Highway 17 in Santa Clara County. Skyline Boulevard provides a route to the project area with an intersection at Hickey Boulevard and an interchange with State Route 1.

Local access to the project site is provided via El Camino Real (State Route 82), Junipero Serra Boulevard, Serrramonte Boulevard, Hickey Boulevard, and Hillside Boulevard. These facilities are described below.

El Camino Real (SR82) is a four- to six-lane, north-south road that extends between San Francisco to San Jose. The posted speed limit on this roadway is 40 miles per hour near the project site. El Camino Real intersects Serramonte Boulevard in the vicinity of the project.

Junipero Serra Boulevard is a four-lane, north-south roadway with a posted speed limit of 40 miles per hour near the project site. The facility extends from South San Francisco to Daly City. Junipero Serra Boulevard provides access to the site via Serramonte Boulevard.

Serramonte Boulevard is a four-lane, east-west road that extends from Hillside Boulevard in the east to St. Francis Boulevard in the west (Daly City). Serramonte Boulevard provides direct access to the project site. The posted speed limit is 30 miles per hour in the project vicinity.

Hickey Boulevard is a four-lane, east-west road with a posted speed limit of 35 miles per hour. Hickey Boulevard primarily serves as a connection between major facilities in the east (I-280, Junipero Serra Boulevard, and El Camino Real) and residential land uses to the west in Daly City.

Hillside Boulevard is a two- to four-lane, generally north-south roadway that extends from Daly City to South San Francisco (where the name changes to Sister Cities Boulevard). In the vicinity of the project, this facility has a posted speed limit of 40 miles per hour. Hillside Boulevard provides access to the site via Serramonte Boulevard.

Existing Intersection Lane Configurations

The existing lane configurations at the study intersections were taken from the *Serramonte Shopping Center Expansion EIR* and were supplemented by observations in the field. The existing intersection lane configurations are shown on Figure 3.

Existing Traffic Volumes

Existing traffic volumes were obtained from the Town of Colma and the *Serramonte Shopping Center Expansion EIR* and supplemented by manual turning-movement counts conducted on Thursday, October 15, 2015 and Saturday October 17, 2015 at study intersections where count data were unavailable. The Existing peak hour intersection volumes are shown on Figure 4 for the weekday AM and PM peak hours and on Figure 5 for the Saturday midday peak hour. The traffic count data are included in Appendix A.

Existing Intersection Levels of Service

The results of the intersection Level of Service analysis under Existing conditions are summarized in Table 3. The analysis shows that all signalized study intersections currently operate at acceptable LOS D or better during all three analysis periods under Existing conditions. The results show that the unsignalized intersection of Serramonte Boulevard/Serra Center operates at unacceptable LOS F during the Saturday midday peak hour under Existing conditions.

The Level of Service calculation sheets are included in Appendix C.

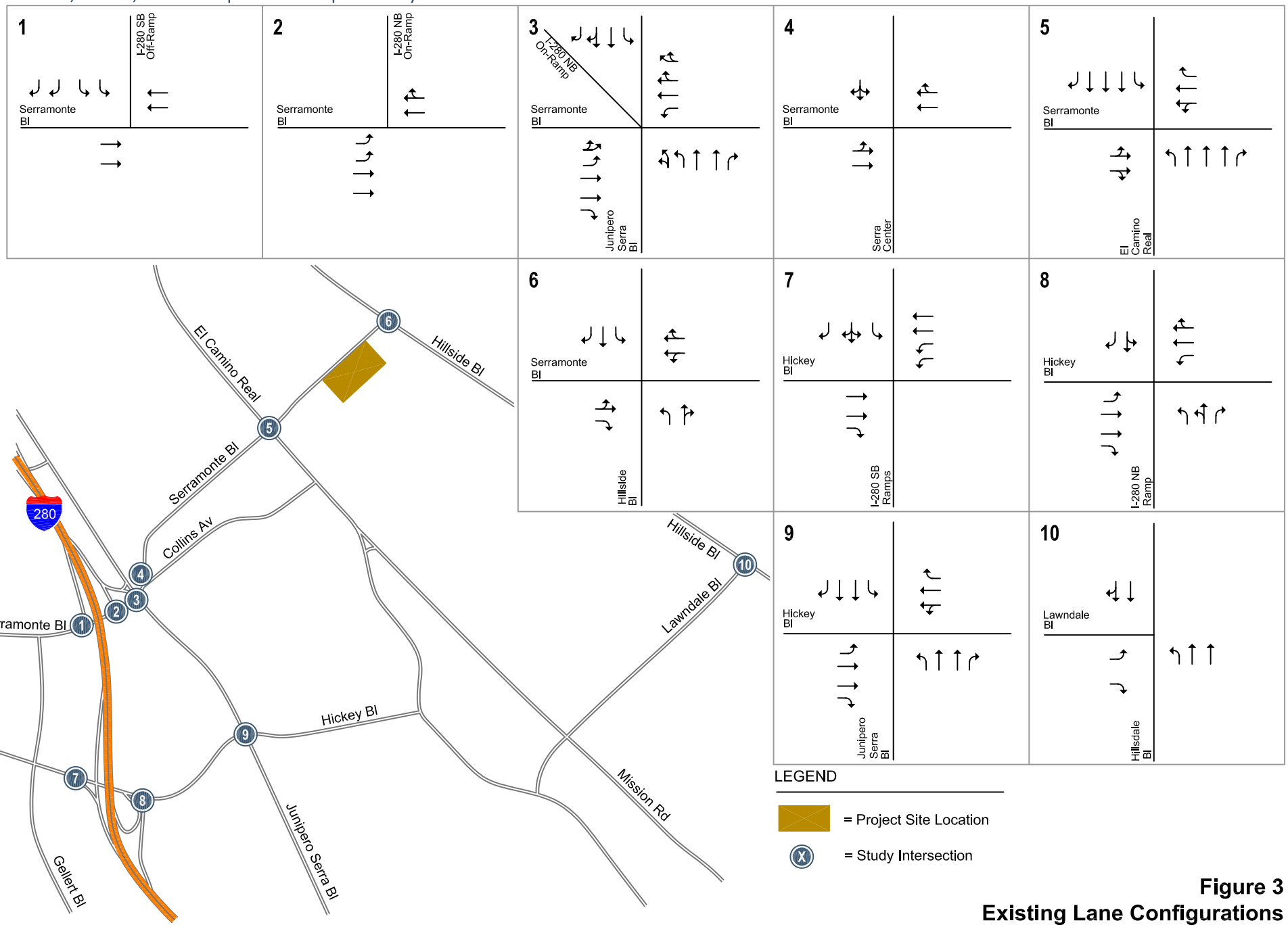


Figure 3
Existing Lane Configurations

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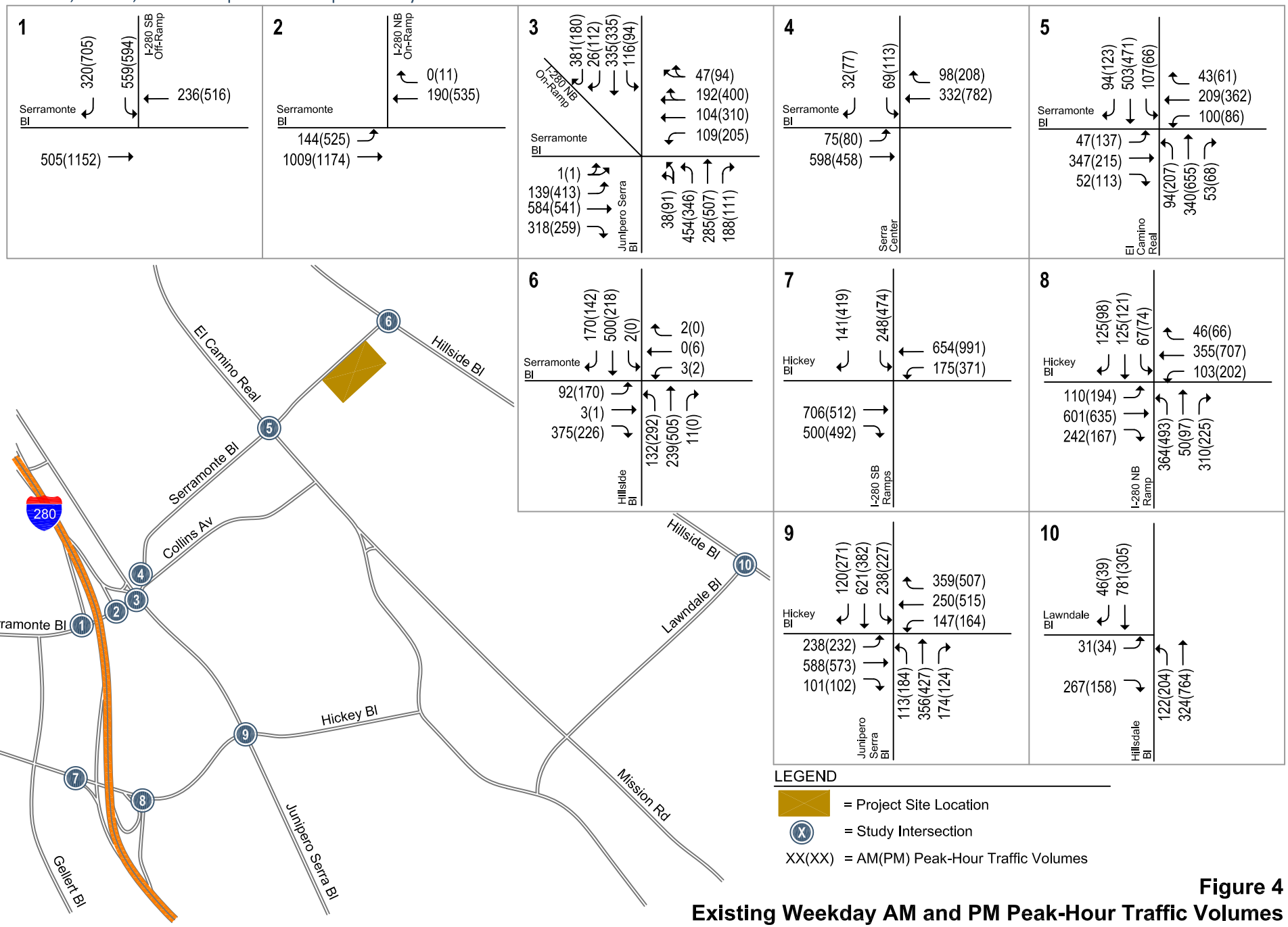

Figure 4
Existing Weekday AM and PM Peak-Hour Traffic Volumes

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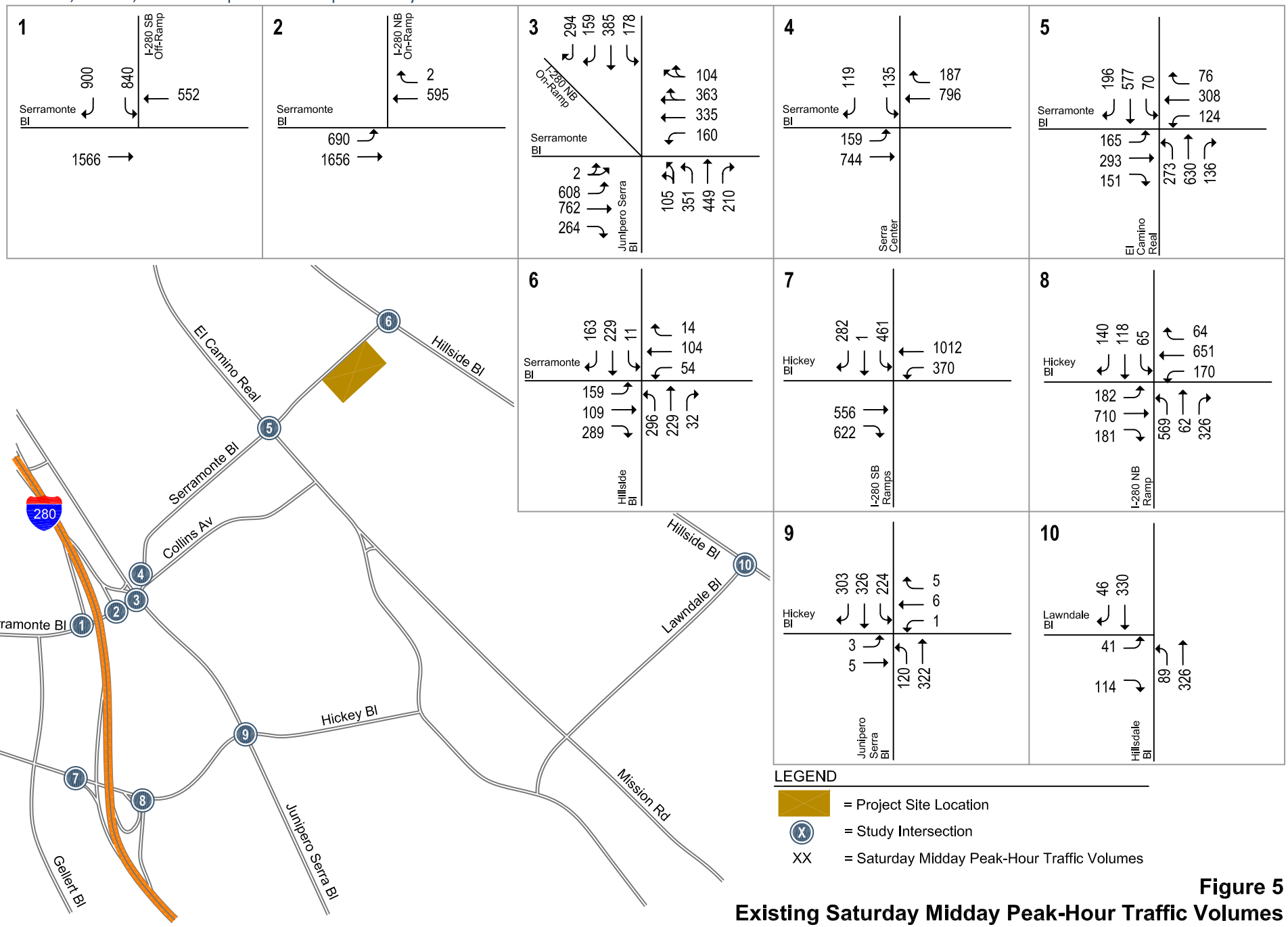

Figure 5
Existing Saturday Midday Peak-Hour Traffic Volumes

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Table 3
Existing Intersection Level of Service Analysis

Intersection	Jurisdiction		Existing Count Date	Existing Avg. Delay	Existing LOS
I-280 SB Off-Ramp & Serramonte Boulevard	Caltrans	AM	11/14/2013	6.7	A
		PM	3/15/2012	13.5	B
		SAT	3/10/2012	26.2	C
I-280 NB On-Ramp & Serramonte Boulevard	Caltrans	AM	11/14/2013	1.5	A
		PM	11/14/2013	3.3	A
		SAT	11/16/2013	3.8	A
Junipero Serra Boulevard & Serramonte Boulevard	Town of Colma	AM	11/14/2013	27.1	C
		PM	11/14/2013	36.1	D
		SAT	11/16/2013	42.4	D
Serra Center Driveway & Serramonte Boulevard (unsignalized)	Town of Colma	AM	11/21/2013	13.7	B
		PM	11/21/2013	31.9	D
		SAT	**10/17/2015**	**51.8**	**F**
El Camino Real & Serramonte Boulevard	Caltrans	AM	11/14/2013	22.5	C
		PM	11/14/2013	26.4	C
		SAT	11/16/2013	31.7	C
Hillside Boulevard & Serramonte Boulevard	Town of Colma	AM	1/8/2014	20.3	C
		PM	1/8/2014	22.1	C
		SAT	10/17/2015	37.4	D
I-280 SB Ramps & Hickey Boulevard	Caltrans	AM	11/14/2013	10.4	B
		PM	11/14/2013	15.1	B
		SAT	11/16/2013	13.9	A
I-280 NB Ramps & Hickey Boulevard	Caltrans	AM	11/14/2013	26.3	C
		PM	11/14/2013	39.2	D
		SAT	11/16/2013	37.8	D
Junipero Serra Boulevard & Hickey Boulevard	South San Francisco	AM	10/15/2015	35.7	D
		PM	10/15/2015	38.0	D
		SAT	10/17/2015	13.6	B
Hillside Boulevard & Lawndale Boulevard	Town of Colma	AM	11/21/2013	13.0	B
		PM	11/21/2013	10.8	B
		SAT	10/17/2015	10.4	B

Bold indicates a substandard Level of Service.

Existing Transit Services

Existing transit service to the study area is provided by BART and SamTrans. The BART and SamTrans services are described below and shown on Figure 6.

BART

Colma BART Station. The Colma BART Station is located at 365 D Street, approximately one mile north of the project site. This BART station services the Red and Yellow BART lines. The Red Line is a weekday route only that travels between Richmond and Millbrae with 15 minute headways during the weekday commute hours. The Yellow Line travels between Pittsburg/Bay Point and Millbrae with 15 minute headways during the weekday commute hours and 20 minute headways on weekends.

SamTrans

SamTrans Route ECR. Route ECR travels along El Camino Real between Palo Alto and Daly City, with 15 minute headways on weekdays and 20 minute headways on Saturdays. There is one northbound and one southbound stop located approximately 0.25 miles from the project site at the intersection of Serramonte Boulevard and El Camino Real.

SamTrans Route 112. Route 112 loops between Colma BART and the Linda Mar Shopping Center with 60 minute headways on weekdays and weekends. There is a stop less than one mile southwest of the project on the northeast corner of the intersection of Junipero Serra Boulevard and Serramonte Boulevard.

SamTrans Route 120. Route 120 travels between Colma Bart and Daly City Bart with 10 minute headways on weekdays and 15 minute headways on weekends. There is a stop less than one mile southwest of the project on the northeast corner of the intersection of Junipero Serra Boulevard and Serramonte Boulevard.

SamTrans Route 122. Route 122 travels between San Francisco State, Colma BART and South San Francisco BART with 15 to 30 minute headways on the weekdays and 30 minute headways on weekends. There is a stop less than one mile southwest of the project on the northeast corner of the intersection of Junipero Serra Boulevard and Serramonte Boulevard.

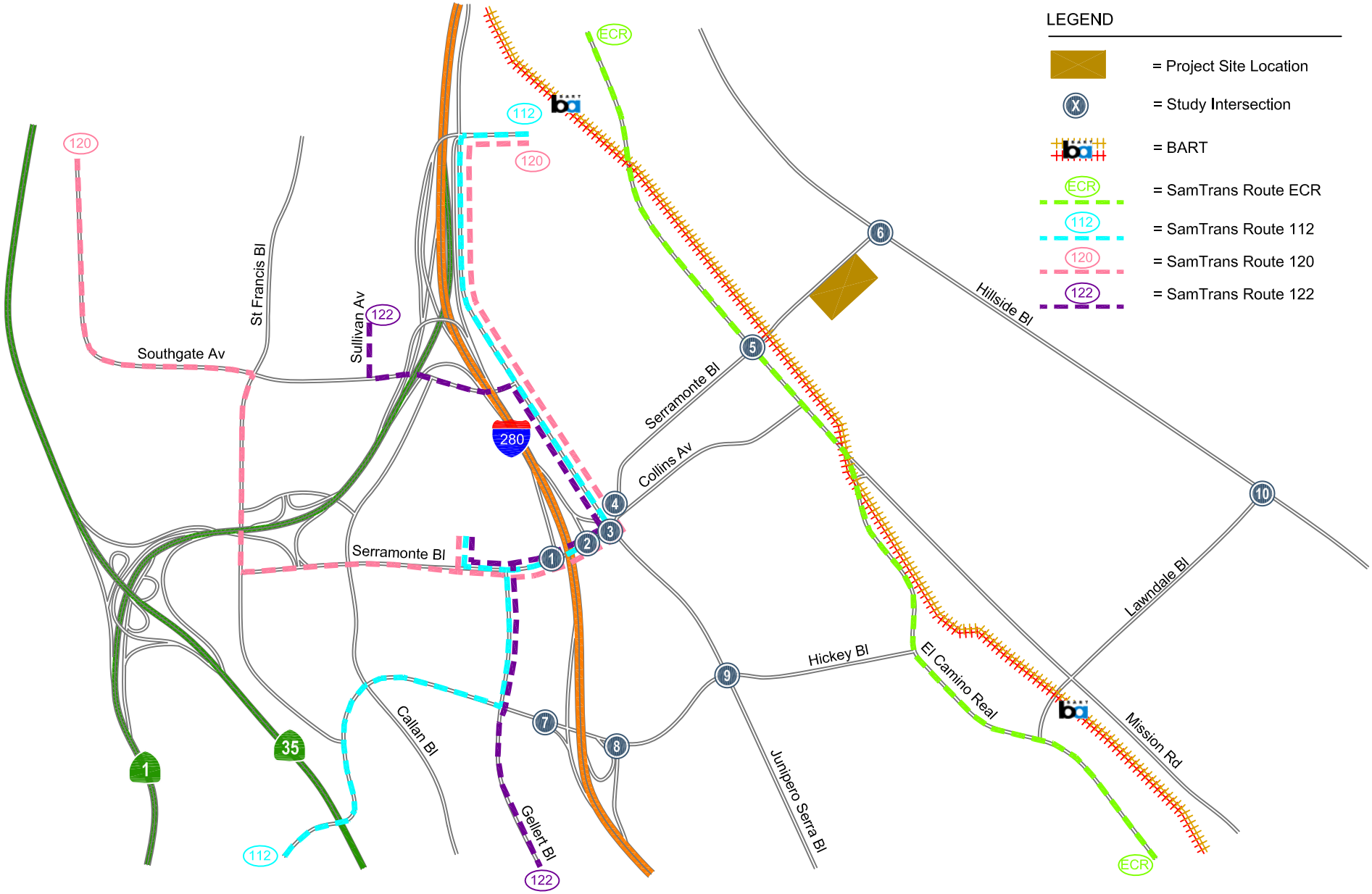

Figure 6
Existing Transit Services

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Existing Pedestrian and Bicycle Facilities

Pedestrian Facilities

Pedestrian facilities in the study area consist of sidewalks located on the south side of Serramonte Boulevard and both sides of El Camino Real in the project vicinity. The intersection of El Camino Real/Serramonte Boulevard has pedestrian crosswalks and signal heads across all four legs. There are sidewalks located along the entire route from the project site to the bus stops on El Camino Real and Junipero Serra Boulevard. For pedestrians traveling between the Colma BART station and the project site, there are sidewalks along the east side of El Camino Real.

Bicycle Facilities

Bicycle facilities include bike paths, bike lanes, and bike routes. Bike paths (Class I facilities) are pathways separate from roadways that are designated for use by bicycles. Often, these pathways also allow pedestrian access. Bike lanes (Class II facilities) are lanes on roadways designated for use by bicycles with special lane markings, pavement legends, and signage. Bike routes (Class III facilities) are existing right-of-ways that accommodate bicycles but are not separate from the existing travel lanes.

Class II bicycle facilities (bike lanes) are provided along the following roadways in the study area:

- Hillside Boulevard, between Serramonte Boulevard and Chestnut Avenue
- Hillside Boulevard, between Hoffman Street and Serramonte Boulevard
- Lawndale Boulevard, between Mission Road and Hillside Boulevard
- Mission Road, between Lawndale Boulevard and El Camino Real
- Junipero Serra Boulevard, between Westborough Boulevard and D Street

Class III bike facilities (bike routes) are provided along the following roadway in the study area:

- Hillside Boulevard, between Serramonte Boulevard and Market Street

Observed Existing Traffic Conditions

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the level of service calculation does not accurately reflect level of service in the field. The field observations occurred during the fall while the nearby schools were in session.

Overall most study intersections operated adequately during both the AM, PM and Saturday midday peak hours of traffic, and the level of service analysis appears to accurately reflect actual existing traffic conditions. However, field observations showed that some operational problems currently occur during the peak commute hours. These issues are described below.

Junipero Serra Boulevard and Serramonte Boulevard

During the PM peak hour and Saturday midday peak hour, queues from the eastbound through traffic would spill back to the upstream intersection of I-280 NB Ramps and Serramonte Boulevard. However

these queues did not affect the traffic operations at the I-280 NB Ramps/Serramonte Boulevard intersection. The eastbound through queues were able to clear in one signal cycle.

Junipero Serra Boulevard and Hickey Boulevard

During the PM peak hour, the traffic on the westbound approach was not able to clear in one signal cycle. In addition, queues from the eastbound traffic were observed to spill back upstream to the intersection of Longford Drive and Hickey Boulevard.

I-280 NB Ramps and Hickey Boulevard

During the PM peak hour, queues from the westbound traffic would spill back to the intersection of Hickey Boulevard and the Kaiser Permanente Daly City Medical Offices driveway. However, these queues were observed to clear in one signal cycle.

3. Background Conditions

This chapter describes Background traffic conditions. Background conditions are defined as conditions just prior to completion of the proposed development. Traffic volumes for Background conditions comprise existing traffic volumes plus traffic generated by other approved developments in the vicinity of the site. The *Serramonte Shopping Center Expansion EIR* and *Serramonte Ford Initial Study* were used in developing the background conditions analysis for this project. This chapter describes the procedure used to determine Background traffic volumes and the resulting traffic conditions.

Background Transportation Network

The transportation network under Background conditions was assumed to be the same as the Existing transportation network, except for the unsignalized intersection of Serra Center Driveway/Serramonte Boulevard. Under Background conditions, this intersection is assumed to be converted from a three-way stop to a four-way stop. With the approved Ford dealership expansion, the south leg of this intersection would provide primary access to the Ford dealership. All other study intersection lane configurations remain the same. The Background intersection lane configurations are shown on Figure 7.

Background Traffic Volumes

Background peak hour traffic volumes were based on the Baseline Plus Project conditions from the *Serramonte Shopping Center Expansion EIR*. The *Serramonte Shopping Center Expansion EIR* assumed a Dick's Sporting Goods (83,000 square feet), and 7,500 square feet of restaurant space to be added to the Serramonte Shopping Center. In addition, project conditions developed for the proposed expansion of the Ford car dealership based on the *Serramonte Ford Initial Study* were assumed under background conditions analysis. For intersections not analyzed under the *Serramonte Shopping Center Expansion EIR* and *Serramonte Ford Initial Study*, background traffic volumes were estimated from traffic volumes at nearby intersections that were studied in the reference documents. Background peak hour traffic volumes are shown on Figure 8 for the weekday AM and PM peak hours and on Figure 9 for the Saturday midday peak hour.

Background Intersection Levels of Service

The results of the intersection Level of Service analysis under background conditions are summarized in Table 4. The results show that all signalized study intersections would continue to operate at acceptable LOS D or better during the weekday AM, PM and Saturday midday peak hours. The unsignalized intersection of Serra Center Driveway/Serramonte Boulevard would continue to operate at unacceptable LOS F during the Saturday midday peak hour. The Ford project would construct improvements at this intersection.

The Level of Service calculations are provided in Appendix C.

Table 4
Background Intersection Level of Service Analysis

		Existing		Background	
Intersection		**Avg. Delay**	**LOS**	**Avg. Delay**	**LOS**
I-280 SB Off-Ramp & Serramonte Boulevard	AM	6.7	A	6.9	A
	PM	13.5	B	15.0	B
	SAT	26.2	C	35.0	D
I-280 NB On-Ramp & Serramonte Boulevard	AM	1.5	A	1.6	A
	PM	3.3	A	3.6	A
	SAT	3.8	A	4.3	A
Junipero Serra Boulevard & Serramonte Boulevard	AM	27.1	C	28.4	C
	PM	36.1	D	37.0	D
	SAT	42.4	D	45.7	D
Serra Center Driveway & Serramonte Boulevard (unsignalized)	AM	13.7	B	14.3	B
	PM	31.9	D	**35.2**	**E**
	SAT	**51.8**	**F**	**53.3**	**F**
El Camino Real & Serramonte Boulevard	AM	22.5	C	22.7	C
	PM	26.4	C	27.0	C
	SAT	31.7	C	32.6	C
Hillside Boulevard & Serramonte Boulevard	AM	20.3	C	20.4	C
	PM	22.1	C	22.7	C
	SAT	37.4	D	38.5	D
I-280 SB Ramps & Hickey Boulevard	AM	10.4	B	10.3	B
	PM	15.1	B	15.1	B
	SAT	13.9	A	13.9	B
I-280 NB Ramps & Hickey Boulevard	AM	26.3	C	26.5	C
	PM	39.2	D	39.9	D
	SAT	37.8	D	38.4	D
Junipero Serra Boulevard & Hickey Boulevard	AM	35.7	D	36.0	D
	PM	38.0	D	38.8	D
	SAT	13.6	B	15.4	B
Hillside Boulevard & Lawndale Boulevard	AM	13.0	B	12.9	B
	PM	10.8	B	10.8	B
	SAT	10.4	B	10.3	B

Bold indicates a substandard Level of Service.

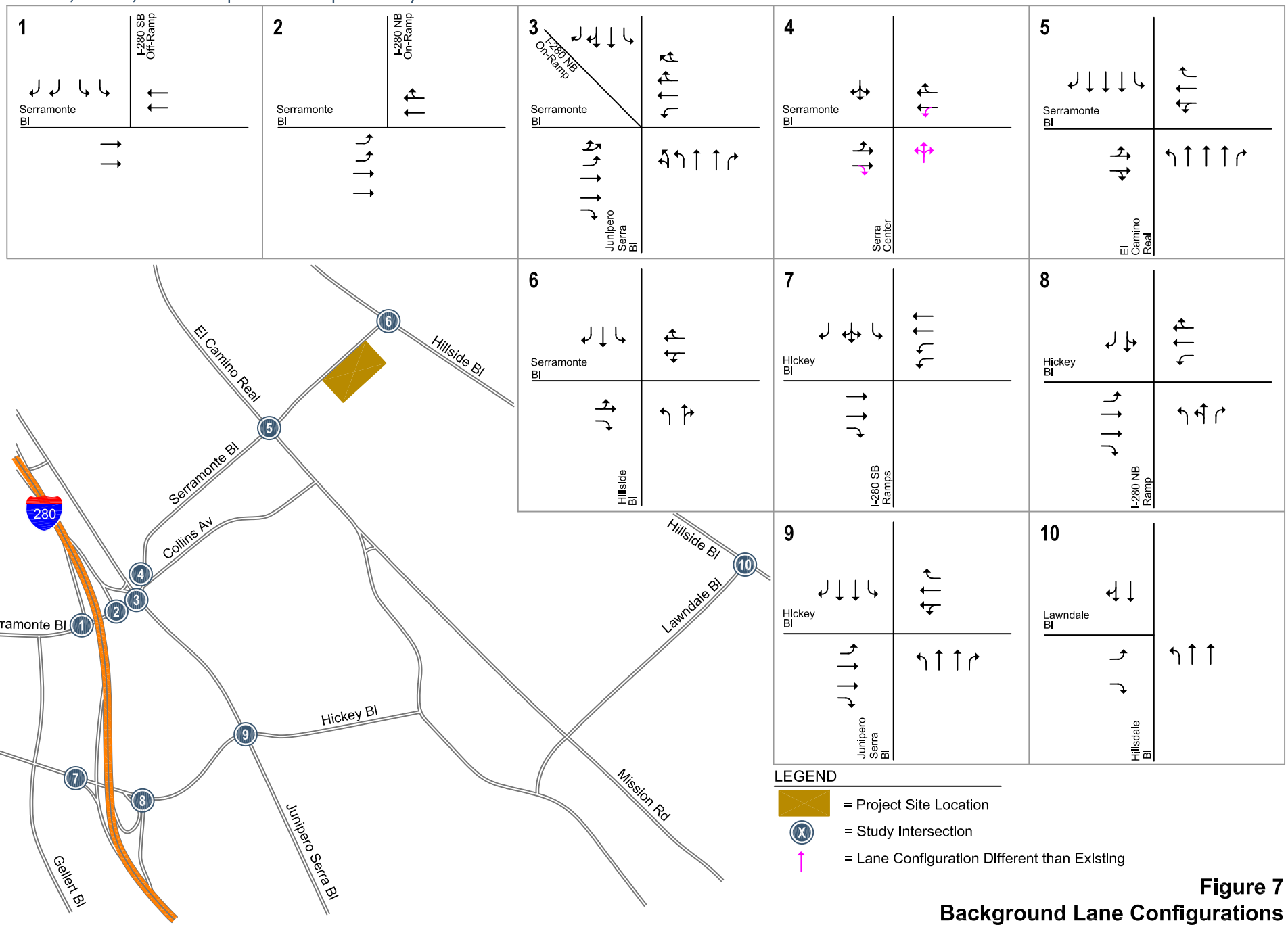

Figure 7
Background Lane Configurations

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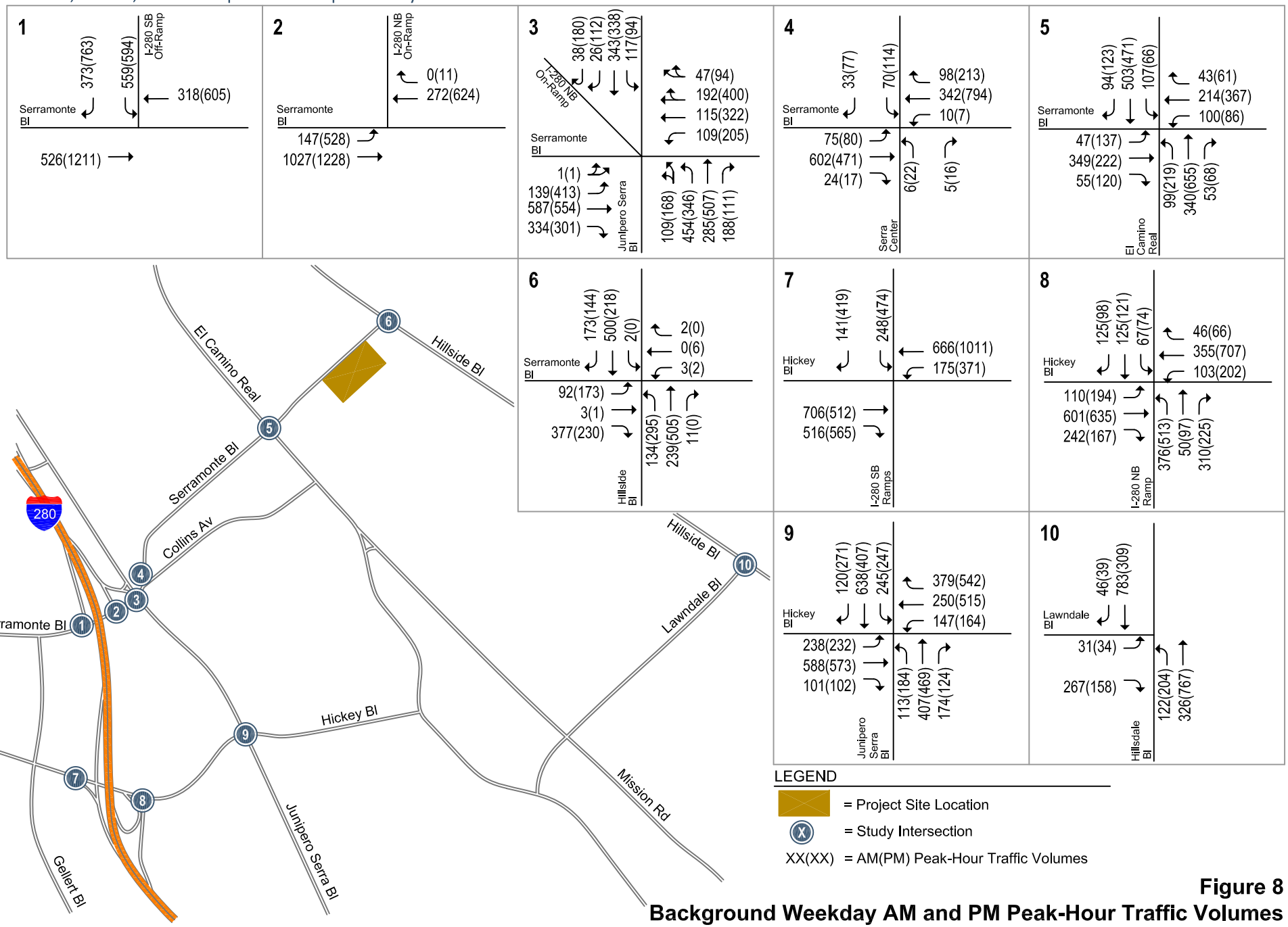

Figure 8
Background Weekday AM and PM Peak-Hour Traffic Volumes

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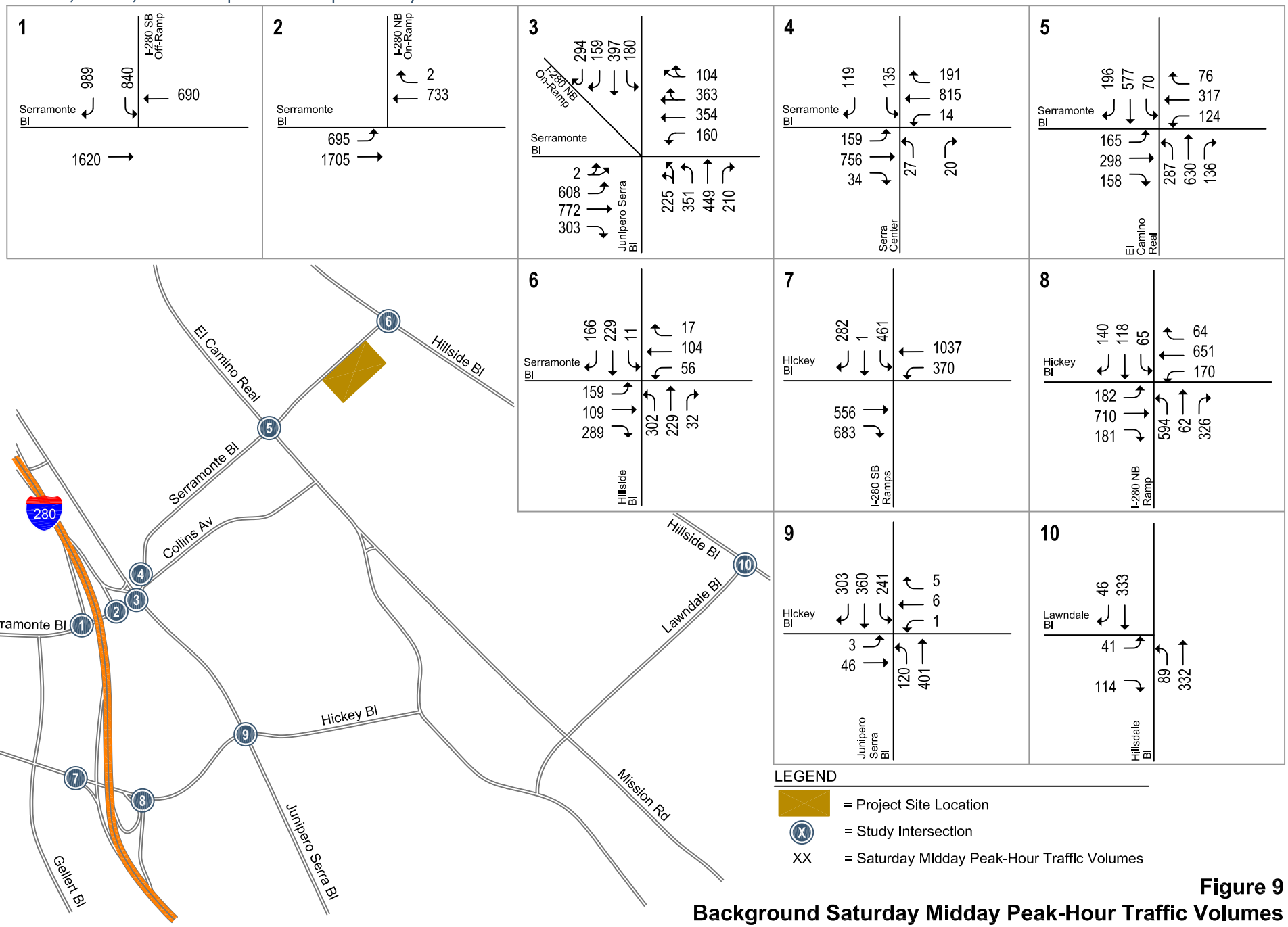

Figure 9
Background Saturday Midday Peak-Hour Traffic Volumes

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4. Project Conditions

This chapter describes traffic conditions with the proposed project. A description of the transportation system under project conditions and the method by which project traffic is estimated is described. Included in this chapter is a summary of project traffic conditions, as well as any impacts caused by the project. The analyses of site access and on-site circulation are also presented in this chapter. Project conditions are represented by adding project generated traffic to Existing traffic conditions and to Background traffic conditions.

Transportation Network Under Project Conditions

The transportation network under Existing Plus Project conditions, including roadways and intersection lane configurations, is the same as that described under Existing conditions.

The transportation network under Background Plus Project conditions, including roadways and intersection lane configurations, is the same as that described under Background conditions.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described further in the following sections.

Trip Generation

Trip generation for the proposed auto dealership was based on published trip rates presented in the Institute of Transportation Engineers' (ITE), *Trip Generation Manual, 9th Edition, 2012*, for Automobile Sales (Land Use Code 841). Whenever applicable, fitted curve equations were used. Otherwise, average rates were used to determine the magnitude of trips that would be generated by the project.

The proposed project would receive credit for trips generated by existing uses on site. The project site is served by three driveways under existing conditions. Driveway counts were conducted on Thursday,

October 15, 2015 and Saturday, October 17, 2015 to estimate the trips generated by the existing uses on site. The easternmost driveway provides access to an Auto Body Shop that is currently in operation. The other two driveways to the west provide access to a vacant Hyundai service facility. It was observed that the parking lot of the Hyundai service facility was used by the adjacent Acura auto dealership and for auto inventory storage by other local dealerships. Therefore, only trips counted in and out of the easternmost driveway were considered as trips generated by existing uses on site. Driveway count data is provided in Appendix B.

The trip generation estimates are presented in Table 5. As shown in Table 5, after receiving trip credit for existing uses on site, the project is estimated to generated a total of 293 net weekday daily trips with 8 trips occurring during the AM peak hour (4 in and 4 out) and 26 trips occurring during the PM peak hour (11 in and 15 out). For Saturdays, the project is estimated to generate a total of 351 net daily trips with 56 trips occurring during the midday peak hour (28 in and 28 out).

Trip Distribution

The trip distribution pattern for the proposed project was developed based on existing travel patterns and knowledge of the study area. Based on the nature of the land use, the project would attract a large number of regional trips. The nearest CarMax dealership is located in Fairfield, approximately 60 miles to the north. The trip distribution pattern is shown on Figure 10.

Table 5
Project Trip Generation Estimates

		Daily Rate		Daily Trips		AM Peak Hour				PM Peak Hour				Saturday Midday Peak			
Land Use	**Size[1]**	**Weekday**	**Saturday**	**Weekday**	**Saturday**	**Rate**	**In**	**Out**	**Total**	**Rate**	**In**	**Out**	**Total**	**Rate**	**In**	**Out**	**Total**
Proposed																	
Auto Dealership [2]	20.21	32.30	29.74	653	601	1.92	29	10	39	3.09	25	37	62	4.02	41	40	81
Existing																	
Auto Body Shop [3]	-	-	-	*(360)*	*(250)*	-	*(25)*	*(6)*	*(31)*	-	*(14)*	*(22)*	*(36)*	-	*(13)*	*(12)*	*(25)*
Net Project Trips				***293***	***351***		***4***	***4***	***8***		***11***	***15***	***26***		***28***	***28***	***56***

[1] Building size expressed in 1,000 square feet.

[2] Source: Automobile Sales (841), *ITE Trip Generation, 9th Edition* . Average rates used for Daily Weekday and Saturday, AM peak hour, and Saturday peak hour. Regression equation was used for the PM peak hour because using regression equation represents a more conservative trip estimate.

[3] Trip estimates for the existing Auto Body Shop are based on driveway counts conducted on Thursday, October 15, 2015 and Saturday, October 17, 2015. AM peak hour occurred from 8:00-9:00 AM. PM peak hour occurred from 5:00-6:00 PM. Saturday midday peak hour occurred from 12:15-1:15 PM. Daily Trips are derived from assuming that the total PM peak hour trips represents 10% of the daily trips. (i.e. 20 PM peak hour trips = 200 daily trips)

(#) denotes negative trip credits

LEGEND

= Project Site Location

= Study Intersection

Figure 10
Project Trip Distribution

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Trip Assignment

The net peak hour trips generated by the proposed project were assigned to the roadway system in accordance with the trip distribution patterns discussed above. The project trip assignment at the study intersections is shown graphically on Figure 11 for the weekday AM and PM peak hours and on Figure 12 for the Saturday midday peak hour.

Existing Plus Project Traffic Volumes

Existing Plus Project peak hour traffic volumes were estimated by adding to Existing traffic volumes the net traffic generated by the project. Existing Plus Project conditions were evaluated relative to existing conditions in order to determine potential project impacts. The Existing Plus Project traffic volumes are shown graphically on Figure 13 for the weekday AM and PM peak hours and on Figure 14 for the Saturday midday peak hour.

Existing Plus Project Intersection Level of Service Analysis

The results of the intersection Level of Service analysis under Existing Plus Project conditions are summarized in Table 6. The results show that all signalized study intersections would continue to operate at acceptable LOS D or better during the weekday AM and PM peak hours and Saturday midday peak hour under Existing Plus Project conditions. The unsignalized intersection of Serra Center Driveway/Serramonte Boulevard would continue to operate at unacceptable LOS F during the Saturday midday peak hour under Existing Plus Project conditions.

The Level of Service calculations for Existing Plus Project conditions are provided in Appendix C.

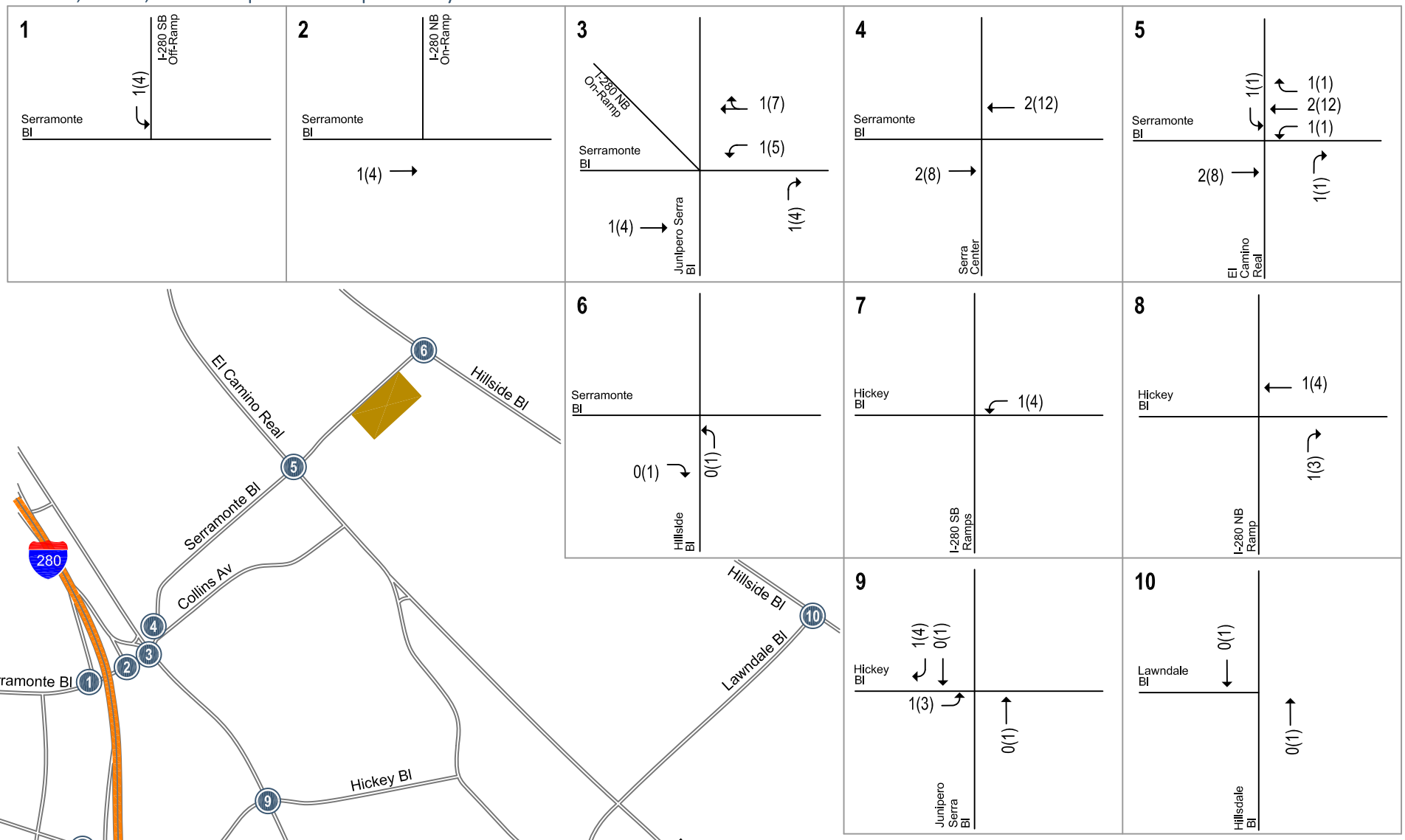

Figure 11
Project Weekday AM and PM Peak-Hour Trip Assignment

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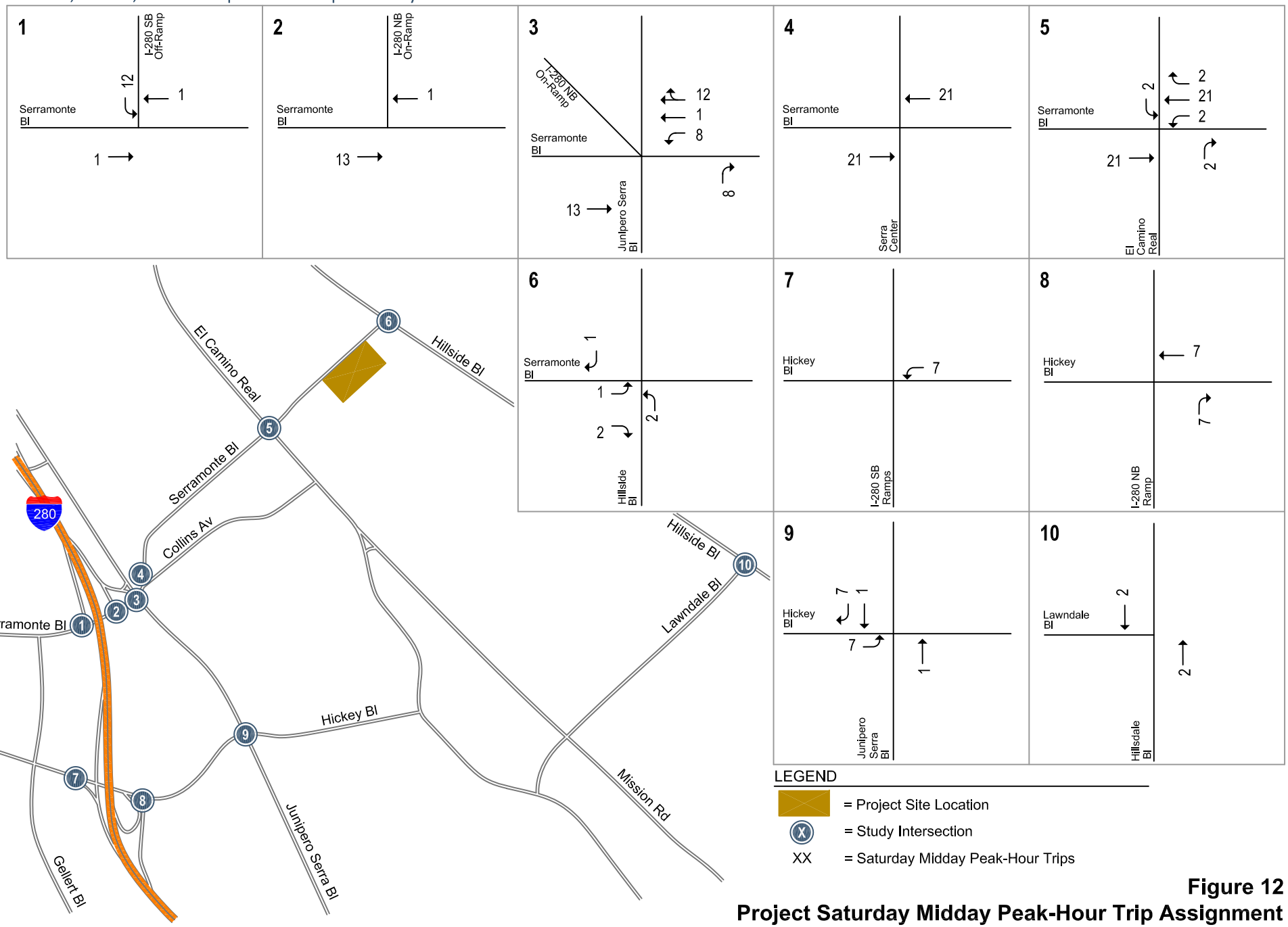

Figure 12
Project Saturday Midday Peak-Hour Trip Assignment

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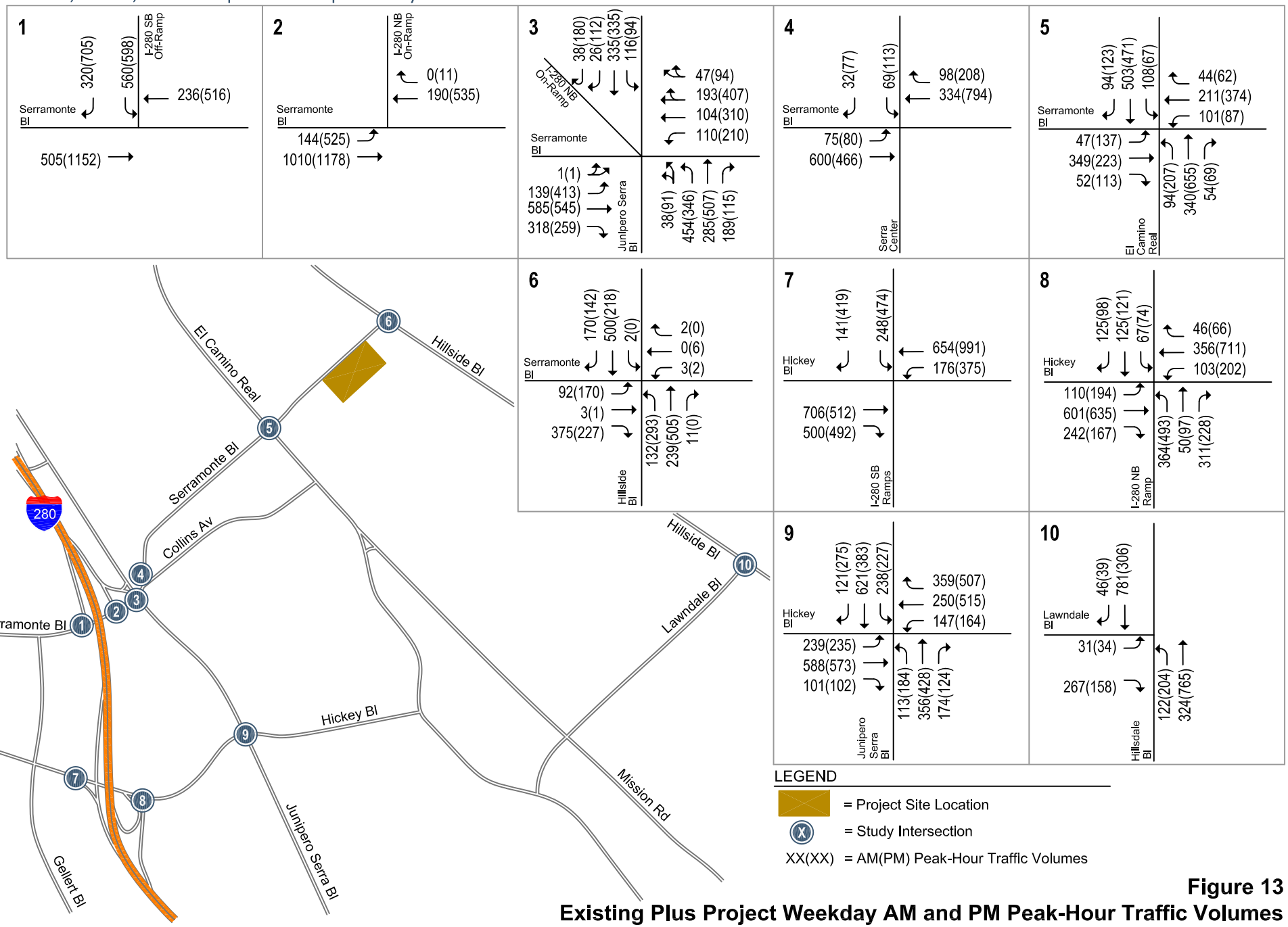

Figure 13
Existing Plus Project Weekday AM and PM Peak-Hour Traffic Volumes

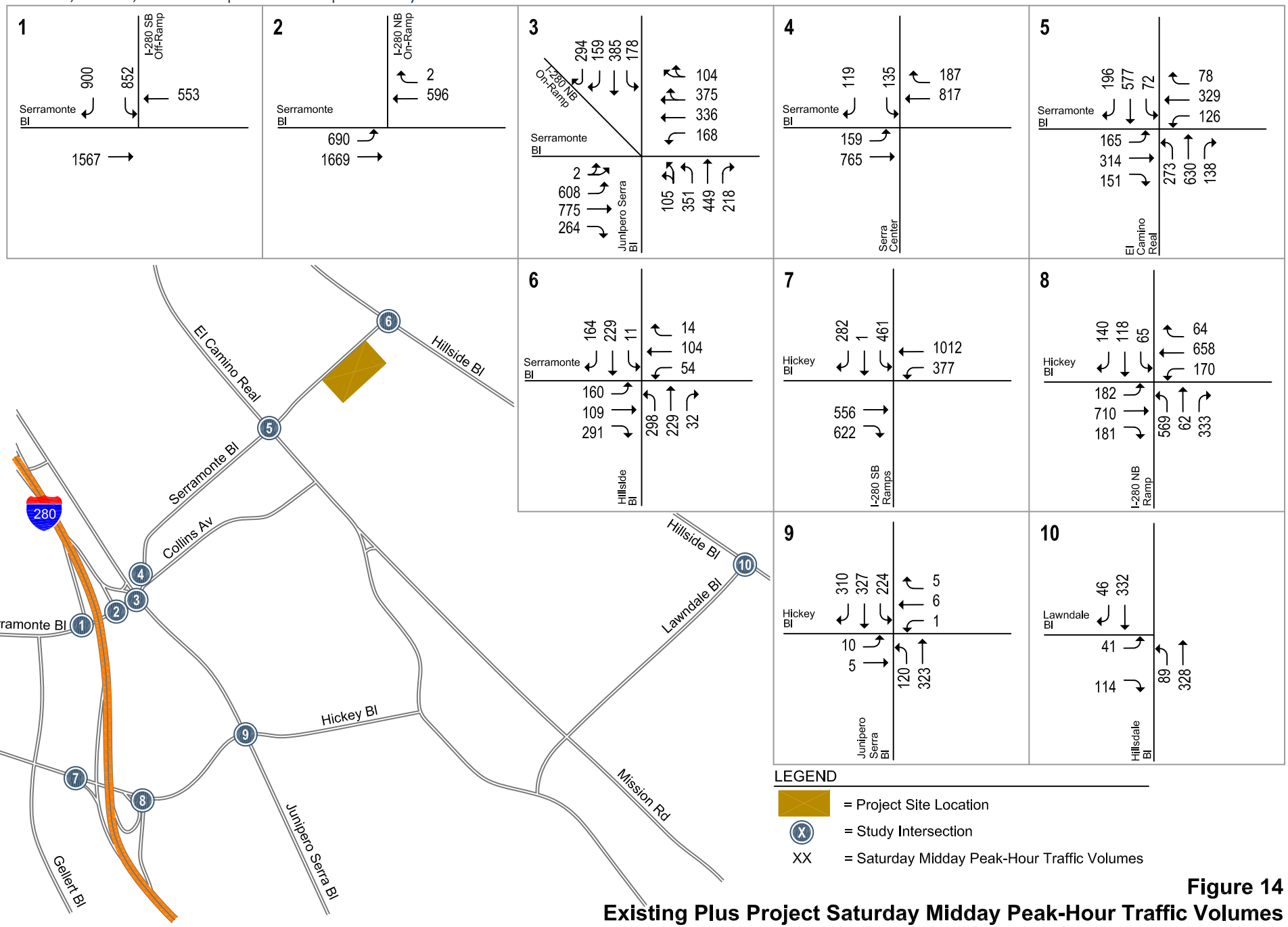

Figure 14
Existing Plus Project Saturday Midday Peak-Hour Traffic Volumes

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Table 6
Existing Plus Project Intersection Level of Service Analysis

Intersection		Existing Avg. Delay	Existing LOS	Existing + Project Avg. Delay	Existing + Project LOS	Increase in Delay
I-280 SB Off-Ramp & Serramonte Boulevard	AM	6.7	A	6.7	A	0.0
	PM	13.5	B	13.5	B	0.0
	SAT	26.2	C	26.2	C	0.0
I-280 NB On-Ramp & Serramonte Boulevard	AM	1.5	A	1.5	A	0.0
	PM	3.3	A	3.3	A	0.0
	SAT	3.8	A	3.8	A	0.0
Junipero Serra Boulevard & Serramonte Boulevard	AM	27.1	C	27.2	C	0.1
	PM	36.1	D	36.2	D	0.1
	SAT	42.4	D	42.8	D	0.4
Serra Center Driveway & Serramonte Boulevard (unsignalized)	AM	13.7	B	13.7	B	0.0
	PM	31.9	D	33.6	D	1.7
	SAT	**51.8**	**F**	**53.1**	**F**	**1.3**
El Camino Real & Serramonte Boulevard	AM	22.5	C	22.5	C	0.0
	PM	26.4	C	26.8	C	0.4
	SAT	31.7	C	32.5	C	0.8
Hillside Boulevard & Serramonte Boulevard	AM	20.3	C	20.3	C	0.0
	PM	22.1	C	22.5	C	0.4
	SAT	37.4	D	37.8	D	0.4
I-280 SB Ramps & Hickey Boulevard	AM	10.4	B	10.4	B	0.0
	PM	15.1	B	15.2	B	0.1
	SAT	13.9	A	14.0	B	0.1
I-280 NB Ramps & Hickey Boulevard	AM	26.3	C	26.3	C	0.0
	PM	39.2	D	39.4	D	0.2
	SAT	37.8	D	37.9	D	0.1
Junipero Serra Boulevard & Hickey Boulevard	AM	35.7	D	35.7	D	0.0
	PM	38.0	D	38.0	D	0.0
	SAT	13.6	B	13.5	B	-0.1
Hillside Boulevard & Lawndale Boulevard	AM	13.0	B	13.0	B	0.0
	PM	10.8	B	10.8	B	0.0
	SAT	10.4	B	10.4	A	0.0

Bold indicates a substandard Level of Service.

Background Plus Project Traffic Volumes

Background Plus Project peak hour traffic volumes were estimated by adding to Background traffic volumes the net traffic generated by the project. Project conditions were evaluated relative to Background conditions in order to determine potential project impacts. The Background Plus Project traffic volumes are shown graphically on Figure 15 for the weekday AM and PM peak hours and on Figure 16 for the Saturday midday peak hour.

Background Plus Project Intersection Level of Service Analysis

The results of the intersection Level of Service analysis under Background Plus Project conditions is summarized in Table 7. The results show that all signalized study intersections would continue to operate at acceptable LOS D or better during the weekday AM and PM peak hours and Saturday mid-day peak hour under Background Plus Project conditions. The unsignalized intersection of Serra Center Driveway/Serramonte Boulevard would continue to operate at unacceptable LOS F during the weekday PM peak hour and Saturday mid-day peak hour under Background Plus Project conditions. According to the Town of Colma's General Plan, LOS E or LOS F are acceptable during peak commute periods and the proposed project would increase the average delay at the intersection by only 0.5 seconds during the PM peak hour and by 1.9 seconds during the Saturday mid-day peak hour. The project would not create a significant impact at this intersection. The unacceptable LOS is primarily because of the delay incurred on the eastbound and westbound approaches on Serramonte Boulevard. The following improvements were identified for this intersection in the *Serramonte Ford Initial Study.*

- *The project applicant shall fund traffic counts and a localized traffic assessment of the new four-way intersection. The applicant will fund a pro-rata share of improvements to the four-way intersection found necessary based on the incremental increase in traffic at the main project driveway, as determined by the Town of Colma to reduce to acceptable levels any increased stacking lengths and delays that may arise on Serramonte Boulevard, on the Serra Center driveway, and/or at the project site driveway. Such improvements may require modifications or additions of signage, intersection signalization, modification to the Serra Center driveway for a dedicated right-turn lane or signal phasing adjustments to existing signalized intersections in the project vicinity. The Town may also determine that the project impacts and increased project traffic are insignificant and that a contribution for improvements may not be warranted.*

The above measures would improve traffic operations at this intersection.

The Level of Service calculations for Background Plus Project conditions are provided in Appendix C.

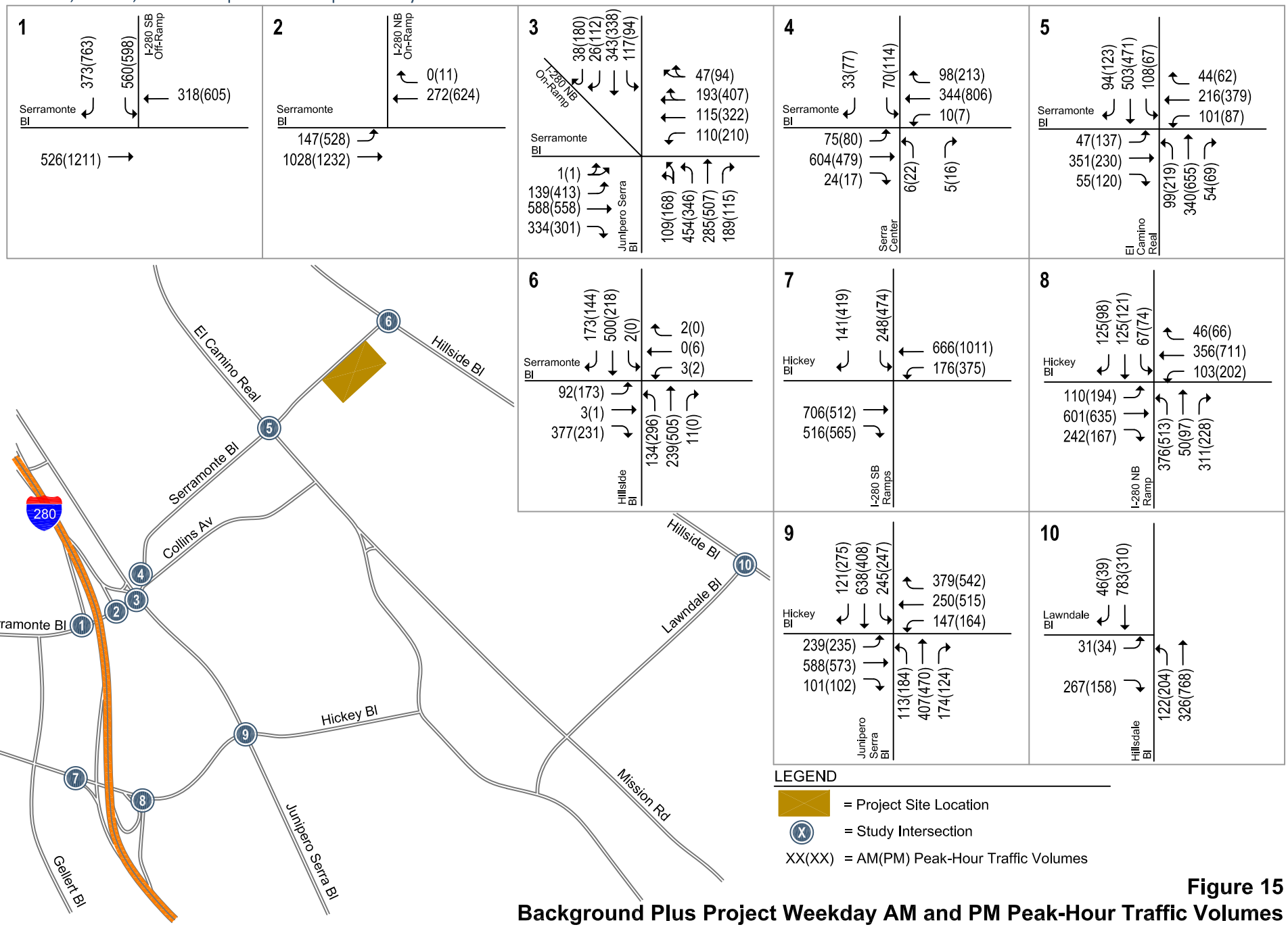


Figure 15

Background Plus Project Weekday AM and PM Peak-Hour Traffic Volumes

HEXAGON

NORTH
Not to Scale

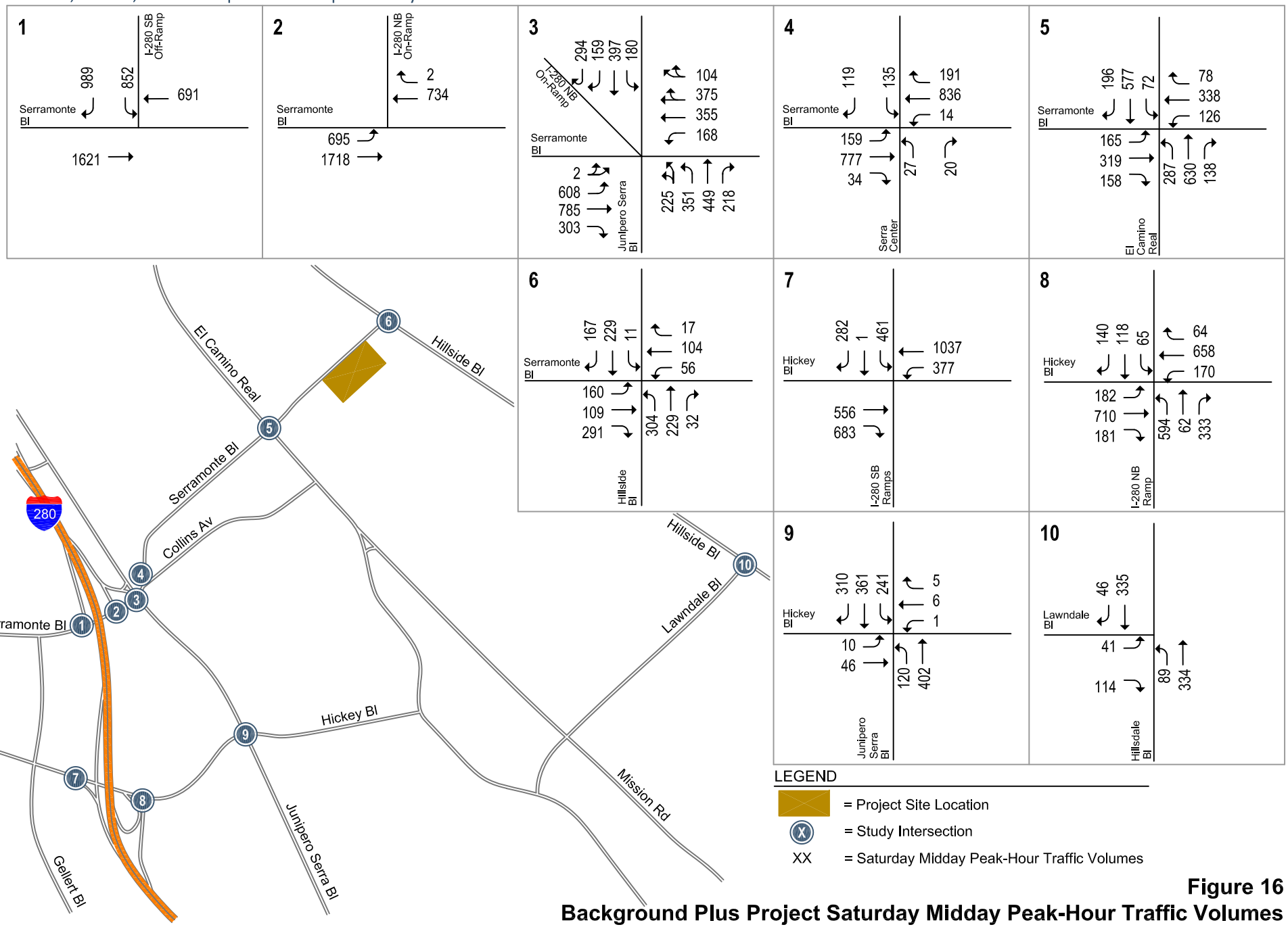


Figure 16
Background Plus Project Saturday Midday Peak-Hour Traffic Volumes

HEXAGON

NORTH
Not to Scale

Table 7
Background Plus Project Intersection Level of Service Analysis

Intersection		Background Avg. Delay	Background LOS	Background + Project Avg. Delay	Background + Project LOS	Increase in Delay
I-280 SB Off-Ramp & Serramonte Boulevard	AM	6.9	A	7.0	A	0.1
	PM	15.0	B	15.0	B	0.0
	SAT	35.0	D	35.1	D	0.1
I-280 NB On-Ramp & Serramonte Boulevard	AM	1.6	A	1.6	A	0.0
	PM	3.6	A	3.6	A	0.0
	SAT	4.3	A	4.3	A	0.0
Junipero Serra Boulevard & Serramonte Boulevard	AM	28.4	C	28.4	C	0.0
	PM	37.0	D	37.1	D	0.1
	SAT	45.7	D	46.1	D	0.4
Serra Center Driveway & Serramonte Boulevard (unsignalized)	AM	14.3	B	14.4	B	0.1
	PM	**35.2**	**E**	**35.7**	**E**	**0.5**
	SAT	**53.3**	**F**	**55.2**	**F**	**1.9**
El Camino Real & Serramonte Boulevard	AM	22.7	C	22.8	C	0.1
	PM	27.0	C	27.3	C	0.3
	SAT	32.6	C	33.4	C	0.8
Hillside Boulevard & Serramonte Boulevard	AM	20.4	C	20.4	C	0.0
	PM	22.7	C	22.8	C	0.1
	SAT	38.5	D	38.6	D	0.1
I-280 SB Ramps & Hickey Boulevard	AM	10.3	B	10.3	B	0.0
	PM	15.1	B	15.2	B	0.1
	SAT	13.9	B	14.0	B	0.1
I-280 NB Ramps & Hickey Boulevard	AM	26.5	C	26.5	C	0.0
	PM	39.9	D	40.1	D	0.2
	SAT	38.4	D	38.6	D	0.2
Junipero Serra Boulevard & Hickey Boulevard	AM	36.0	D	36.0	D	0.0
	PM	38.8	D	38.9	D	0.1
	SAT	15.4	B	15.5	B	0.1
Hillside Boulevard & Lawndale Boulevard	AM	12.9	B	12.9	B	0.0
	PM	10.8	B	10.8	B	0.0
	SAT	10.3	B	10.3	B	0.0

Bold indicates a substandard Level of Service.

Pedestrian, Bicycle and Transit Facilities Under Project Conditions

Pedestrian facilities in the study area consist of sidewalks located on the south side of Serramonte Boulevard and both sides of El Camino Real in the project vicinity. The intersection of El Camino Real/Serramonte Boulevard has pedestrian crosswalks and signal heads across all four legs. There are sidewalks located along the entire route from the project site to the bus stops on El Camino Real and Junipero Serra Boulevard. For pedestrians traveling between the Colma BART station and the project site, there are sidewalks along the east side of El Camino Real.

Bicycle lanes are present on portions of Hillside Boulevard, Junipero Serra Boulevard, Lawndale Boulevard, and Mission Road in the vicinity of the project. There are no bike facilities on Serramonte Boulevard and El Camino Real in the project vicinity. The sidewalks and bikeways in the project vicinity should be adequate to serve the employees and visitors that walk or bike to the site.

Transit in the study area is provided by BART and SamTrans. The Colma BART station is located approximately one mile north of the project site. There is one northbound and one southbound SamTrans bus route with stops approximately 0.25 miles from the project. There are three SamTrans bus routes that have a stop within one mile of the project site. The traffic volumes added to the study area should have a less than significant impact to the existing bus services.

The project is not likely to generate a significant amount of pedestrian, bicycle, or transit traffic.

Site Access and On-Site Circulation

This section describes the site access, circulation, and parking for the proposed project. This review is based on the project site plan labeled “Conceptual Site Plan” provided by Charles J. O’Brien Architect.

The analyses in this section is based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Site Access

The project proposes a single full access driveway that would be located in the northwest corner of the project site. This driveway would provide access to the customer/employee parking lot. The driveway would be accessible from Serramonte Boulevard. The proposed project is estimated to generate 39 trips during the AM peak hour (29 in and 10 out), 62 trips during the PM peak hour (25 in and 37 out), and 81 trips during the Saturday midday peak hour (41 in and 40 out) at the project driveway. This driveway will be used by employees, customers, vehicles entering and exiting for test drives, and occasional auto deliveries via a car carrier.

The project is not expected to cause any significant queuing delays attributed to project traffic turning into the site from Serramonte Boulevard. It is estimated that the intersection of Serramonte Boulevard/project driveway would operate at an LOS C or better for the worst movement during all analysis periods under all scenarios.

Site Circulation

The proposed plan would provide adequate connectivity through the parking area for vehicles. The internal drive aisles would include four east-west aisles and 3 north-south aisles that are all wide enough to accommodate one vehicle in each direction. The width of the drive aisles within the parking areas would allow sufficient room for vehicles to maneuver in and out of the parking spaces.

Sight Distance

Adequate sight distance should be provided at the project exit driveway. Adjacent to the project site, there are no roadway curves, on-street parking, or landscaping features that obstruct the vision of exiting drivers. The site plan does not show any landscaping features that would interfere with the sight distance at the project driveway. In order to ensure the safety of all employees and customers, no objects should be placed within the sight distance triangle that would obstruct the vision of exiting drivers.

Emergency Vehicle and Truck Access

The site access was evaluated to determine the adequacy of the site plan for emergency vehicles and truck access. Emergency vehicles and trucks would have access to the site from Serramonte Boulevard. These vehicles would have access to the sales and service areas via the customer/employee parking lot. In addition, the site plan shows a gated entrance to the car sales staging area that would be accessible from the main driveway entrance for emergency vehicles and trucks. Adequate widths should be maintained between all aisles of the car sales staging area to allow emergency vehicles and trucks to maneuver in and out.

Parking Supply

The Colma Municipal Code (Section 5.03.290) specifies that commercial and vehicle service parking shall be provided such that the ratio of parking spaces to gross leasable building area shall be five parking spaces for each 1,000 square feet. For the project, this translates to 87 required parking spaces. The carwash and presentation areas are not subject to parking requirements. The site plan shows a parking lot for customers and employees that would include 126 standard parking spaces plus 4 accessible spaces. With parking in the inventory lot and elsewhere on the site, the total parking provided on the project site is 598 spaces. Thus, based on Town of Colma Municipal Code, the proposed project would provide adequate parking.

The Town code requirement for parking spaces is shown in Table 8.

Table 8
Parking Spaces Required

			Required		Proposed	
Use	Size [1]	Units	Ratio [2]	Parking Spaces	Parking Spaces [3]	Ratio [2]
"C" Zone - Commercial Center	17,312	sqft	5	87	126	7.28

[1] The project size presented does not include the presentation area and car wash area because these are auxiliary uses and are not subject to parking requirements.

[2] Ratio defined as ratio of parking spaces to each 1,000 square feet of gross leasable area.

[3] Parking spaces proposed is based on the project site plan labeled "Conceptual Site Plan" provided by Charles J. O'Brien Architect. The number of proposed parking spaces listed does not include the proposed accessible parking spaces.

5. Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under Cumulative conditions. Cumulative conditions were established based on forecasts presented for the Cumulative Plus Project conditions in the *Serramonte Shopping Center Expansion EIR*.

It is assumed in this analysis that the transportation network under Cumulative conditions would be the same as described under background conditions.

Cumulative and Cumulative Plus Project Traffic Volumes

Cumulative traffic volumes were based on the Cumulative Plus Project conditions from the *Serramonte Shopping Center Expansion EIR.* For intersection not analyzed under the *Serramonte Shopping Center Expansion EIR*, traffic volumes were estimated based on Cumulative traffic volumes at nearby intersections that were analyzed in the Serramonte EIR. Project-generated traffic volumes were added to Cumulative traffic volumes to estimate Cumulative Plus Project conditions. Cumulative Plus Project conditions were evaluated relative to Cumulative Conditions in order to determine potential project impacts.

The Cumulative traffic volumes are shown graphically on Figure 17 for weekday AM and PM peak hours and on Figure 18 for the Saturday midday peak hour. The Cumulative Plus Project traffic volumes are shown graphically on Figure 19 for the weekday AM and PM peak hours and on Figure 20 for the Saturday midday peak hour.

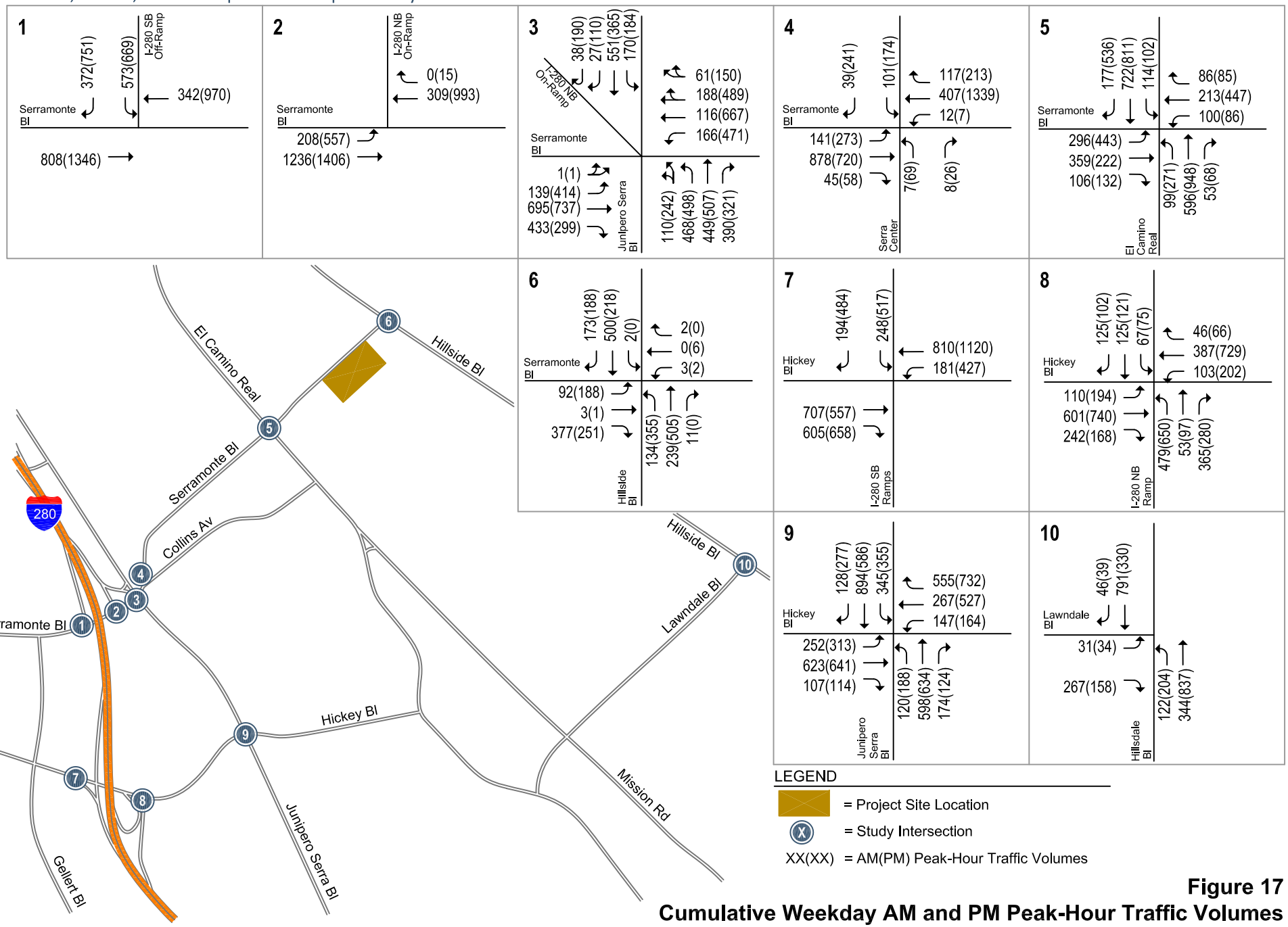


Figure 17
Cumulative Weekday AM and PM Peak-Hour Traffic Volumes

NORTH
Not to Scale

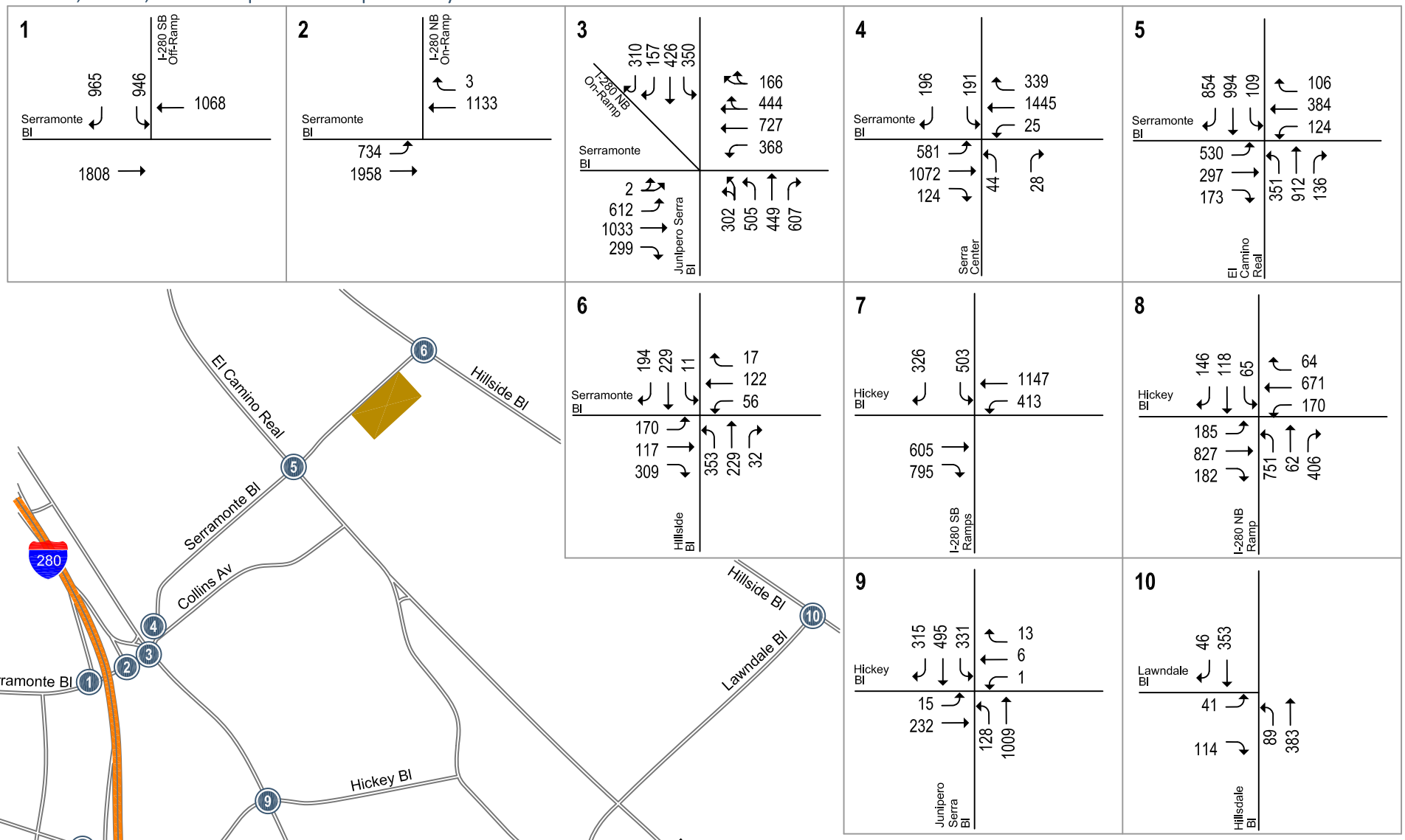


Figure 18
Cumulative Saturday Midday Peak-Hour Traffic Volumes

HEXAGON

NORTH
Not to Scale

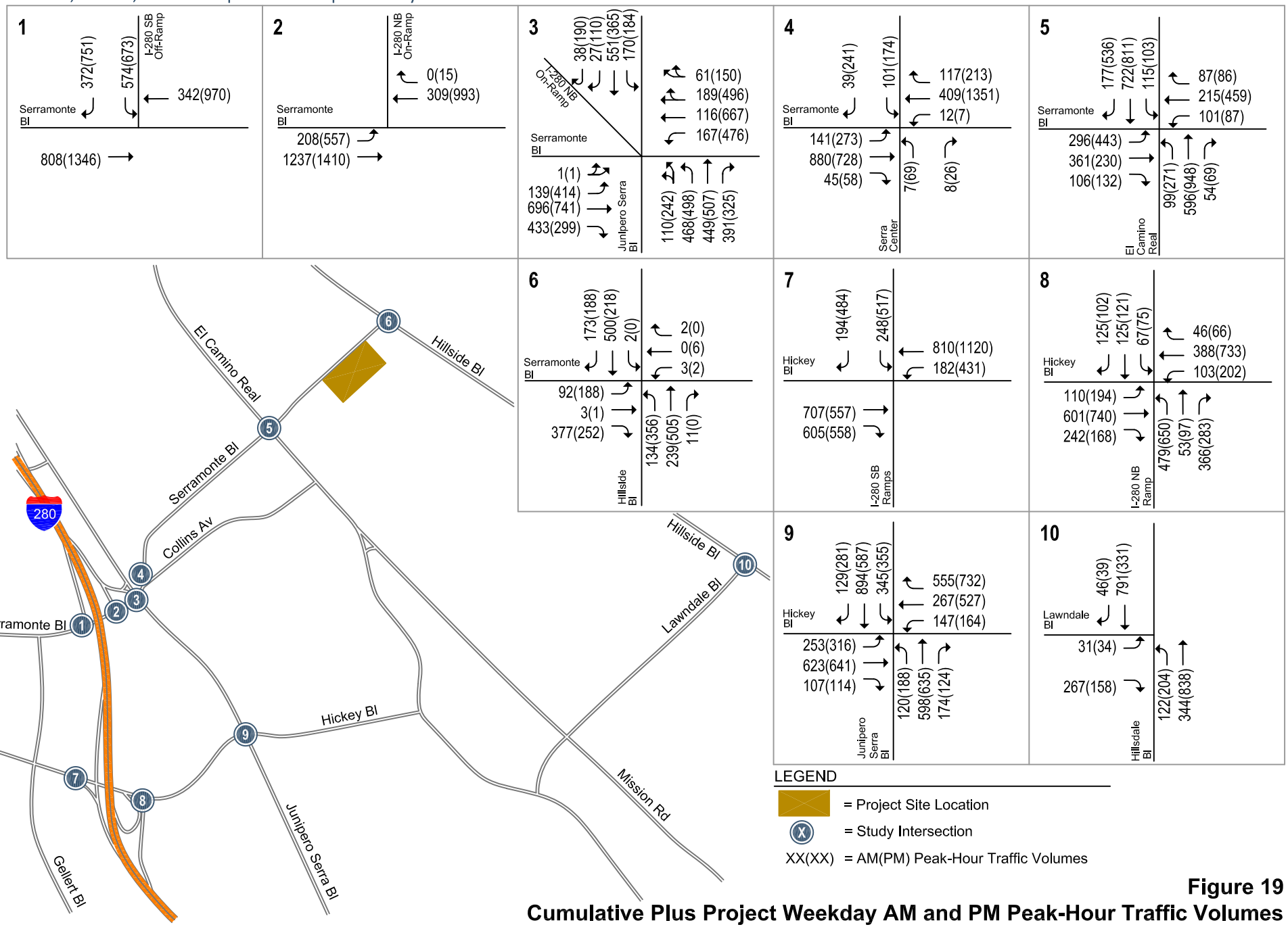


Figure 19

Cumulative Plus Project Weekday AM and PM Peak-Hour Traffic Volumes

HEXAGON

NORTH
Not to Scale

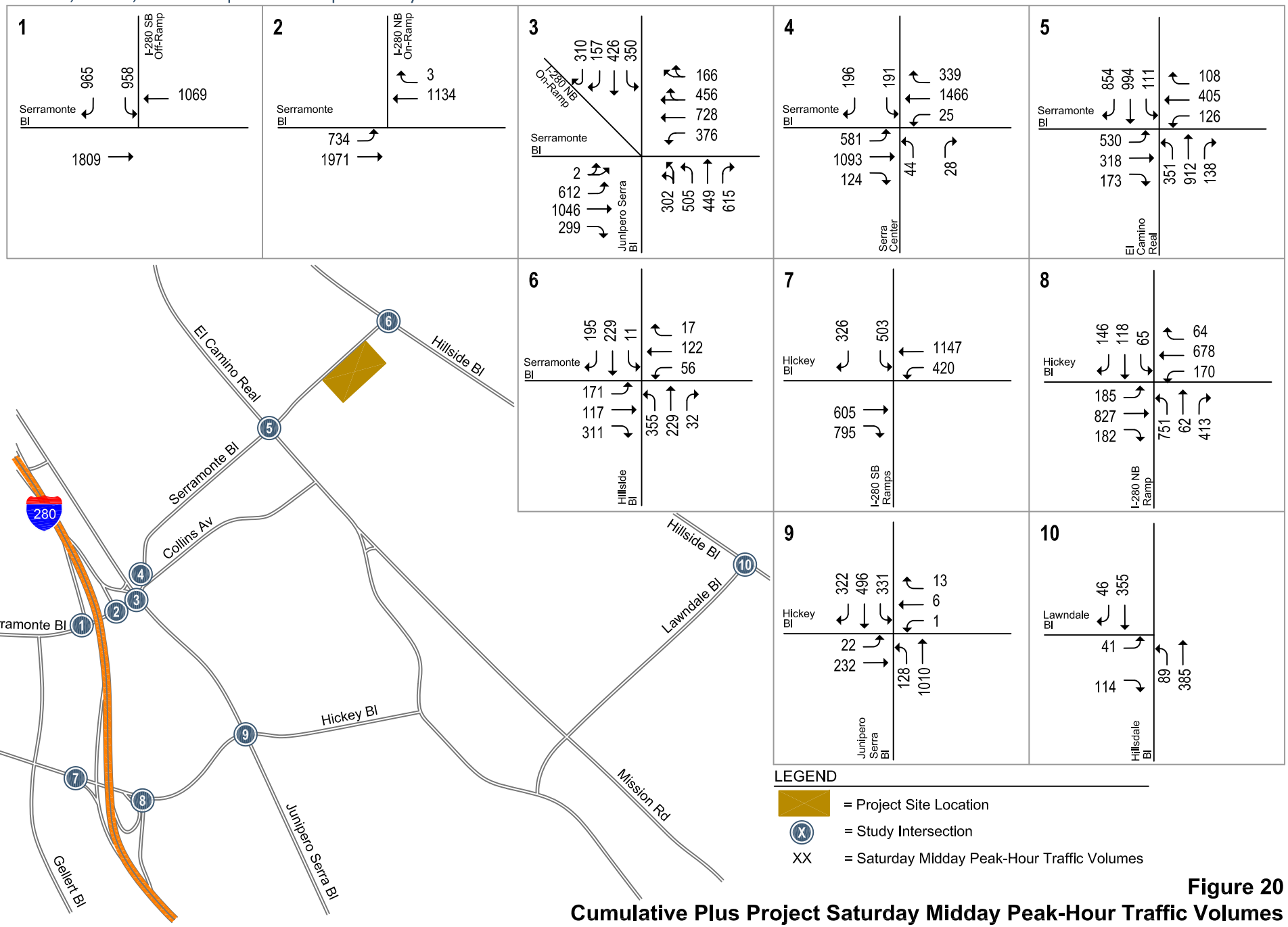


Figure 20
Cumulative Plus Project Saturday Midday Peak-Hour Traffic Volumes

HEXAGON

Cumulative Conditions Intersections Level of Service Analysis

The intersection Level of Service under Cumulative and Cumulative Plus Project conditions are summarized in Table 9. Under Cumulative conditions the following three intersections are expected to operate below the acceptable LOS D standard during at least one peak hour.

- Junipero Serra Boulevard/Serramonte Boulevard (PM and Saturday)
- Serra Center Driveway/Serramonte Boulevard (AM, PM, and Saturday)
- El Camino Real/Serramonte Boulevard (Saturday)

With the proposed project, the above intersections would continue to operate below the acceptable Level of Service threshold, as described below. In spite of the LOS standard at the Serra Center driveway, the Town of Colma has found that the existing stop sign serves to meter traffic at the Junipero Serra/Serramonte Boulevard intersection, and the stop signs are considered to be the most appropriate control device at this location. The installation of a signalized intersection at the Serra Center/Serramonte Boulevard intersection would likely create undesirable stacking in the Serra Center parking lot and on Serramonte Boulevard. The intersection Level of Service calculation sheets are included in Appendix C.

Junipero Serra Boulevard and Serramonte Boulevard

Cumulative conditions analysis for the Junipero Serra Boulevard/Serramonte Boulevard intersection shows that this intersection would operate at LOS F during the Saturday midday peak hour. This analysis is consistent with the analysis presented in the *Serramonte Shopping Center Expansion EIR.* The CarMax project would add 42 trips to this intersection during the Saturday midday peak hour which is less than 1% of the cumulative no project traffic volumes entering this intersection. The project would increase the average intersection delay by 3.0 seconds during the Saturday midday peak hour and the intersection would continue to operate at LOS F. According to the Town of Colma General Plan, LOS E and LOS F should be tolerated during the peak hour periods. Thus, the proposed CarMax project would not cause a significant impact at this intersection. The *Serramonte Shopping Center Expansion EIR* was found to create a significant impact at this intersection and recommended the following improvement:

- *Optimize the traffic signal green time to better accommodate Cumulative traffic volumes.*

Implementation of this measure would improve the traffic operations under cumulative conditions.

Serra Center Driveway and Serramonte Boulevard

Cumulative conditions analysis for the Serra Center Driveway/Serramonte Boulevard showed that this intersection would operate at an LOS E during the AM peak hour and LOS F during the PM and Saturday midday peak hours. This intersection would continue to operate at LOS E during the AM peak hour and LOS F during the PM and Saturday peak hours. According to the Town of Colma's General Plan, LOS E or LOS F is acceptable during peak commute periods and the proposed project would increase the average delay at the intersection by not more than 0.1 seconds during all three analysis periods. The project would not create a significant impact at this intersection. The following improvements were identified for this intersection in the *Serramonte Ford Initial Study.*

- *The project applicant shall fund traffic counts and a localized traffic assessment of the new four-way intersection. The applicant will fund a pro-rata share of improvements to the four-way intersection found necessary based on the incremental increase in traffic at the main project*

driveway, as determined by the Town of Colma to reduce to acceptable levels any increased stacking lengths and delays that may arise on Serramonte Boulevard, on the Serra Center driveway, and/or at the project site driveway. Such improvements may require modifications or additions of signage, intersection signalization, modification to the Serra Center driveway for a dedicated right-turn lane or signal phasing adjustments to existing signalized intersections in the project vicinity. The Town may also determine that the project impacts and increased project traffic are insignificant and that a contribution for improvements may not be warranted.

The above measures would improve traffic operations at this intersection.

El Camino Real and Serramonte Boulevard

Cumulative conditions analysis for the El Camino Real/Serramonte Boulevard shows that this intersection would operate at an LOS F during the Saturday midday Peak Hour. This analysis is consisted with the analysis presented in the *Serramonte Shopping Center Expansion EIR.* The CarMax project would add 50 trips to this intersection during the Saturday midday peak hour which is around 1% of the cumulative no project traffic volumes entering this intersection. The project would increase the average intersection delay by 3.6 seconds during the Saturday midday peak hour and the intersection would continue to operate at LOS F. According to the Town of Colma General Plan, LOS E and LOS F should be tolerated during the peak hour periods. The proposed CarMax project would not cause a significant impact at this intersection. The *Serramonte Shopping Center Expansion EIR* was found to create a significant impact at this intersection and recommended the following improvement:

- *Optimize the traffic signal green time to better accommodate Cumulative traffic volumes.*

Implementation of this measure would improve the traffic operations under cumulative conditions.

Table 9
Cumulative Plus Project Intersection Levels of Service Analysis

Intersection		Cumulative		Cumulative + Project		
		Avg. Delay	LOS	Avg. Delay	LOS	Increase in Delay
I-280 SB Off-Ramp & Serramonte Boulevard	AM	8.0	A	8.0	A	0.0
	PM	15.6	D	15.6	B	0.0
	SAT	38.4	D	38.5	D	0.1
I-280 NB On-Ramp & Serramonte Boulevard	AM	1.8	A	1.8	A	0.0
	PM	4.4	A	4.4	A	0.0
	SAT	5.5	A	5.5	A	0.0
Junipero Serra Boulevard & Serramonte Boulevard	AM	37.9	D	38.0	D	0.1
	PM	75.6	E	76.8	E	1.2
	SAT	**94.2**	**F**	**97.2**	**F**	**3.0**
Serra Center Driveway & Serramonte Boulevard (unsignalized)	**AM**	**36.1**	**E**	**36.2**	**E**	**0.1**
	PM	**67.6**	**F**	**67.7**	**F**	**0.1**
	SAT	**66.6**	**F**	**66.6**	**F**	**0.0**
El Camino Real & Serramonte Boulevard	AM	28.6	C	28.7	C	0.1
	PM	49.8	D	51.1	D	1.3
	SAT	**105.6**	**F**	**109.2**	**F**	**3.6**
Hillside Boulevard & Serramonte Boulevard	AM	20.4	C	20.4	C	0.0
	PM	25.9	C	29.0	C	3.1
	SAT	49.5	D	50.0	D	0.5
I-280 SB Ramps & Hickey Boulevard	AM	10.6	B	10.6	B	0.0
	PM	17.1	B	17.2	B	0.1
	SAT	14.5	B	14.6	B	0.1
I-280 NB Ramps & Hickey Boulevard	AM	28.6	C	28.6	C	0.0
	PM	46.7	D	46.9	D	0.2
	SAT	45.7	D	45.8	D	0.1
Junipero Serra Boulevard & Hickey Boulevard	AM	42.0	D	42.0	D	0.0
	PM	48.3	D	48.4	D	0.1
	SAT	23.0	C	22.9	C	-0.1
Hillside Boulevard & Lawndale Boulevard	AM	12.8	B	12.8	B	0.0
	PM	10.5	B	10.5	B	0.0
	SAT	9.9	A	9.8	A	-0.1

Bold indicates a substandard Level of Service.

6. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the Town of Colma, County of San Mateo, Caltrans, and South San Francisco. The traffic study includes an analysis of weekday AM and PM peak hour traffic conditions and Saturday midday peak hour traffic conditions. The traffic analysis is based on peak hour levels of service for nine signalized intersections and one unsignalized intersection. The site access and circulation analyses were based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Project Trip Generation Estimates

Trip generation for the proposed auto dealership was based on published trip rates presented in the Institute of Transportation Engineers' (ITE), *Trip Generation Manual, 9th Edition, 2012*, for Automobile Sales (Land Use Code 841). The proposed project would receive credit for trips generated by existing uses on site. Under existing conditions, the project site is served by three driveway. Driveway counts were conducted on Thursday, October 15, 2015 and Saturday, October 17, 2015 to estimate the trips generated by the existing uses on site. After receiving trip credit for existing uses on site, the project is estimated to generated a net of 293 weekday daily trips with 8 trips occurring during the AM peak hour (4 in and 4 out) and 26 trips occurring during the PM peak hour (11 in and 15 out). For Saturdays, the project is estimated to generate a net of 351 daily trips with 56 trips occurring during the midday peak hour (28 in and 28 out).

Intersection Level of Service Analysis

Under Existing conditions, all signalized intersections currently operate at acceptable LOS D or better during the weekday AM and PM peak hours and Saturday midday peak hour. The analysis showed that the unsignalized intersection of Serra Center Driveway/Serramonte Boulevard currently operates at unacceptable LOS F during the Saturday midday peak hour.

The results of the intersection Level of Service analysis under Background conditions show that all signalized study intersections would operate at acceptable LOS D or better during the weekday AM and PM peak hours and Saturday mid-day peak hour. The unsignalized intersection of Serra Center

Driveway/Serramonte Boulevard would operate at unacceptable LOS E during the weekday PM peak hour and LOS F during the Saturday midday peak hour under Background conditions.

Under Background Plus Project conditions, all signalized study intersections would continue to operate at acceptable conditions during the weekday AM and PM peak hours and Saturday midday peak hour. The unsignalized intersection of Serra Center Driveway/Serramonte Boulevard would continue to operate at an unacceptable Level of Service during the weekday PM peak hour and Saturday midday peak hour under Background Plus Project conditions. However, the proposed CarMax project would not create a significant impact at this intersection. The Ford project would implement the following improvements at this intersection.

- *The project applicant shall fund traffic counts and a localized traffic assessment of the new four-way intersection. The applicant will fund a pro-rata share of improvements to the four-way intersection found necessary based on the incremental increase in traffic at the main project driveway, as determined by the Town of Colma to reduce to acceptable levels any increased stacking lengths and delays that may arise on Serramonte Boulevard, on the Serra Center driveway, and/or at the project site driveway. Such improvements may require modifications or additions of signage, intersection signalization, modification to the Serra Center driveway for a dedicated right-turn lane or signal phasing adjustments to existing signalized intersections in the project vicinity. The Town may also determine that the project impacts and increased project traffic are insignificant and that a contribution for improvements may not be warranted.*

The results of the intersection Level of Service analysis under Cumulative conditions show that the following three intersections would operate below the acceptable LOS D standard during at least one peak hour.

- Junipero Serra Boulevard/Serramonte Boulevard (Saturday)
- Serra Center Driveway/Serramonte Boulevard (AM, PM, and Saturday)
- El Camino Real/Serramonte Boulevard (Saturday)

With the proposed project, the above intersections would continue to operate below the acceptable Level of Service threshold.

Junipero Serra Boulevard/Serramonte Boulevard

The CarMax project would add 42 trips to this intersection during the Saturday midday peak hour which is less than 1% of the cumulative project traffic volume entering this intersection. The project would increase the average intersection delay by 3.0 seconds during the Saturday midday peak hour and the intersection would continue to operate at LOS F. According to the Town of Colma General Plan, LOS E and LOS F should be tolerated during the peak hour periods. Therefore, the proposed CarMax project would not cause a significant impact at this intersection. The *Serramonte Shopping Center Expansion EIR* was found to create a significant impact at this intersection and recommended the following improvement:

- *Optimize the traffic signal green time to better accommodate Cumulative traffic volumes.*

Implementation of this measure would improve the traffic operations under Cumulative conditions. The Town of Colma will work with Caltrans, the City of Daly City and the Serramonte Mall developer to implement this improvement in the future.

Serra Center Driveway/Serramonte Boulevard

The implementation of the improvements from the *Serramonte Ford Initial Study* would improve traffic operations at this intersection.

El Camino Real/Serramonte Boulevard

The CarMax project would add 50 trips to this intersection during the Saturday midday peak hour which is around 1% of the cumulative no project traffic volumes entering this intersection. The project would increase the average intersection delay by 3.6 seconds during the Saturday midday peak hour and the intersection would continue to operate at LOS F. According to the Town of Colma General Plan, LOS E and LOS F should be tolerated during the peak hour periods. Thus, the proposed CarMax project would not cause a significant impact at this intersection. The *Serramonte Shopping Center Expansion EIR* was found to create a significant impact at this intersection and recommended the following improvement:

- *Optimize the traffic signal green time to better accommodate Cumulative traffic volumes.*

Implementation of this measure would improve the traffic operations under cumulative conditions. The Town of Colma will work with Caltrans, the City of Daly City and the Serramonte Mall developer to implement this improvement in the future.

CarMax, Colma, CA

Technical Appendices

Appendix A

Intersection Traffic Counts

B.A.Y.M.E.T.R.I.C.S.

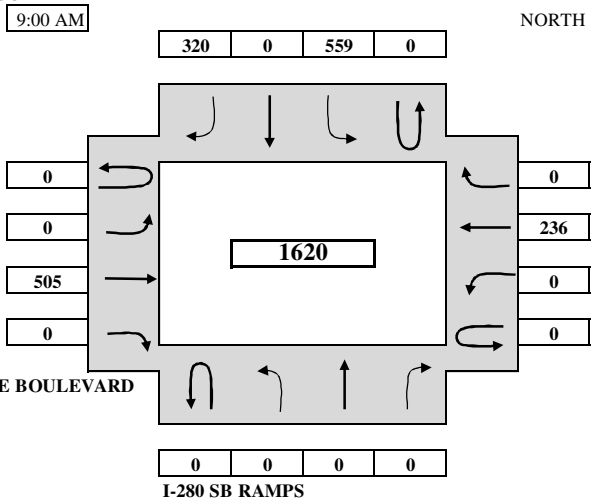
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**I-280 SB RAMPS**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**SERRAMONTE BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-13AM**

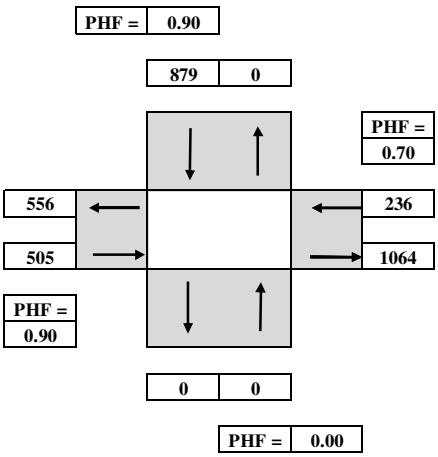
PEAK HOUR

8:00 AM to 9:00 AM

NORTH



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME PERIOD From	To	NORTHBOUND U-TURN	LEFT	THRU	RIGHT	SOUTHBOUND U-TURN	LEFT	THRU	RIGHT	EASTBOUND U-TURN	LEFT	THRU	RIGHT	WESTBOUND U-TURN	LEFT	THRU	RIGHT	TOTAL
SURVEY DATA																		
7:00 AM	7:15 AM						103		39			77				22		**241**
7:15 AM	7:30 AM						222		70			162				46		**500**
7:30 AM	7:45 AM						390		115			265				85		**855**
7:45 AM	8:00 AM						576		162			379				109		**1226**
8:00 AM	8:15 AM						729		241			520				148		**1638**
8:15 AM	8:30 AM						876		311			647				199		**2033**
8:30 AM	8:45 AM						993		381			762				261		**2397**
8:45 AM	9:00 AM						1135		482			884				345		**2846**
TOTAL BY PERIOD																		
7:00 AM	7:15 AM	0	0	0	0	0	103	0	39	0	0	77	0	0	0	22	0	**241**
7:15 AM	7:30 AM	0	0	0	0	0	119	0	31	0	0	85	0	0	0	24	0	**259**
7:30 AM	7:45 AM	0	0	0	0	0	168	0	45	0	0	103	0	0	0	39	0	**355**
7:45 AM	8:00 AM	0	0	0	0	0	186	0	47	0	0	114	0	0	0	24	0	**371**
8:00 AM	8:15 AM	0	0	0	0	0	153	0	79	0	0	141	0	0	0	39	0	**412**
8:15 AM	8:30 AM	0	0	0	0	0	147	0	70	0	0	127	0	0	0	51	0	**395**
8:30 AM	8:45 AM	0	0	0	0	0	117	0	70	0	0	115	0	0	0	62	0	**364**
8:45 AM	9:00 AM	0	0	0	0	0	142	0	101	0	0	122	0	0	0	84	0	**449**
HOURLY TOTALS																		
7:00 AM	8:00 AM	0	0	0	0	0	576	0	162	0	0	379	0	0	0	109	0	**1226**
7:15 AM	8:15 AM	0	0	0	0	0	626	0	202	0	0	443	0	0	0	126	0	**1397**
7:30 AM	8:30 AM	0	0	0	0	0	654	0	241	0	0	485	0	0	0	153	0	**1533**
7:45 AM	8:45 AM	0	0	0	0	0	603	0	266	0	0	497	0	0	0	176	0	**1542**
8:00 AM	9:00 AM	0	0	0	0	0	559	0	320	0	0	505	0	0	0	236	0	**1620**

PEAK HOUR SUMMARY

8:00 AM to 9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME	0	0	0	0	0	559	0	320	0	0	505	0	0	0	236	0	**1620**
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.91	0.00	0.79	0.00	0.00	0.90	0.00	0.00	0.00	0.70	0.00	OVERALL
PHF BY APPROACH	0.00				0.90				0.90				0.70				0.90

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

PM Peak-Hour Volume Count Worksheet

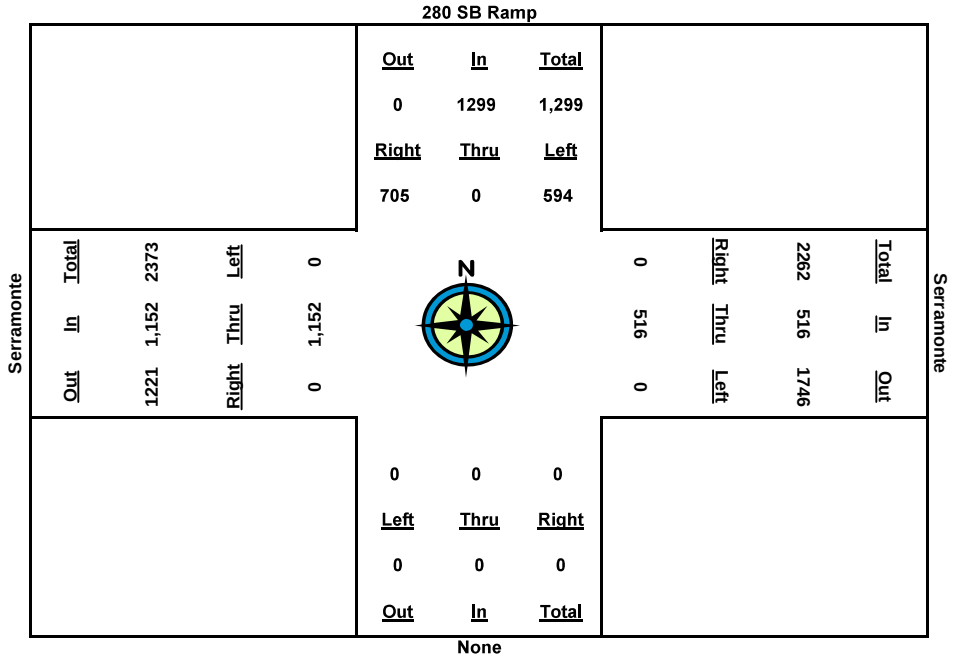
Date: 3/15/12
Counter: Ron and Stuart
Intersection Name: Serramonte and 680 SB Ramps
Weather: Overcast Daly City

AUTO-CENSUS
Traffic Monitoring and Analysis
870 Castlewood Dr. #1
Los Gatos, CA 95032
Phone 408-826-9673 Fax 408-877-1625

	280 SB Ramp				Serramonte				None				Serramonte			
	North Approach				East Approach				South Approach				West Approach			
Start Time	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15	185	0	173	358	0	108	0	108	0	0	0	0	0	272	0	272
4:30	354	0	326	680	0	234	0	234	0	0	0	0	0	522	0	522
4:45	479	0	482	961	0	337	0	337	0	0	0	0	0	797	0	797
5:00	668	0	663	1,331	0	455	0	455	0	0	0	0	0	1,054	0	1,054
5:15	834	0	791	1,625	0	574	0	574	0	0	0	0	0	1,349	0	1,349
5:30	1,018	0	941	1,959	0	708	0	708	0	0	0	0	0	1,643	0	1,643
5:45	1,187	0	1,087	2,274	0	830	0	830	0	0	0	0	0	1,920	0	1,920
6:00	1,373	0	1,257	2,630	0	971	0	971	0	0	0	0	0	2,206	0	2,206

Peak Hour	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	PK Hour
4:00 - 5:00	668	0	663	1,331	0	455	0	455	0	0	0	0	0	1,054	0	1,054	2,840
4:15 - 5:15	649	0	618	1,267	0	466	0	466	0	0	0	0	0	1,077	0	1,077	2,810
4:30 - 5:30	664	0	615	1,279	0	474	0	474	0	0	0	0	0	1,121	0	1,121	2,874
4:45 - 5:45	708	0	605	1,313	0	493	0	493	0	0	0	0	0	1,123	0	1,123	2,929
5:00 - 6:00	705	0	594	1,299	0	516	0	516	0	0	0	0	0	1,152	0	1,152	2,967
Peak Volumes:	**705**	**0**	**594**	**1,299**	**0**	**516**	**0**	**516**	**0**	**0**	**0**	**0**	**0**	**1,152**	**0**	**1,152**	**2,967**

Cut and Paste	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	0	0	0	594	0	705	0	1,152	0	0	516	0



Saturday Midday Volume Count Worksheet

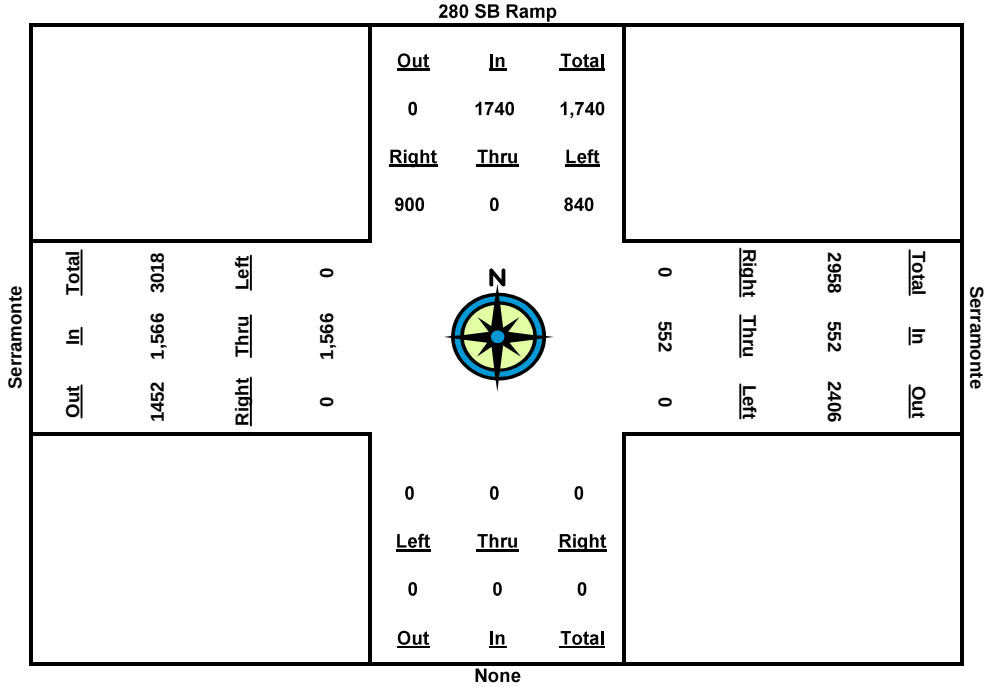
AUTO-CENSUS
Traffic Monitoring and Analysis
870 Castlewood Dr. #1
Los Gatos, CA 95032
Phone 408-826-9673 Fax 408-877-1625

Date: 3/10/12
Counter: Ron and Logan
Intersection Name: Serramonte and 680 SB Ramps
Weather: Overcast Daly City

	280 SB Ramp				Serramonte				None				Serramonte			
	North Approach				East Approach				South Approach				West Approach			
Start Time	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	209	0	175	384	0	137	0	137	0	0	0	0	0	301	0	301
12:30	476	0	370	846	0	280	0	280	0	0	0	0	0	677	0	677
12:45	729	0	601	1,330	0	420	0	420	0	0	0	0	0	999	0	999
1:00	961	0	790	1,751	0	556	0	556	0	0	0	0	0	1,371	0	1,371
1:15	1,160	0	991	2,151	0	684	0	684	0	0	0	0	0	1,752	0	1,752
1:30	1,382	0	1,214	2,596	0	845	0	845	0	0	0	0	0	2,157	0	2,157
1:45	1,643	0	1,425	3,068	0	973	0	973	0	0	0	0	0	2,544	0	2,544
2:00	1,861	0	1,630	3,491	0	1,108	0	1,108	0	0	0	0	0	2,937	0	2,937

Peak Hour	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	PK Hour
12:00-1:00	961	0	790	1,751	0	556	0	556	0	0	0	0	0	1,371	0	1,371	3,678
12:15-1:15	951	0	816	1,767	0	547	0	547	0	0	0	0	0	1,451	0	1,451	3,765
12:30-1:30	906	0	844	1,750	0	565	0	565	0	0	0	0	0	1,480	0	1,480	3,795
12:45-1:45	914	0	824	1,738	0	553	0	553	0	0	0	0	0	1,545	0	1,545	3,836
1:00-2:00	900	0	840	1,740	0	552	0	552	0	0	0	0	0	1,566	0	1,566	3,858
Peak Volumes:	**900**	**0**	**840**	**1,740**	**0**	**552**	**0**	**552**	**0**	**0**	**0**	**0**	**0**	**1,566**	**0**	**1,566**	**3,858**

Cut and Paste	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
	0	0	0	840	0	900	0	1,566	0	0	552	0

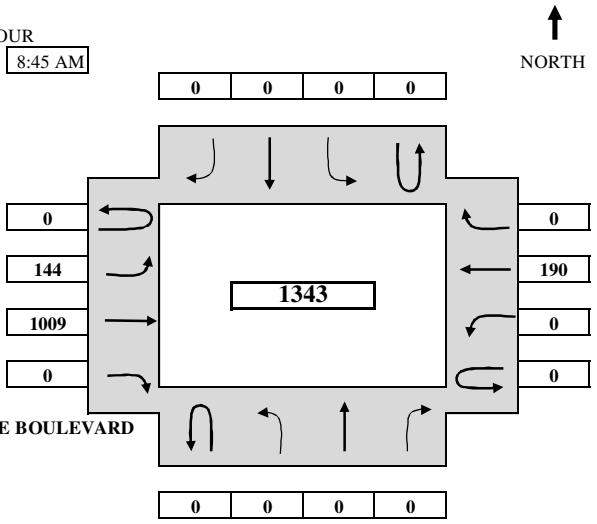


B.A.Y.M.E.T.R.I.C.S.

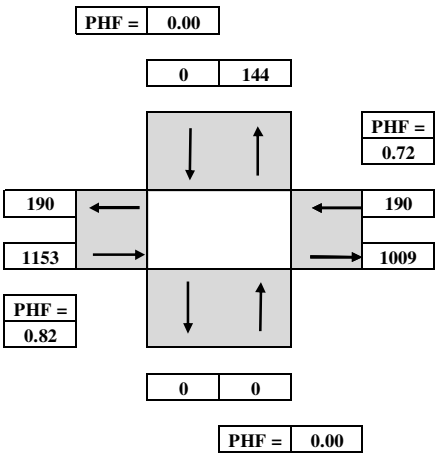
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**I-280 NB RAMPS**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**SERRAMONTE BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-14AM**

PEAK HOUR
7:45 AM to 8:45 AM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From		PERIOD To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																			
7:00 AM	to	7:15 AM										35	153				26	3	**217**
7:15 AM	to	7:30 AM										55	317				44	3	**419**
7:30 AM	to	7:45 AM										78	547				83	3	**711**
7:45 AM	to	8:00 AM										113	865				115	3	**1096**
8:00 AM	to	8:15 AM										148	1107				153	3	**1411**
8:15 AM	to	8:30 AM										180	1339				207	3	**1729**
8:30 AM	to	8:45 AM										222	1556				273	3	**2054**
8:45 AM	to	9:00 AM										265	1764				355	3	**2387**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	0	0	0	0	0	0	0	35	153	0	0	0	26	3	**217**
7:15 AM	to	7:30 AM	0	0	0	0	0	0	0	0	0	20	164	0	0	0	18	0	**202**
7:30 AM	to	7:45 AM	0	0	0	0	0	0	0	0	0	23	230	0	0	0	39	0	**292**
7:45 AM	to	8:00 AM	0	0	0	0	0	0	0	0	0	35	318	0	0	0	32	0	**385**
8:00 AM	to	8:15 AM	0	0	0	0	0	0	0	0	0	35	242	0	0	0	38	0	**315**
8:15 AM	to	8:30 AM	0	0	0	0	0	0	0	0	0	32	232	0	0	0	54	0	**318**
8:30 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	42	217	0	0	0	66	0	**325**
8:45 AM	to	9:00 AM	0	0	0	0	0	0	0	0	0	43	208	0	0	0	82	0	**333**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	0	0	0	0	0	0	0	113	865	0	0	0	115	3	**1096**
7:15 AM	to	8:15 AM	0	0	0	0	0	0	0	0	0	113	954	0	0	0	127	0	**1194**
7:30 AM	to	8:30 AM	0	0	0	0	0	0	0	0	0	125	1022	0	0	0	163	0	**1310**
7:45 AM	to	8:45 AM	0	0	0	0	0	0	0	0	0	144	1009	0	0	0	190	0	**1343**
8:00 AM	to	9:00 AM	0	0	0	0	0	0	0	0	0	152	899	0	0	0	240	0	**1291**

PEAK HOUR SUMMARY

7:45 AM to 8:45 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME	0	0	0	0	0	0	0	0	0	144	1009	0	0	0	190	0	**1343**
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.79	0.00	0.00	0.00	0.72	0.00	OVERALL
PHF BY APPROACH	0.00				0.00				0.82				0.72				0.87

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

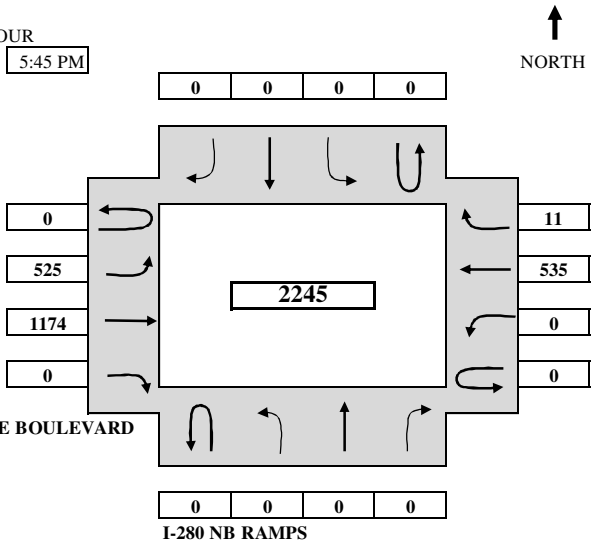
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

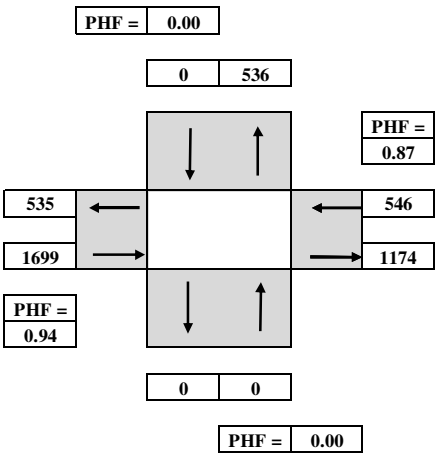
PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**I-280 NB RAMPS**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**SERRAMONTE BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-14PM**

PEAK HOUR

4:45 PM to 5:45 PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From	TO	NORTHBOUND U-TURN	LEFT	THRU	RIGHT	SOUTHBOUND U-TURN	LEFT	THRU	RIGHT	EASTBOUND U-TURN	LEFT	THRU	RIGHT	WESTBOUND U-TURN	LEFT	THRU	RIGHT	TOTAL
SURVEY DATA																		
4:00 PM	4:15 PM										100	296				126	1	**523**
4:15 PM	4:30 PM										209	567				234	1	**1011**
4:30 PM	4:45 PM										332	830				364	4	**1530**
4:45 PM	5:00 PM										452	1111				495	5	**2063**
5:00 PM	5:15 PM										595	1418				622	7	**2642**
5:15 PM	5:30 PM										739	1727				745	12	**3223**
5:30 PM	5:45 PM										857	2004				899	15	**3775**
5:45 PM	6:00 PM										956	2263				1003	15	**4237**
TOTAL BY PERIOD																		
4:00 PM	4:15 PM	0	0	0	0	0	0	0	0	0	100	296	0	0	0	126	1	**523**
4:15 PM	4:30 PM	0	0	0	0	0	0	0	0	0	109	271	0	0	0	108	0	**488**
4:30 PM	4:45 PM	0	0	0	0	0	0	0	0	0	123	263	0	0	0	130	3	**519**
4:45 PM	5:00 PM	0	0	0	0	0	0	0	0	0	120	281	0	0	0	131	1	**533**
5:00 PM	5:15 PM	0	0	0	0	0	0	0	0	0	143	307	0	0	0	127	2	**579**
5:15 PM	5:30 PM	0	0	0	0	0	0	0	0	0	144	309	0	0	0	123	5	**581**
5:30 PM	5:45 PM	0	0	0	0	0	0	0	0	0	118	277	0	0	0	154	3	**552**
5:45 PM	6:00 PM	0	0	0	0	0	0	0	0	0	99	259	0	0	0	104	0	**462**
HOURLY TOTALS																		
4:00 PM	5:00 PM	0	0	0	0	0	0	0	0	0	452	1111	0	0	0	495	5	**2063**
4:15 PM	5:15 PM	0	0	0	0	0	0	0	0	0	495	1122	0	0	0	496	6	**2119**
4:30 PM	5:30 PM	0	0	0	0	0	0	0	0	0	530	1160	0	0	0	511	11	**2212**
4:45 PM	5:45 PM	0	0	0	0	0	0	0	0	0	525	1174	0	0	0	535	11	**2245**
5:00 PM	6:00 PM	0	0	0	0	0	0	0	0	0	504	1152	0	0	0	508	10	**2174**

PEAK HOUR SUMMARY

4:45 PM to 5:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME	0	0	0	0	0	0	0	0	0	525	1174	0	0	0	535	11	**2245**
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.95	0.00	0.00	0.00	0.87	0.55	OVERALL
PHF BY APPROACH	0.00				0.00				0.94				0.87				0.97

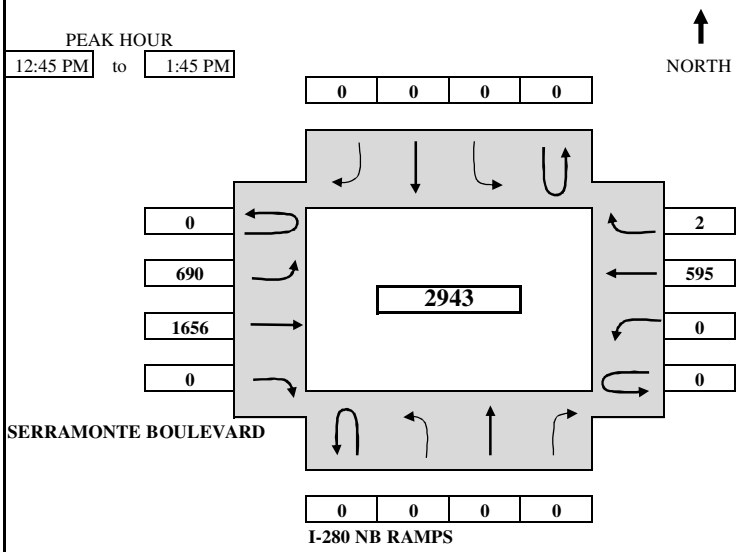
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

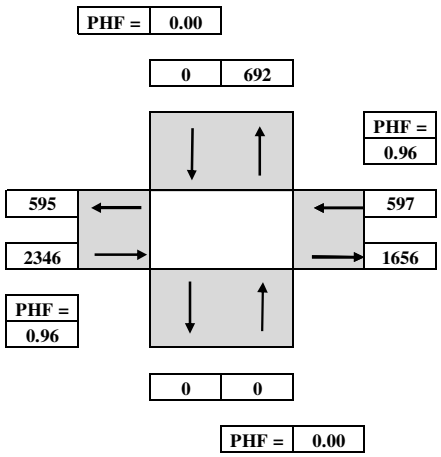
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/16/2013**	**DAY:**	**SATURDAY**
N-S APPROACH:	**I-280 NB RAMPS**	**SURVEY TIME:**	**12:00 PM**	**TO**	**2:00 PM**
E-W APPROACH:	**SERRAMONTE BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-14SAT**

PEAK HOUR
12:45 PM to 1:45 PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



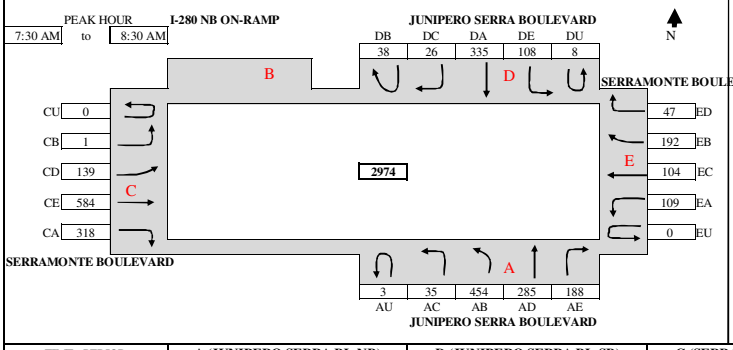
TIME PERIOD From	To	NORTHBOUND U-TURN	LEFT	THRU	RIGHT	SOUTHBOUND U-TURN	LEFT	THRU	RIGHT	EASTBOUND U-TURN	LEFT	THRU	RIGHT	WESTBOUND U-TURN	LEFT	THRU	RIGHT	TOTAL
SURVEY DATA																		
12:00 PM	12:15 PM										139	419				148	0	**706**
12:15 PM	12:30 PM										292	767				258	0	**1317**
12:30 PM	12:45 PM										460	1179				393	0	**2032**
12:45 PM	1:00 PM										643	1593				543	0	**2779**
1:00 PM	1:15 PM										800	1979				676	2	**3457**
1:15 PM	1:30 PM										970	2406				832	2	**4210**
1:30 PM	1:45 PM										1150	2835				988	2	**4975**
1:45 PM	2:00 PM										1347	3219				1148	4	**5718**
TOTAL BY PERIOD																		
12:00 PM	12:15 PM	0	0	0	0	0	0	0	0	0	139	419	0	0	0	148	0	**706**
12:15 PM	12:30 PM	0	0	0	0	0	0	0	0	0	153	348	0	0	0	110	0	**611**
12:30 PM	12:45 PM	0	0	0	0	0	0	0	0	0	168	412	0	0	0	135	0	**715**
12:45 PM	1:00 PM	0	0	0	0	0	0	0	0	0	183	414	0	0	0	150	0	**747**
1:00 PM	1:15 PM	0	0	0	0	0	0	0	0	0	157	386	0	0	0	133	2	**678**
1:15 PM	1:30 PM	0	0	0	0	0	0	0	0	0	170	427	0	0	0	156	0	**753**
1:30 PM	1:45 PM	0	0	0	0	0	0	0	0	0	180	429	0	0	0	156	0	**765**
1:45 PM	2:00 PM	0	0	0	0	0	0	0	0	0	197	384	0	0	0	160	2	**743**
HOURLY TOTALS																		
12:00 PM	1:00 PM	0	0	0	0	0	0	0	0	0	643	1593	0	0	0	543	0	**2779**
12:15 PM	1:15 PM	0	0	0	0	0	0	0	0	0	661	1560	0	0	0	528	2	**2751**
12:30 PM	1:30 PM	0	0	0	0	0	0	0	0	0	678	1639	0	0	0	574	2	**2893**
12:45 PM	1:45 PM	0	0	0	0	0	0	0	0	0	690	1656	0	0	0	595	2	**2943**
1:00 PM	2:00 PM	0	0	0	0	0	0	0	0	0	704	1626	0	0	0	605	4	**2939**
PEAK HOUR SUMMARY																		
12:45 PM	1:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME		0	0	0	0	0	0	0	0	0	690	1656	0	0	0	595	2	**2943**
PHF BY MOVEMENT		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.97	0.00	0.00	0.00	0.95	0.25	OVERALL
PHF BY APPROACH		0.00				0.00				0.96				0.96				0.96

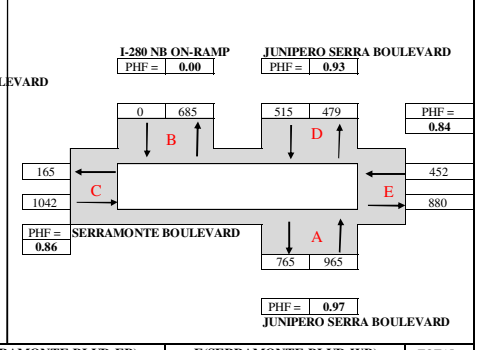
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN DALY CITY	SURVEY DATE:	11/14/2013	DAY:	THURSDAY
N-S APPROACH:	JUNIPERO SERRA BOULEVARD - I-280 NB ON-RAMP	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	SERRAMONTE BOULEVARD	JURISDICTION:	DALY CITY	FILE:	3311110-15AM





TIME PERIOD FROM	TO	A (JUNIPERO SERRA BL-NB) AU	AC	AB	AD	AE	D (JUNIPERO SERRA BL-SB) DU	DE	DA	DC	DB	C (SERRAMONTE BLVD-EB) CU	CB	CD	CE	CA	E(SERRAMONTE BLVD-WB) EU	EA	EC	EB	ED	TOTAL
S U R V E Y D A T A																						
7:00 AM	7:15 AM	3	1	103	39	30	3	11	39	9	7	0	0	21	83	63	0	16	20	55	5	***508***
7:15 AM	7:30 AM	3	4	229	76	85	5	33	87	13	11	0	0	36	158	131	0	29	30	86	8	***1024***
7:30 AM	7:45 AM	3	11	389	140	103	6	63	173	22	14	0	0	64	271	212	0	51	50	142	16	***1730***
7:45 AM	8:00 AM	4	16	486	215	155	8	82	271	28	27	0	0	92	443	314	0	77	75	184	23	***2500***
8:00 AM	8:15 AM	6	25	594	288	207	13	106	354	35	39	0	0	135	586	380	0	110	96	225	40	***3239***
8:15 AM	8:30 AM	6	39	683	361	273	13	141	422	39	49	0	1	175	742	449	0	138	134	278	55	***3998***
8:30 AM	8:45 AM	6	55	780	437	319	15	173	503	53	70	0	1	220	860	478	0	156	168	323	67	***4684***
8:45 AM	9:00 AM	7	68	846	505	374	17	194	550	65	79	0	1	268	980	515	0	185	222	375	80	***5331***
T O T A L B Y P E R I O D																						
7:00 AM	7:15 AM	3	1	103	39	30	3	11	39	9	7	0	0	21	83	63	0	16	20	55	5	***508***
7:15 AM	7:30 AM	0	3	126	37	55	2	22	48	4	4	0	0	15	75	68	0	13	10	31	3	***516***
7:30 AM	7:45 AM	0	7	160	64	18	1	30	86	9	3	0	0	28	113	81	0	22	20	56	8	***706***
7:45 AM	8:00 AM	1	5	97	75	52	2	19	98	6	13	0	0	28	172	102	0	26	25	42	7	***770***
8:00 AM	8:15 AM	2	9	108	73	52	5	24	83	7	12	0	0	43	143	66	0	33	21	41	17	***739***
8:15 AM	8:30 AM	0	14	89	73	66	0	35	68	4	10	0	1	40	156	69	0	28	38	53	15	***759***
8:30 AM	8:45 AM	0	16	97	76	46	2	32	81	14	21	0	0	45	118	29	0	18	34	45	12	***686***
8:45 AM	9:00 AM	1	13	66	68	55	2	21	47	12	9	0	0	48	120	37	0	29	54	52	13	***647***
H O U R L Y T O T A L S																						
7:00 AM	8:00 AM	4	16	486	215	155	8	82	271	28	27	0	0	92	443	314	0	77	75	184	23	***2500***
7:15 AM	8:15 AM	3	24	491	249	177	10	95	315	26	32	0	0	114	503	317	0	94	76	170	35	***2731***
7:30 AM	8:30 AM	3	35	454	285	188	8	108	335	26	38	0	1	139	584	318	0	109	104	192	47	***2974***
7:45 AM	8:45 AM	3	44	391	297	216	9	110	330	31	56	0	1	156	589	266	0	105	118	181	51	***2954***
8:00 AM	9:00 AM	3	52	360	290	219	9	112	279	37	52	0	1	176	537	201	0	108	147	191	57	***2831***

P E A K H O U R S U M M A R Y

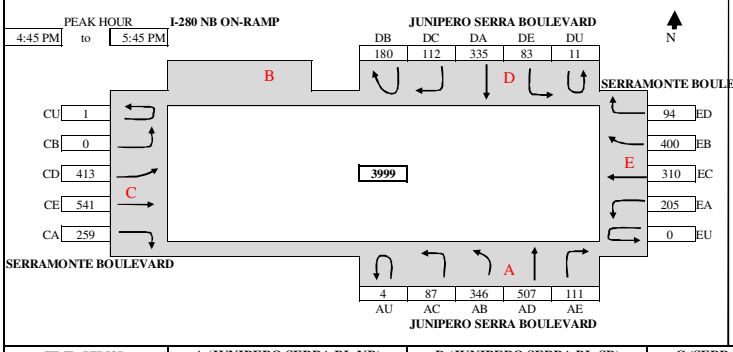
12:00 AM to 12:00 AM	A (JUNIPERO SERRA BL-NB) AU	AC	AB	AD	AE	D (JUNIPERO SERRA BL-SB) DU	DE	DA	DC	DB	C (SERRAMONTE BLVD-EB) CU	CB	CD	CE	CA	E(SERRAMONTE BLVD-WB) EU	EA	EC	EB	ED	TOTAL
VOLUME	3	35	454	285	188	8	108	335	26	38	0	1	139	584	318	0	109	104	192	47	2974
PHF BY MOVEMENT	0.38	0.63	0.71	0.95	0.71	0.40	0.77	0.85	0.72	0.73	0.00	0.25	0.81	0.85	0.78	0.00	0.83	0.68	0.86	0.69	OVERALL
PHF BY APPROACH	0.97					0.93					0.86					0.84					0.97

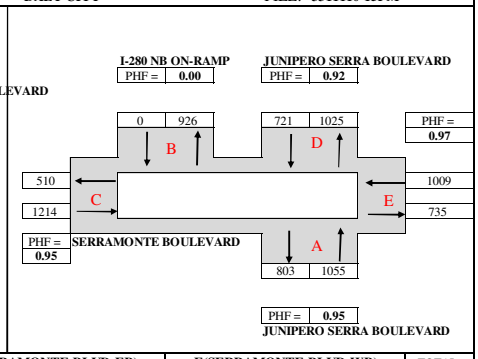
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN DALY CITY	SURVEY DATE:	11/14/2013	DAY:	THURSDAY
N-S APPROACH:	JUNIPERO SERRA BOULEVARD - I-280 NB ON-RAMP	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	SERRAMONTE BOULEVARD	JURISDICTION:	DALY CITY	FILE:	3311110-15PM





TIME PERIOD FROM	TO	A (JUNIPERO SERRA BL-NB) AU	AC	AB	AD	AE	D (JUNIPERO SERRA BL-SB) DU	DE	DA	DC	DB	C (SERRAMONTE BLVD-EB) CU	CB	CD	CE	CA	E(SERRAMONTE BLVD-WB) EU	EA	EC	EB	ED	TOTAL
S U R V E Y D A T A																						
4:00 PM	4:15 PM	3	19	68	105	32	5	31	80	38	63	1	0	87	128	57	0	40	64	74	13	***908***
4:15 PM	4:30 PM	4	33	145	217	59	9	67	164	65	129	1	0	186	266	113	0	80	135	167	24	***1864***
4:30 PM	4:45 PM	4	51	240	307	105	15	103	248	105	175	1	0	271	381	165	0	133	212	252	43	***2811***
4:45 PM	5:00 PM	4	69	336	428	142	16	127	344	131	211	1	0	378	523	225	0	182	297	346	61	***3821***
5:00 PM	5:15 PM	6	95	429	549	165	20	148	416	158	250	2	0	470	659	294	0	237	366	445	97	***4806***
5:15 PM	5:30 PM	8	116	504	668	187	24	163	502	182	300	2	0	575	810	358	0	291	433	555	114	***5792***
5:30 PM	5:45 PM	8	138	586	814	216	26	186	583	217	355	2	0	684	922	424	0	338	522	652	137	***6810***
5:45 PM	6:00 PM	9	157	676	934	252	28	205	661	244	386	2	1	765	1037	484	0	376	590	730	154	***7691***
T O T A L B Y P E R I O D																						
4:00 PM	4:15 PM	3	19	68	105	32	5	31	80	38	63	1	0	87	128	57	0	40	64	74	13	***908***
4:15 PM	4:30 PM	1	14	77	112	27	4	36	84	27	66	0	0	99	138	56	0	40	71	93	11	***956***
4:30 PM	4:45 PM	0	18	95	90	46	6	36	84	40	46	0	0	85	115	52	0	53	77	85	19	***947***
4:45 PM	5:00 PM	0	18	96	121	37	1	24	96	26	36	0	0	107	142	60	0	49	85	94	18	***1010***
5:00 PM	5:15 PM	2	26	93	121	23	4	21	72	27	39	1	0	92	136	69	0	55	69	99	36	***985***
5:15 PM	5:30 PM	2	21	75	119	22	4	15	86	24	50	0	0	105	151	64	0	54	67	110	17	***986***
5:30 PM	5:45 PM	0	22	82	146	29	2	23	81	35	55	0	0	109	112	66	0	47	89	97	23	***1018***
5:45 PM	6:00 PM	1	19	90	120	36	2	19	78	27	31	0	1	81	115	60	0	38	68	78	17	***881***
H O U R L Y T O T A L S																						
4:00 PM	5:00 PM	4	69	336	428	142	16	127	344	131	211	1	0	378	523	225	0	182	297	346	61	***3821***
4:15 PM	5:15 PM	3	76	361	444	133	15	117	336	120	187	1	0	383	531	237	0	197	302	371	84	***3898***
4:30 PM	5:30 PM	4	83	359	451	128	15	96	338	117	171	1	0	389	544	245	0	211	298	388	90	***3928***
4:45 PM	5:45 PM	4	87	346	507	111	11	83	335	112	180	1	0	413	541	259	0	205	310	400	94	***3999***
5:00 PM	6:00 PM	5	88	340	506	110	12	78	317	113	175	1	1	387	514	259	0	194	293	384	93	***3870***

P E A K H O U R S U M M A R Y

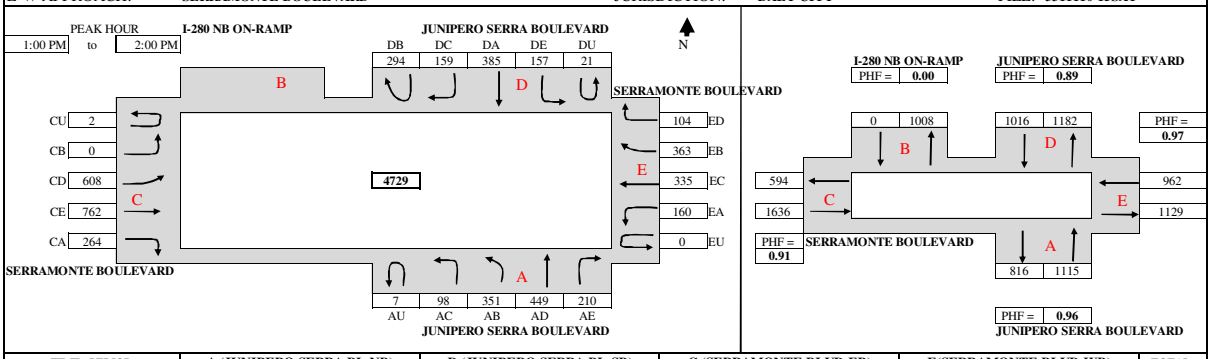
12:00 AM to 12:00 AM	A (JUNIPERO SERRA BL-NB) AU	AC	AB	AD	AE	D (JUNIPERO SERRA BL-SB) DU	DE	DA	DC	DB	C (SERRAMONTE BLVD-EB) CU	CB	CD	CE	CA	E(SERRAMONTE BLVD-WB) EU	EA	EC	EB	ED	TOTAL
VOLUME	4	87	346	507	111	11	83	335	112	180	1	0	413	541	259	0	205	310	400	94	3999
PHF BY MOVEMENT	0.50	0.84	0.90	0.87	0.75	0.69	0.86	0.87	0.80	0.82	0.25	0.00	0.95	0.90	0.94	0.00	0.93	0.87	0.91	0.65	OVERALL
PHF BY APPROACH	0.95					0.92					0.95					0.97					0.98

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	TRAFFIC COUNTS IN DALY CITY		SURVEY DATE:	11/16/2013	DAY: SATURDAY
N-S APPROACH:	JUNIPERO SERRA BOULEVARD	- I-280 NB ON-RAMP	SURVEY TIME:	12:00 PM TO	2:00 PM
E-W APPROACH:	SERRAMONTE BOULEVARD		JURISDICTION:	DALY CITY	FILE: 3311110-15SAT



TIME PERIOD FROM	TO	A (JUNIPERO SERRA BL-NB) AU	AC	AB	AD	AE	D (JUNIPERO SERRA BL-SB) DU	DE	DA	DC	DB	C (SERRAMONTE BLVD-EB) CU	CB	CD	CE	CA	E(SERRAMONTE BLVD-WB) EU	EA	EC	EB	ED	TOTAL
S U R V E Y D A T A																						
12:00 PM	12:15 PM	1	25	92	96	45	7	32	99	47	52	3	0	152	195	72	0	24	66	68	17	***1093***
12:15 PM	12:30 PM	1	47	180	194	87	10	65	178	80	118	3	0	282	363	126	0	59	125	147	42	***2107***
12:30 PM	12:45 PM	1	68	261	292	124	16	103	284	131	182	5	0	436	518	204	0	97	193	227	67	***3209***
12:45 PM	1:00 PM	2	90	350	396	168	21	126	372	172	249	6	0	587	719	284	0	134	266	300	87	***4329***
1:00 PM	1:15 PM	4	109	443	517	202	25	173	477	218	331	7	0	725	889	355	0	181	338	385	110	***5489***
1:15 PM	1:30 PM	8	137	536	640	245	32	199	564	257	412	8	0	881	1083	418	0	224	413	479	142	***6678***
1:30 PM	1:45 PM	9	161	619	742	319	38	237	664	298	475	8	0	1024	1274	475	0	261	505	570	169	***7848***
1:45 PM	2:00 PM	9	188	701	845	378	42	283	757	331	543	8	0	1195	1481	548	0	294	601	663	191	***9058***
T O T A L B Y P E R I O D																						
12:00 PM	12:15 PM	1	25	92	96	45	7	32	99	47	52	3	0	152	195	72	0	24	66	68	17	***1093***
12:15 PM	12:30 PM	0	22	88	98	42	3	33	79	33	66	0	0	130	168	54	0	35	59	79	25	***1014***
12:30 PM	12:45 PM	0	21	81	98	37	6	38	106	51	64	2	0	154	155	78	0	38	68	80	25	***1102***
12:45 PM	1:00 PM	1	22	89	104	44	5	23	88	41	67	1	0	151	201	80	0	37	73	73	20	***1120***
1:00 PM	1:15 PM	2	19	93	121	34	4	47	105	46	82	1	0	138	170	71	0	47	72	85	23	***1160***
1:15 PM	1:30 PM	4	28	93	123	43	7	26	87	39	81	1	0	156	194	63	0	43	75	94	32	***1189***
1:30 PM	1:45 PM	1	24	83	102	74	6	38	100	41	63	0	0	143	191	57	0	37	92	91	27	***1170***
1:45 PM	2:00 PM	0	27	82	103	59	4	46	93	33	68	0	0	171	207	73	0	33	96	93	22	***1210***
H O U R L Y T O T A L S																						
12:00 PM	1:00 PM	2	90	350	396	168	21	126	372	172	249	6	0	587	719	284	0	134	266	300	87	***4329***
12:15 PM	1:15 PM	3	84	351	421	157	18	141	378	171	279	4	0	573	694	283	0	157	272	317	93	***4396***
12:30 PM	1:30 PM	7	90	356	446	158	22	134	386	177	294	5	0	599	720	292	0	165	288	332	100	***4571***
12:45 PM	1:45 PM	8	93	358	450	195	22	134	380	167	293	3	0	588	756	271	0	164	312	343	102	***4639***
1:00 PM	2:00 PM	7	98	351	449	210	21	157	385	159	294	2	0	608	762	264	0	160	335	363	104	***4729***

P E A K H O U R S U M M A R Y

12:00 AM to 12:00 AM	A (JUNIPERO SERRA BL-NB) AU	AC	AB	AD	AE	D (JUNIPERO SERRA BL-SB) DU	DE	DA	DC	DB	C (SERRAMONTE BLVD-EB) CU	CB	CD	CE	CA	E(SERRAMONTE BLVD-WB) EU	EA	EC	EB	ED	TOTAL
VOLUME	7	98	351	449	210	21	157	385	159	294	2	0	608	762	264	0	160	335	363	104	4729
PHF BY MOVEMENT	0.44	0.88	0.94	0.91	0.71	0.75	0.84	0.92	0.86	0.90	0.50	0.00	0.89	0.92	0.90	0.00	0.85	0.87	0.97	0.81	OVERALL
PHF BY APPROACH	0.96					0.89					0.91					0.97					0.98

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

ALL TRAFFIC DATA

City of Colma
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7638-019 Serra Center Driveway-Serramonte Boulevard.p
Date : 11/21/2013

Unshifted Count = All Vehicles

	Serra Center Driveway Southbound					Serramonte Boulevard Westbound					Northbound					Serramonte Boulevard Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
07:00	9	0	5	0	14	0	55	3	0	58	0	0	0	0	0	2	88	0	0	90	162	0
07:15	7	0	2	0	9	0	53	7	0	60	0	0	0	0	0	1	91	0	0	92	161	0
07:30	9	0	3	0	12	0	73	8	0	81	0	0	0	0	0	3	110	0	0	113	206	0
07:45	6	0	3	0	9	0	82	15	0	97	0	0	0	0	0	11	137	0	0	148	254	0
Total	31	0	13	0	44	0	263	33	0	296	0	0	0	0	0	17	426	0	0	443	783	0
08:00	15	0	7	0	22	0	80	19	0	99	0	0	0	0	0	20	135	0	0	155	276	0
08:15	15	0	8	0	23	0	93	23	0	116	0	0	0	0	0	15	151	0	0	166	305	0
08:30	13	0	9	0	22	0	70	31	0	101	0	0	0	0	0	17	156	0	0	173	296	0
08:45	26	0	8	0	34	0	89	25	0	114	0	0	0	0	0	23	156	0	0	179	327	0
Total	69	0	32	0	101	0	332	98	0	430	0	0	0	0	0	75	598	0	0	673	1204	0
16:00	39	0	16	0	55	0	156	32	0	188	0	0	0	0	0	27	134	0	0	161	404	0
16:15	28	0	13	0	41	0	159	41	0	200	0	0	0	0	0	19	151	0	0	170	411	0
16:30	30	0	20	0	50	0	180	35	0	215	0	0	0	0	0	26	126	0	0	152	417	0
16:45	32	0	20	0	52	0	167	62	0	229	0	0	0	0	0	23	120	0	0	143	424	0
Total	129	0	69	0	198	0	662	170	0	832	0	0	0	0	0	95	531	0	0	626	1656	0
17:00	26	0	19	0	45	0	199	46	0	245	0	0	0	0	0	24	133	0	0	157	447	0
17:15	29	0	17	0	46	0	203	53	0	256	0	0	0	0	0	16	107	0	0	123	425	0
17:30	26	0	21	0	47	0	213	47	0	260	0	0	0	0	0	17	98	0	0	115	422	0
17:45	30	0	17	0	47	0	184	44	0	228	0	0	0	0	0	21	122	0	0	143	418	0
Total	111	0	74	0	185	0	799	190	0	989	0	0	0	0	0	78	460	0	0	538	1712	0
Grand Total	340	0	188	0	528	0	2056	491	0	2547	0	0	0	0	0	265	2015	0	0	2280	5355	0
Apprch %	64.4%	0.0%	35.6%	0.0%		0.0%	80.7%	19.3%	0.0%		0.0%	0.0%	0.0%	0.0%		11.6%	88.4%	0.0%	0.0%			
Total %	6.3%	0.0%	3.5%	0.0%	9.9%	0.0%	38.4%	9.2%	0.0%	47.6%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%	37.6%	0.0%	0.0%	42.6%	100.0%	

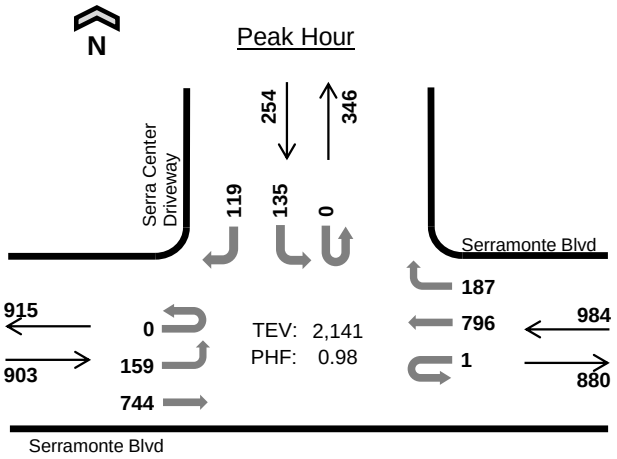
AM PEAK HOUR	Serra Center Driveway Southbound					Serramonte Boulevard Westbound					Northbound					Serramonte Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
08:00	15	0	7	0	22	0	80	19	0	99	0	0	0	0	0	20	135	0	0	155	276
08:15	15	0	8	0	23	0	93	23	0	116	0	0	0	0	0	15	151	0	0	166	305
08:30	13	0	9	0	22	0	70	31	0	101	0	0	0	0	0	17	156	0	0	173	296
08:45	26	0	8	0	34	0	89	25	0	114	0	0	0	0	0	23	156	0	0	179	327
Total Volume	69	0	32	0	101	0	332	98	0	430	0	0	0	0	0	75	598	0	0	673	1204
% App Total	68.3%	0.0%	31.7%	0.0%		0.0%	77.2%	22.8%	0.0%		0.0%	0.0%	0.0%	0.0%		11.1%	88.9%	0.0%	0.0%		
PHF	.663	.000	.889	.000	.743	.000	.892	.790	.000	.927	.000	.000	.000	.000	.000	.815	.958	.000	.000	.940	.920

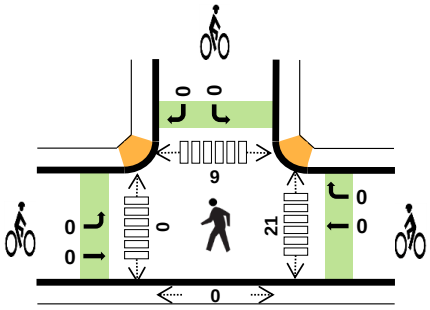
PM PEAK HOUR	Serra Center Driveway Southbound					Serramonte Boulevard Westbound					Northbound					Serramonte Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	32	0	20	0	52	0	167	62	0	229	0	0	0	0	0	23	120	0	0	143	424
17:00	26	0	19	0	45	0	199	46	0	245	0	0	0	0	0	24	133	0	0	157	447
17:15	29	0	17	0	46	0	203	53	0	256	0	0	0	0	0	16	107	0	0	123	425
17:30	26	0	21	0	47	0	213	47	0	260	0	0	0	0	0	17	98	0	0	115	422
Total Volume	113	0	77	0	190	0	782	208	0	990	0	0	0	0	0	80	458	0	0	538	1718
% App Total	59.5%	0.0%	40.5%	0.0%		0.0%	79.0%	21.0%	0.0%		0.0%	0.0%	0.0%	0.0%		14.9%	85.1%	0.0%	0.0%		
PHF	.883	.000	.917	.000	.913	.000	.918	.839	.000	.952	.000	.000	.000	.000	.000	.833	.861	.000	.000	.857	.961

Serra Center Driveway
Serramonte Blvd

Date: 10/17/2015
Count Period: 12:00 PM to 2:00 PM
Peak Hour: 1:00 PM to 2:00 PM

Peak Hour





	HV %:	PHF
EB	0.3%	0.95
WB	1.0%	0.94
NB	-	-
SB	0.4%	0.96
TOTAL	0.7%	0.98

Two-Hour Count Summaries

Interval Start		Serramonte Blvd Eastbound				Serramonte Blvd Westbound				0 Northbound				Serra Center Driveway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:00 PM		0	30	178	0	0	0	183	37	0	0	0	0	0	24	0	20	472	0
12:15 PM		0	35	189	0	0	0	207	41	0	0	0	0	0	30	0	27	529	0
12:30 PM		0	34	183	0	0	0	201	39	0	0	0	0	0	11	0	21	489	0
12:45 PM		0	17	185	0	0	0	220	40	0	0	0	0	0	28	0	26	516	2,006
1:00 PM		**0**	**39**	**167**	**0**	**1**	**0**	**198**	**45**	**0**	**0**	**0**	**0**	**0**	**34**	**0**	**32**	**516**	2,050
1:15 PM		**0**	**42**	**182**	**0**	**0**	**0**	**214**	**47**	**0**	**0**	**0**	**0**	**0**	**33**	**0**	**29**	**547**	2,068
1:30 PM		**0**	**37**	**201**	**0**	**0**	**0**	**203**	**44**	**0**	**0**	**0**	**0**	**0**	**37**	**0**	**26**	**548**	2,127
1:45 PM		**0**	**41**	**194**	**0**	**0**	**0**	**181**	**51**	**0**	**0**	**0**	**0**	**0**	**31**	**0**	**32**	**530**	**2,141**
Count Total		0	275	1,479	0	1	0	1,607	344	0	0	0	0	0	228	0	213	4,147	0
Peak Hour	**All**	**0**	**159**	**744**	**0**	**1**	**0**	**796**	**187**	**0**	**0**	**0**	**0**	**0**	**135**	**0**	**119**	**2,141**	**0**
	HV	**0**	**0**	**3**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**14**	**0**
	HV%	**-**	**0%**	**0%**	**-**	**0%**	**-**	**1%**	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**1%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
12:00 PM	0	1	0	0	*1*	0	0	0	0	*0*	7	0	2	0	*9*
12:15 PM	0	1	0	0	*1*	0	0	0	0	*0*	6	0	5	0	*11*
12:30 PM	2	3	0	0	*5*	0	0	0	0	*0*	1	0	2	0	*3*
12:45 PM	2	3	0	0	*5*	0	0	0	0	*0*	6	0	1	0	*7*
1:00 PM	**0**	**5**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**8**	**0**	**4**	**0**	*12*
1:15 PM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**0**	*2*
1:30 PM	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**7**	**0**	**0**	**0**	*7*
1:45 PM	**3**	**2**	**0**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**6**	**0**	**3**	**0**	***9***
Count Total	7	18	0	1	*26*	0	0	0	0	*0*	41	0	19	0	*60*
Peak Hr	**3**	**10**	**0**	**1**	***14***	**0**	**0**	**0**	**0**	***0***	**21**	**0**	**9**	**0**	***30***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Serramonte Blvd				Serramonte Blvd				0				Serra Center Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
12:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
12:30 PM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	5	0
12:45 PM	0	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	5	12
1:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	16
1:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	16
1:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	13
1:45 PM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**14**
Count Total	0	1	6	0	0	0	18	0	0	0	0	0	0	0	0	1	26	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**14**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Serramonte Blvd			Serramonte Blvd			0			Serra Center Driveway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
1:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
1:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
1:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

B.A.Y.M.E.T.R.I.C.S.

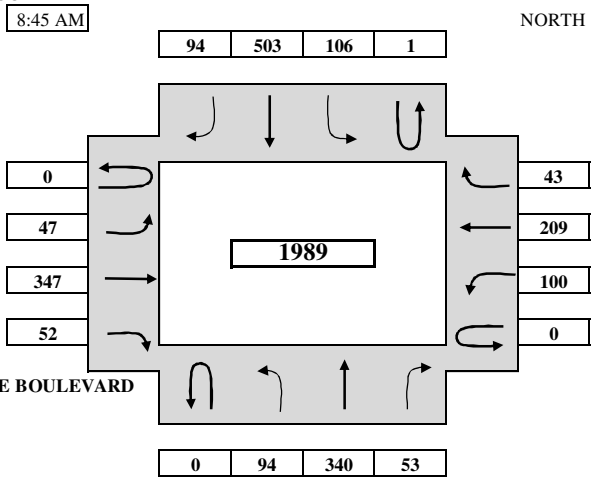
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**EL CAMINO REAL**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**SERRAMONTE BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-16AM**

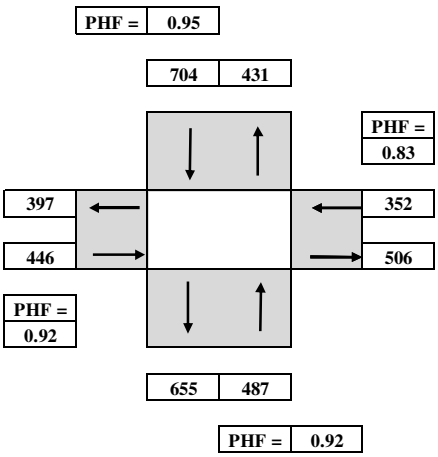
PEAK HOUR

7:45 AM to 8:45 AM

NORTH



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From		PERIOD To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																			
7:00 AM	to	7:15 AM		9	30	9	0	9	63	13		7	42	1		14	30	9	**236**
7:15 AM	to	7:30 AM		18	75	18	0	21	155	29		15	92	9		29	61	14	**536**
7:30 AM	to	7:45 AM		33	132	26	0	44	271	49		26	146	14		53	107	24	**925**
7:45 AM	to	8:00 AM		52	220	36	0	66	393	78		32	241	19		84	155	36	**1412**
8:00 AM	to	8:15 AM		79	288	56	1	101	521	100		42	329	33		108	203	42	**1903**
8:15 AM	to	8:30 AM		105	377	63	1	126	641	125		54	407	50		138	263	58	**2408**
8:30 AM	to	8:45 AM		127	472	79	1	150	774	143		73	493	66		153	316	67	**2914**
8:45 AM	to	9:00 AM		159	529	95	1	170	877	178		84	577	84		177	378	81	**3390**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	9	30	9	0	9	63	13	0	7	42	1	0	14	30	9	**236**
7:15 AM	to	7:30 AM	0	9	45	9	0	12	92	16	0	8	50	8	0	15	31	5	**300**
7:30 AM	to	7:45 AM	0	15	57	8	0	23	116	20	0	11	54	5	0	24	46	10	**389**
7:45 AM	to	8:00 AM	0	19	88	10	0	22	122	29	0	6	95	5	0	31	48	12	**487**
8:00 AM	to	8:15 AM	0	27	68	20	1	35	128	22	0	10	88	14	0	24	48	6	**491**
8:15 AM	to	8:30 AM	0	26	89	7	0	25	120	25	0	12	78	17	0	30	60	16	**505**
8:30 AM	to	8:45 AM	0	22	95	16	0	24	133	18	0	19	86	16	0	15	53	9	**506**
8:45 AM	to	9:00 AM	0	32	57	16	0	20	103	35	0	11	84	18	0	24	62	14	**476**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	52	220	36	0	66	393	78	0	32	241	19	0	84	155	36	**1412**
7:15 AM	to	8:15 AM	0	70	258	47	1	92	458	87	0	35	287	32	0	94	173	33	**1667**
7:30 AM	to	8:30 AM	0	87	302	45	1	105	486	96	0	39	315	41	0	109	202	44	**1872**
7:45 AM	to	8:45 AM	0	94	340	53	1	106	503	94	0	47	347	52	0	100	209	43	**1989**
8:00 AM	to	9:00 AM	0	107	309	59	1	104	484	100	0	52	336	65	0	93	223	45	**1978**
PEAK HOUR SUMMARY																			
7:45 AM	to	8:45 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME			0	94	340	53	1	106	503	94	0	47	347	52	0	100	209	43	**1989**
PHF BY MOVEMENT			0.00	0.87	0.89	0.66	0.25	0.76	0.95	0.81	0.00	0.62	0.91	0.76	0.00	0.81	0.87	0.67	OVERALL
PHF BY APPROACH				0.92				0.95				0.92				0.83			0.98

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

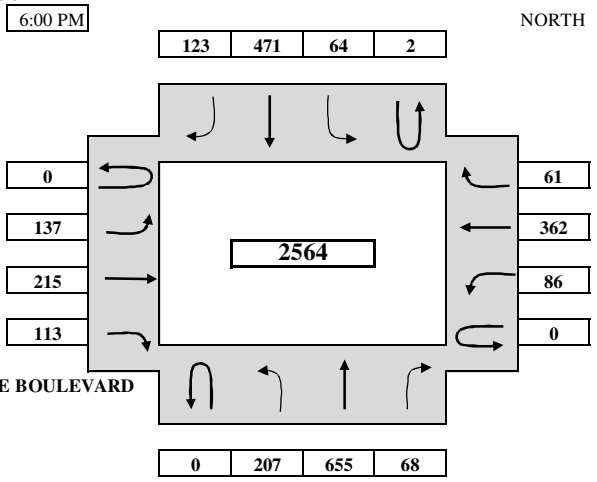
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**EL CAMINO REAL**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**SERRAMONTE BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-16PM**

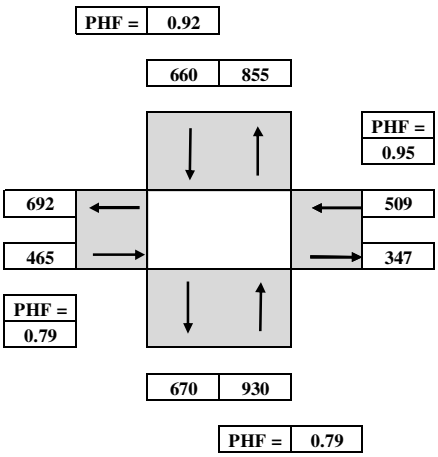
PEAK HOUR

5:00 PM to 6:00 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME		PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
From		To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	
SURVEY DATA																			
4:00 PM	to	4:15 PM		36	137	10	0	20	86	19		36	65	28		25	73	17	**552**
4:15 PM	to	4:30 PM		94	269	19	0	41	195	50		78	134	56		42	150	35	**1163**
4:30 PM	to	4:45 PM		146	411	38	0	66	291	89		115	190	75		69	209	42	**1741**
4:45 PM	to	5:00 PM		186	552	51	2	80	396	119		157	234	103		100	302	63	**2345**
5:00 PM	to	5:15 PM		242	711	72	3	99	521	148		199	298	145		127	387	81	**3033**
5:15 PM	to	5:30 PM		289	821	83	3	115	622	178		236	355	178		137	479	91	**3587**
5:30 PM	to	5:45 PM		347	1043	98	4	132	749	212		267	407	190		161	574	106	**4290**
5:45 PM	to	6:00 PM		393	1207	119	4	144	867	242		294	449	216		186	664	124	**4909**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	36	137	10	0	20	86	19	0	36	65	28	0	25	73	17	**552**
4:15 PM	to	4:30 PM	0	58	132	9	0	21	109	31	0	42	69	28	0	17	77	18	**611**
4:30 PM	to	4:45 PM	0	52	142	19	0	25	96	39	0	37	56	19	0	27	59	7	**578**
4:45 PM	to	5:00 PM	0	40	141	13	2	14	105	30	0	42	44	28	0	31	93	21	**604**
5:00 PM	to	5:15 PM	0	56	159	21	1	19	125	29	0	42	64	42	0	27	85	18	**688**
5:15 PM	to	5:30 PM	0	47	110	11	0	16	101	30	0	37	57	33	0	10	92	10	**554**
5:30 PM	to	5:45 PM	0	58	222	15	1	17	127	34	0	31	52	12	0	24	95	15	**703**
5:45 PM	to	6:00 PM	0	46	164	21	0	12	118	30	0	27	42	26	0	25	90	18	**619**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	186	552	51	2	80	396	119	0	157	234	103	0	100	302	63	**2345**
4:15 PM	to	5:15 PM	0	206	574	62	3	79	435	129	0	163	233	117	0	102	314	64	**2481**
4:30 PM	to	5:30 PM	0	195	552	64	3	74	427	128	0	158	221	122	0	95	329	56	**2424**
4:45 PM	to	5:45 PM	0	201	632	60	4	66	458	123	0	152	217	115	0	92	365	64	**2549**
5:00 PM	to	6:00 PM	0	207	655	68	2	64	471	123	0	137	215	113	0	86	362	61	**2564**
PEAK HOUR SUMMARY																			
5:00 PM	to	6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME			0	207	655	68	2	64	471	123	0	137	215	113	0	86	362	61	**2564**
PHF BY MOVEMENT			0.00	0.89	0.74	0.81	0.50	0.84	0.93	0.90	0.00	0.82	0.84	0.67	0.00	0.80	0.95	0.85	OVERALL
PHF BY APPROACH				0.79				0.92				0.79				0.95			0.91

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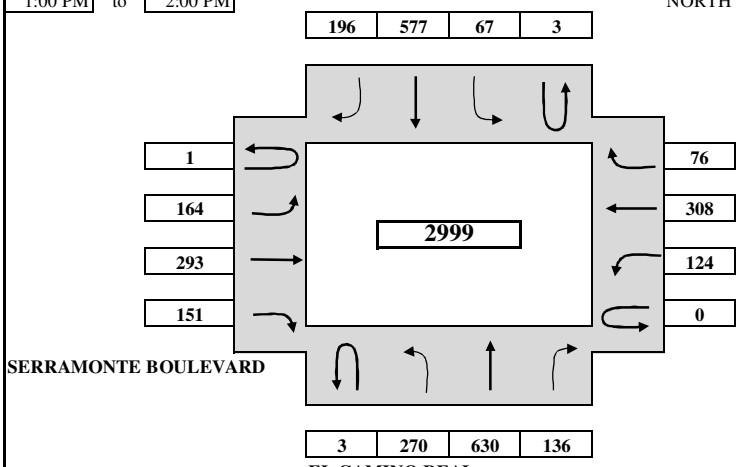
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

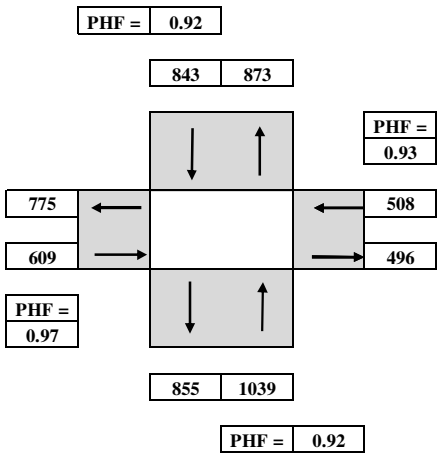
PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/16/2013**	**DAY:**	**SATURDAY**
N-S APPROACH:	**EL CAMINO REAL**	**SURVEY TIME:**	**12:00 PM**	**TO**	**2:00 PM**
E-W APPROACH:	**SERRAMONTE BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-16SAT**

PEAK HOUR
1:00 PM to 2:00 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME PERIOD From	To	NORTHBOUND U-TURN	LEFT	THRU	RIGHT	SOUTHBOUND U-TURN	LEFT	THRU	RIGHT	EASTBOUND U-TURN	LEFT	THRU	RIGHT	WESTBOUND U-TURN	LEFT	THRU	RIGHT	TOTAL
SURVEY DATA																		
12:00 PM	12:15 PM	1	52	141	29	0	23	205	37	0	47	65	36		20	70	19	**745**
12:15 PM	12:30 PM	2	109	265	50	0	44	347	73	0	90	114	78		53	136	40	**1401**
12:30 PM	12:45 PM	3	163	412	75	0	69	502	113	1	117	173	118		85	225	60	**2116**
12:45 PM	1:00 PM	3	217	545	100	1	86	663	146	2	162	244	172		123	279	73	**2816**
1:00 PM	1:15 PM	3	283	684	121	3	102	791	192	2	212	304	214		164	358	90	**3523**
1:15 PM	1:30 PM	5	351	849	162	3	124	934	239	3	250	383	253		196	442	104	**4298**
1:30 PM	1:45 PM	5	414	1023	207	4	143	1095	288	3	293	462	285		223	509	123	**5077**
1:45 PM	2:00 PM	6	487	1175	236	4	153	1240	342	3	326	537	323		247	587	149	**5815**
TOTAL BY PERIOD																		
12:00 PM	12:15 PM	1	52	141	29	0	23	205	37	0	47	65	36	0	20	70	19	**745**
12:15 PM	12:30 PM	1	57	124	21	0	21	142	36	0	43	49	42	0	33	66	21	**656**
12:30 PM	12:45 PM	1	54	147	25	0	25	155	40	1	27	59	40	0	32	89	20	**715**
12:45 PM	1:00 PM	0	54	133	25	1	17	161	33	1	45	71	54	0	38	54	13	**700**
1:00 PM	1:15 PM	0	66	139	21	2	16	128	46	0	50	60	42	0	41	79	17	**707**
1:15 PM	1:30 PM	2	68	165	41	0	22	143	47	1	38	79	39	0	32	84	14	**775**
1:30 PM	1:45 PM	0	63	174	45	1	19	161	49	0	43	79	32	0	27	67	19	**779**
1:45 PM	2:00 PM	1	73	152	29	0	10	145	54	0	33	75	38	0	24	78	26	**738**
HOURLY TOTALS																		
12:00 PM	1:00 PM	3	217	545	100	1	86	663	146	2	162	244	172	0	123	279	73	**2816**
12:15 PM	1:15 PM	2	231	543	92	3	79	586	155	2	165	239	178	0	144	288	71	**2778**
12:30 PM	1:30 PM	3	242	584	112	3	80	587	166	3	160	269	175	0	143	306	64	**2897**
12:45 PM	1:45 PM	2	251	611	132	4	74	593	175	2	176	289	167	0	138	284	63	**2961**
1:00 PM	2:00 PM	3	270	630	136	3	67	577	196	1	164	293	151	0	124	308	76	**2999**

PEAK HOUR SUMMARY

1:00 PM to 2:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME	3	270	630	136	3	67	577	196	1	164	293	151	0	124	308	76	**2999**
PHF BY MOVEMENT	0.38	0.92	0.91	0.76	0.38	0.76	0.90	0.91	0.25	0.82	0.93	0.90	0.00	0.76	0.92	0.73	OVERALL
PHF BY APPROACH	0.92				0.92				0.97				0.93				0.96

TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

ALL TRAFFIC DATA

City of Colma
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 14-7019-001 Hillside Boulevard-Serramonte Boulevard.ppd
Date : 1/8/2014

Unshifted Count = All Vehicles

	Hillside Boulevard Southbound					Serramonte Boulevard Westbound					Hillside Boulevard Northbound					Serramonte Boulevard Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
07:00	0	60	14	0	74	0	0	0	0	0	23	33	0	0	56	7	2	34	0	43	173	0
07:15	0	96	22	0	118	1	1	0	0	2	24	33	1	0	58	15	1	48	0	64	242	0
07:30	0	105	23	0	128	0	0	1	0	1	41	61	1	0	103	15	0	73	0	88	320	0
07:45	0	140	49	0	189	0	0	0	0	0	37	70	2	0	109	23	1	78	0	102	400	0
Total	0	401	108	0	509	1	1	1	0	3	125	197	4	0	326	60	4	233	0	297	1135	0
08:00	0	122	50	0	172	0	0	1	0	1	32	74	6	0	112	29	0	105	0	134	419	0
08:15	1	130	43	0	174	1	0	0	0	1	27	63	1	0	91	17	1	91	0	109	375	0
08:30	1	108	28	0	137	2	0	1	0	3	36	32	2	0	70	23	1	101	0	125	335	0
08:45	0	104	34	0	138	1	2	1	0	4	34	36	3	0	73	15	2	87	0	104	319	0
Total	2	464	155	0	621	4	2	3	0	9	129	205	12	0	346	84	4	384	0	472	1448	0
16:00	0	70	37	0	107	1	3	1	0	5	42	82	2	0	126	30	2	46	0	78	316	0
16:15	0	53	30	0	83	2	1	0	0	3	58	79	1	0	138	27	1	45	0	73	297	0
16:30	0	63	29	0	92	1	1	0	0	2	68	88	0	0	156	33	0	62	0	95	345	0
16:45	0	51	42	0	93	8	0	1	0	9	61	107	1	0	169	36	2	53	0	91	362	0
Total	0	237	138	0	375	12	5	2	0	19	229	356	4	0	589	126	5	206	0	337	1320	0
17:00	0	49	32	0	81	2	1	0	0	3	54	114	0	0	168	38	1	54	0	93	345	0
17:15	0	54	37	0	91	0	3	0	0	3	86	133	0	0	219	36	0	53	0	89	402	0
17:30	0	50	40	0	90	0	2	0	0	2	81	131	0	0	212	58	0	61	0	119	423	0
17:45	0	65	33	0	98	0	0	0	0	0	71	127	0	0	198	38	0	58	0	96	392	0
Total	0	218	142	0	360	2	6	0	0	8	292	505	0	0	797	170	1	226	0	397	1562	0
Grand Total	2	1320	543	0	1865	19	14	6	0	39	775	1263	20	0	2058	440	14	1049	0	1503	5465	0
Apprch %	0.1%	70.8%	29.1%	0.0%		48.7%	35.9%	15.4%	0.0%		37.7%	61.4%	1.0%	0.0%		29.3%	0.9%	69.8%	0.0%			
Total %	0.0%	24.2%	9.9%	0.0%	34.1%	0.3%	0.3%	0.1%	0.0%	0.7%	14.2%	23.1%	0.4%	0.0%	37.7%	8.1%	0.3%	19.2%	0.0%	27.5%	100.0%	

AM PEAK HOUR	Hillside Boulevard Southbound					Serramonte Boulevard Westbound					Hillside Boulevard Northbound					Serramonte Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
07:45	0	140	49	0	189	0	0	0	0	0	37	70	2	0	109	23	1	78	0	102	400
08:00	0	122	50	0	172	0	0	1	0	1	32	74	6	0	112	29	0	105	0	134	419
08:15	1	130	43	0	174	1	0	0	0	1	27	63	1	0	91	17	1	91	0	109	375
08:30	1	108	28	0	137	2	0	1	0	3	36	32	2	0	70	23	1	101	0	125	335
Total Volume	2	500	170	0	672	3	0	2	0	5	132	239	11	0	382	92	3	375	0	470	1529
% App Total	0.3%	74.4%	25.3%	0.0%		60.0%	0.0%	40.0%	0.0%		34.6%	62.6%	2.9%	0.0%		19.6%	0.6%	79.8%	0.0%		
PHF	.500	.893	.850	.000	.889	.375	.000	.500	.000	.417	.892	.807	.458	.000	.853	.793	.750	.893	.000	.877	.912

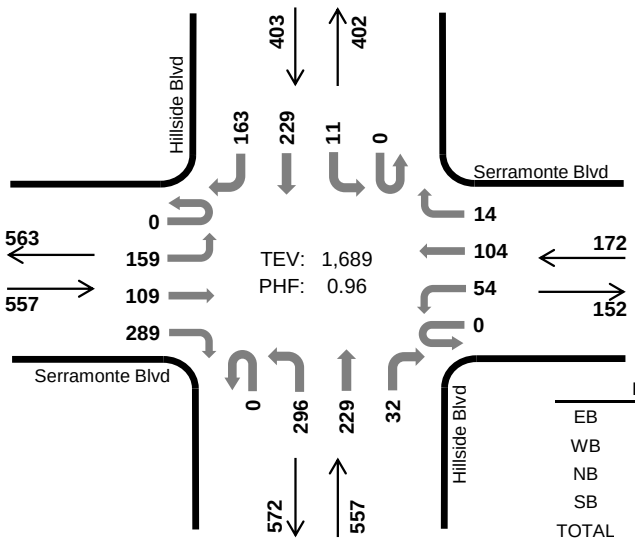
PM PEAK HOUR	Hillside Boulevard Southbound					Serramonte Boulevard Westbound					Hillside Boulevard Northbound					Serramonte Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	49	32	0	81	2	1	0	0	3	54	114	0	0	168	38	1	54	0	93	345
17:15	0	54	37	0	91	0	3	0	0	3	86	133	0	0	219	36	0	53	0	89	402
17:30	0	50	40	0	90	0	2	0	0	2	81	131	0	0	212	58	0	61	0	119	423
17:45	0	65	33	0	98	0	0	0	0	0	71	127	0	0	198	38	0	58	0	96	392
Total Volume	0	218	142	0	360	2	6	0	0	8	292	505	0	0	797	170	1	226	0	397	1562
% App Total	0.0%	60.6%	39.4%	0.0%		25.0%	75.0%	0.0%	0.0%		36.6%	63.4%	0.0%	0.0%		42.8%	0.3%	56.9%	0.0%		
PHF	.000	.838	.888	.000	.918	.250	.500	.000	.000	.667	.849	.949	.000	.000	.910	.733	.250	.926	.000	.834	.923

Hillside Blvd
Serramonte Blvd

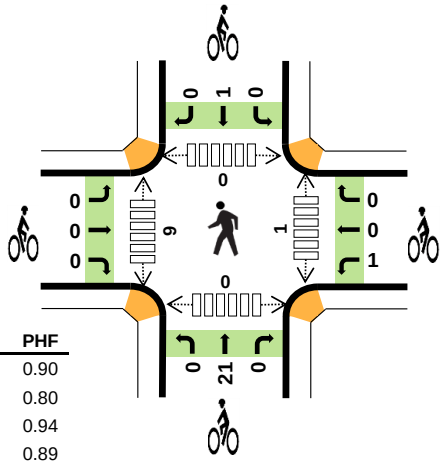
Date: 10/17/2015
Count Period: 12:00 PM to 2:00 PM
Peak Hour: 12:00 PM to 1:00 PM

N

Peak Hour



	HV %:	PHF
EB	0.2%	0.90
WB	0.0%	0.80
NB	0.2%	0.94
SB	0.7%	0.89
TOTAL	0.3%	0.96



Two-Hour Count Summaries

Interval Start		Serramonte Blvd Eastbound UT	LT	TH	RT	Serramonte Blvd Westbound UT	LT	TH	RT	Hillside Blvd Northbound UT	LT	TH	RT	Hillside Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
12:00 PM		**0**	**25**	**24**	**67**	**0**	**7**	**24**	**4**	**0**	**77**	**55**	**8**	**0**	**3**	**58**	**40**	**392**	0
12:15 PM		**0**	**37**	**36**	**72**	**0**	**21**	**21**	**4**	**0**	**67**	**58**	**8**	**0**	**1**	**60**	**33**	**418**	0
12:30 PM		**0**	**48**	**29**	**78**	**0**	**16**	**17**	**4**	**0**	**75**	**52**	**9**	**0**	**1**	**58**	**54**	**441**	0
12:45 PM		**0**	**49**	**20**	**72**	**0**	**10**	**42**	**2**	**0**	**77**	**64**	**7**	**0**	**6**	**53**	**36**	**438**	**1,689**
1:00 PM		0	35	18	74	0	4	42	3	0	56	54	4	0	1	45	50	386	1,683
1:15 PM		0	25	11	64	0	7	21	3	0	70	68	2	0	7	43	34	355	1,620
1:30 PM		0	33	15	54	0	7	18	2	0	67	64	2	0	2	47	46	357	1,536
1:45 PM		0	37	17	69	0	10	14	3	0	76	73	5	0	1	56	35	396	1,494
Count Total		0	289	170	550	0	82	199	25	0	565	488	45	0	22	420	328	3,183	0
Peak Hour	**All**	**0**	**159**	**109**	**289**	**0**	**54**	**104**	**14**	**0**	**296**	**229**	**32**	**0**	**11**	**229**	**163**	**1,689**	**0**
	HV	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	**0**
	HV%	**-**	**1%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**1%**	**0%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
12:00 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**7**	**0**	***7***	**0**	**2**	**0**	**0**	*2*
12:15 PM	**0**	**0**	**1**	**1**	***2***	**0**	**1**	**4**	**0**	***5***	**1**	**1**	**0**	**0**	*2*
12:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**9**	**1**	***10***	**0**	**5**	**0**	**0**	*5*
12:45 PM	**1**	**0**	**0**	**1**	***2***	**0**	**0**	**1**	**0**	***1***	**0**	**1**	**0**	**0**	***1***
1:00 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	5	2	2	*9*
1:15 PM	0	2	0	0	*2*	0	0	0	0	*0*	0	4	1	0	*5*
1:30 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	11	0	0	*11*
1:45 PM	1	0	2	2	*5*	0	0	0	0	*0*	0	6	0	0	*6*
Count Total	2	2	5	5	*14*	0	1	21	1	*23*	1	35	3	2	*41*
Peak Hour	**1**	**0**	**1**	**3**	***5***	**0**	**1**	**21**	**1**	***23***	**1**	**9**	**0**	**0**	***10***

Deon Fouche: 415 - 757 - 7714 Deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Serramonte Blvd				Serramonte Blvd				Hillside Blvd				Hillside Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
12:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	0
12:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
12:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**5**
1:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	5
1:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	5
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	6
1:45 PM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0	5	9
Count Total	0	1	0	1	0	2	0	0	0	1	4	0	0	0	5	0	14	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Serramonte Blvd			Serramonte Blvd			Hillside Blvd			Hillside Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
12:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	0
12:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**5**	0
12:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**1**	**0**	**10**	0
12:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**23**
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	16
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	11
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	1	0	0	0	21	0	0	1	0	23	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**21**	**0**	**0**	**1**	**0**	**23**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714

Deon.fouche@idaxdata.com

B.A.Y.M.E.T.R.I.C.S.

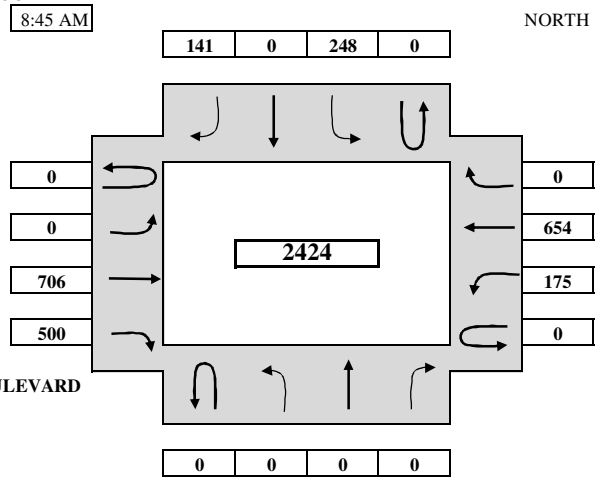
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**I-280 SB RAMPS**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**HICKEY BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-19AM**

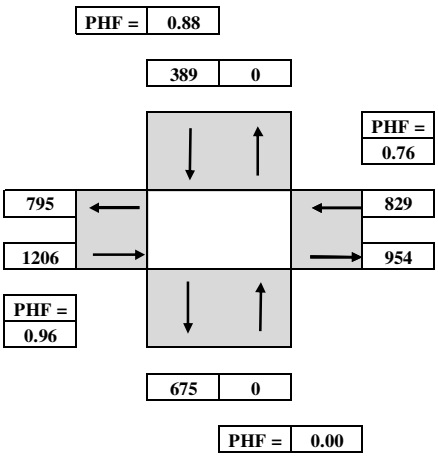
PEAK HOUR

7:45 AM to 8:45 AM

NORTH



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From	PERIOD To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																		
7:00 AM	7:15 AM						11		14			128	133		76	99		**461**
7:15 AM	7:30 AM						43		29			330	297		127	197		**1023**
7:30 AM	7:45 AM						64		40			448	410		170	256		**1388**
7:45 AM	8:00 AM						114		60			620	553		220	393		**1960**
8:00 AM	8:15 AM						178		107			810	662		253	543		**2553**
8:15 AM	8:30 AM						244		145			970	779		301	768		**3207**
8:30 AM	8:45 AM						312		181			1154	910		345	910		**3812**
8:45 AM	9:00 AM						378		209			1292	1047		385	1061		**4372**
TOTAL BY PERIOD																		
7:00 AM	7:15 AM	0	0	0	0	0	11	0	14	0	0	128	133	0	76	99	0	**461**
7:15 AM	7:30 AM	0	0	0	0	0	32	0	15	0	0	202	164	0	51	98	0	**562**
7:30 AM	7:45 AM	0	0	0	0	0	21	0	11	0	0	118	113	0	43	59	0	**365**
7:45 AM	8:00 AM	0	0	0	0	0	50	0	20	0	0	172	143	0	50	137	0	**572**
8:00 AM	8:15 AM	0	0	0	0	0	64	0	47	0	0	190	109	0	33	150	0	**593**
8:15 AM	8:30 AM	0	0	0	0	0	66	0	38	0	0	160	117	0	48	225	0	**654**
8:30 AM	8:45 AM	0	0	0	0	0	68	0	36	0	0	184	131	0	44	142	0	**605**
8:45 AM	9:00 AM	0	0	0	0	0	66	0	28	0	0	138	137	0	40	151	0	**560**
HOURLY TOTALS																		
7:00 AM	8:00 AM	0	0	0	0	0	114	0	60	0	0	620	553	0	220	393	0	**1960**
7:15 AM	8:15 AM	0	0	0	0	0	167	0	93	0	0	682	529	0	177	444	0	**2092**
7:30 AM	8:30 AM	0	0	0	0	0	201	0	116	0	0	640	482	0	174	571	0	**2184**
7:45 AM	8:45 AM	0	0	0	0	0	248	0	141	0	0	706	500	0	175	654	0	**2424**
8:00 AM	9:00 AM	0	0	0	0	0	264	0	149	0	0	672	494	0	165	668	0	**2412**

PEAK HOUR SUMMARY

7:45 AM to 8:45 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME	0	0	0	0	0	248	0	141	0	0	706	500	0	175	654	0	**2424**
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.91	0.00	0.75	0.00	0.00	0.93	0.87	0.00	0.88	0.73	0.00	OVERALL
PHF BY APPROACH	0.00				0.88				0.96				0.76				0.93

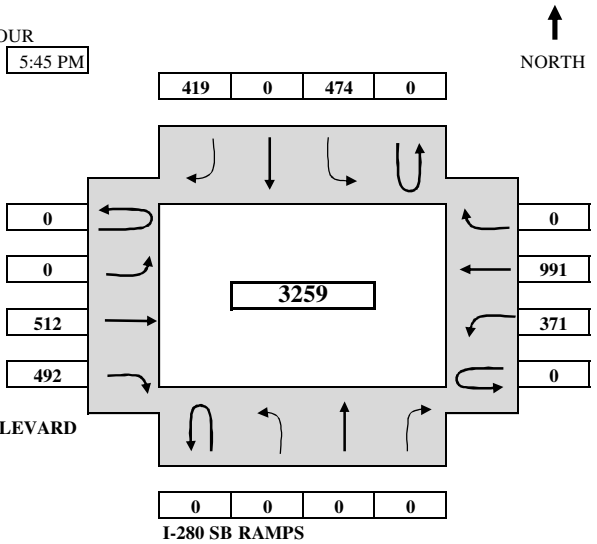
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

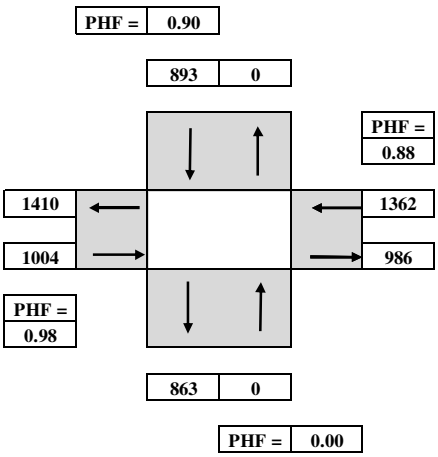
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**I-280 SB RAMPS**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**HICKEY BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-19PM**

PEAK HOUR
4:45 PM to 5:45 PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From		PERIOD To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																			
4:00 PM	to	4:15 PM						134		79			142	101		98	216		**770**
4:15 PM	to	4:30 PM						242		153			277	224		167	459		**1522**
4:30 PM	to	4:45 PM						373		254			395	331		278	695		**2326**
4:45 PM	to	5:00 PM						499		375			537	444		376	946		**3177**
5:00 PM	to	5:15 PM						602		452			669	564		433	1173		**3893**
5:15 PM	to	5:30 PM						725		564			779	706		530	1418		**4722**
5:30 PM	to	5:45 PM						847		673			907	823		649	1686		**5585**
5:45 PM	to	6:00 PM						963		769			1035	931		758	1888		**6344**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	0	0	0	134	0	79	0	0	142	101	0	98	216	0	**770**
4:15 PM	to	4:30 PM	0	0	0	0	0	108	0	74	0	0	135	123	0	69	243	0	**752**
4:30 PM	to	4:45 PM	0	0	0	0	0	131	0	101	0	0	118	107	0	111	236	0	**804**
4:45 PM	to	5:00 PM	0	0	0	0	0	126	0	121	0	0	142	113	0	98	251	0	**851**
5:00 PM	to	5:15 PM	0	0	0	0	0	103	0	77	0	0	132	120	0	57	227	0	**716**
5:15 PM	to	5:30 PM	0	0	0	0	0	123	0	112	0	0	110	142	0	97	245	0	**829**
5:30 PM	to	5:45 PM	0	0	0	0	0	122	0	109	0	0	128	117	0	119	268	0	**863**
5:45 PM	to	6:00 PM	0	0	0	0	0	116	0	96	0	0	128	108	0	109	202	0	**759**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	0	0	0	499	0	375	0	0	537	444	0	376	946	0	**3177**
4:15 PM	to	5:15 PM	0	0	0	0	0	468	0	373	0	0	527	463	0	335	957	0	**3123**
4:30 PM	to	5:30 PM	0	0	0	0	0	483	0	411	0	0	502	482	0	363	959	0	**3200**
4:45 PM	to	5:45 PM	0	0	0	0	0	474	0	419	0	0	512	492	0	371	991	0	**3259**
5:00 PM	to	6:00 PM	0	0	0	0	0	464	0	394	0	0	498	487	0	382	942	0	**3167**
PEAK HOUR SUMMARY																			
4:45 PM	to	5:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME			0	0	0	0	0	474	0	419	0	0	512	492	0	371	991	0	**3259**
PHF BY MOVEMENT			0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.87	0.00	0.00	0.90	0.87	0.00	0.78	0.92	0.00	OVERALL
PHF BY APPROACH			0.00				0.90				0.98				0.88				0.94

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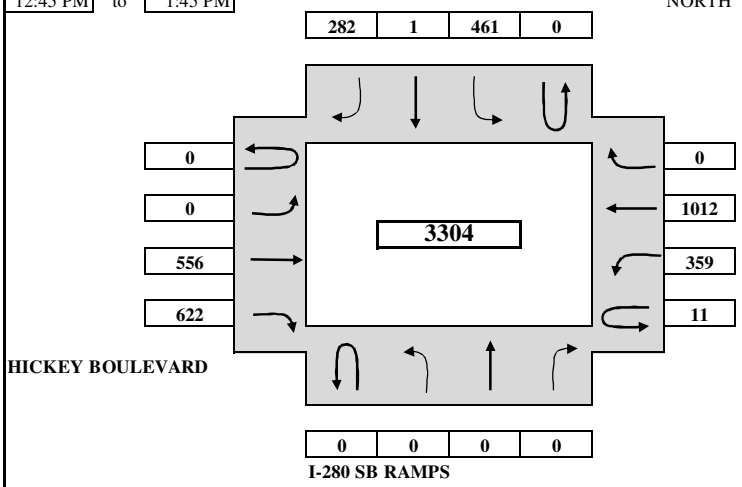
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

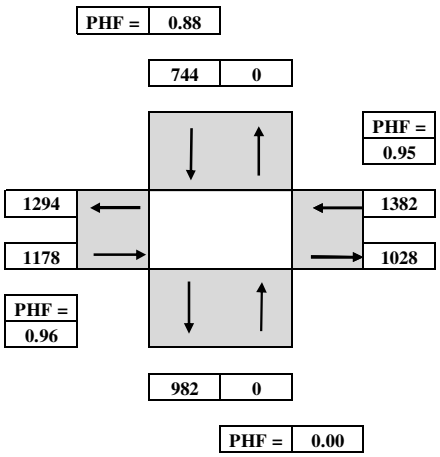
PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/16/2013**	**DAY:**	**SATURDAY**
N-S APPROACH:	**I-280 SB RAMPS**	**SURVEY TIME:**	**12:00 PM**	**TO**	**2:00 PM**
E-W APPROACH:	**HICKEY BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-19SAT**

PEAK HOUR
12:45 PM to 1:45 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME PERIOD From	To	NORTHBOUND U-TURN	LEFT	THRU	RIGHT	SOUTHBOUND U-TURN	LEFT	THRU	RIGHT	EASTBOUND U-TURN	LEFT	THRU	RIGHT	WESTBOUND U-TURN	LEFT	THRU	RIGHT	TOTAL
SURVEY DATA																		
12:00 PM	12:15 PM						133	0	67			123	131	1	71	229		**755**
12:15 PM	12:30 PM						251	0	151			291	288	3	170	469		**1623**
12:30 PM	12:45 PM						362	0	233			428	439	6	262	689		**2419**
12:45 PM	1:00 PM						470	0	298			560	605	8	359	952		**3252**
1:00 PM	1:15 PM						572	1	371			710	733	11	440	1220		**4058**
1:15 PM	1:30 PM						704	1	451			842	907	15	523	1460		**4903**
1:30 PM	1:45 PM						823	1	515			984	1061	17	621	1701		**5723**
1:45 PM	2:00 PM						932	2	577			1123	1185	20	687	1924		**6450**
TOTAL BY PERIOD																		
12:00 PM	12:15 PM	0	0	0	0	0	133	0	67	0	0	123	131	1	71	229	0	**755**
12:15 PM	12:30 PM	0	0	0	0	0	118	0	84	0	0	168	157	2	99	240	0	**868**
12:30 PM	12:45 PM	0	0	0	0	0	111	0	82	0	0	137	151	3	92	220	0	**796**
12:45 PM	1:00 PM	0	0	0	0	0	108	0	65	0	0	132	166	2	97	263	0	**833**
1:00 PM	1:15 PM	0	0	0	0	0	102	1	73	0	0	150	128	3	81	268	0	**806**
1:15 PM	1:30 PM	0	0	0	0	0	132	0	80	0	0	132	174	4	83	240	0	**845**
1:30 PM	1:45 PM	0	0	0	0	0	119	0	64	0	0	142	154	2	98	241	0	**820**
1:45 PM	2:00 PM	0	0	0	0	0	109	1	62	0	0	139	124	3	66	223	0	**727**
HOURLY TOTALS																		
12:00 PM	1:00 PM	0	0	0	0	0	470	0	298	0	0	560	605	8	359	952	0	**3252**
12:15 PM	1:15 PM	0	0	0	0	0	439	1	304	0	0	587	602	10	369	991	0	**3303**
12:30 PM	1:30 PM	0	0	0	0	0	453	1	300	0	0	551	619	12	353	991	0	**3280**
12:45 PM	1:45 PM	0	0	0	0	0	461	1	282	0	0	556	622	11	359	1012	0	**3304**
1:00 PM	2:00 PM	0	0	0	0	0	462	2	279	0	0	563	580	12	328	972	0	**3198**
PEAK HOUR SUMMARY																		
12:45 PM	1:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME		0	0	0	0	0	461	1	282	0	0	556	622	11	359	1012	0	**3304**
PHF BY MOVEMENT		0.00	0.00	0.00	0.00	0.00	0.87	0.25	0.88	0.00	0.00	0.93	0.89	0.69	0.92	0.94	0.00	OVERALL
PHF BY APPROACH		0.00				0.88				0.96				0.95				0.98

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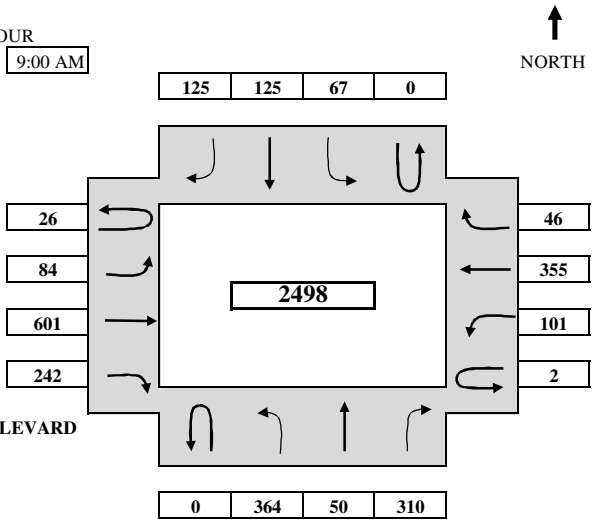
B.A.Y.M.E.T.R.I.C.S.

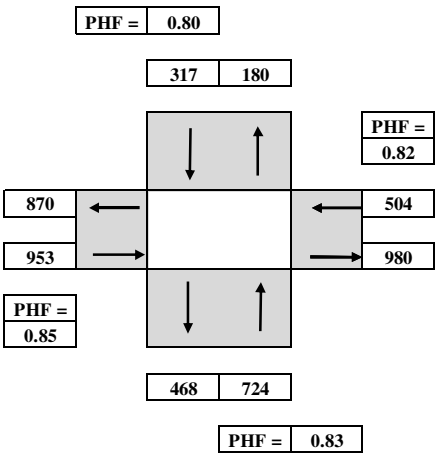
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**I-280 NB RAMPS**	**SURVEY TIME:**	**7:00 AM**	**TO**	**9:00 AM**
E-W APPROACH:	**HICKEY BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-20AM**

PEAK HOUR
8:00 AM to 9:00 AM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From		PERIOD To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																			
7:00 AM	to	7:15 AM		57	6	25		3	33	25	5	8	47	94	1	24	56	4	**388**
7:15 AM	to	7:30 AM		119	13	74		13	77	46	14	24	116	190	2	49	102	8	**847**
7:30 AM	to	7:45 AM		174	25	132		38	112	70	15	36	196	291	2	68	172	13	**1344**
7:45 AM	to	8:00 AM		251	31	198		65	155	96	19	43	325	359	2	88	237	25	**1894**
8:00 AM	to	8:15 AM		329	42	273		93	196	126	26	65	501	434	2	115	330	35	**2567**
8:15 AM	to	8:30 AM		437	54	356		107	220	174	30	84	653	492	4	143	436	52	**3242**
8:30 AM	to	8:45 AM		495	67	423		119	253	194	38	104	788	542	4	172	515	61	**3775**
8:45 AM	to	9:00 AM		615	81	508		132	280	221	45	127	926	601	4	189	592	71	**4392**
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	57	6	25	0	3	33	25	5	8	47	94	1	24	56	4	**388**
7:15 AM	to	7:30 AM	0	62	7	49	0	10	44	21	9	16	69	96	1	25	46	4	**459**
7:30 AM	to	7:45 AM	0	55	12	58	0	25	35	24	1	12	80	101	0	19	70	5	**497**
7:45 AM	to	8:00 AM	0	77	6	66	0	27	43	26	4	7	129	68	0	20	65	12	**550**
8:00 AM	to	8:15 AM	0	78	11	75	0	28	41	30	7	22	176	75	0	27	93	10	**673**
8:15 AM	to	8:30 AM	0	108	12	83	0	14	24	48	4	19	152	58	2	28	106	17	**675**
8:30 AM	to	8:45 AM	0	58	13	67	0	12	33	20	8	20	135	50	0	29	79	9	**533**
8:45 AM	to	9:00 AM	0	120	14	85	0	13	27	27	7	23	138	59	0	17	77	10	**617**
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	251	31	198	0	65	155	96	19	43	325	359	2	88	237	25	**1894**
7:15 AM	to	8:15 AM	0	272	36	248	0	90	163	101	21	57	454	340	1	91	274	31	**2179**
7:30 AM	to	8:30 AM	0	318	41	282	0	94	143	128	16	60	537	302	2	94	334	44	**2395**
7:45 AM	to	8:45 AM	0	321	42	291	0	81	141	124	23	68	592	251	2	104	343	48	**2431**
8:00 AM	to	9:00 AM	0	364	50	310	0	67	125	125	26	84	601	242	2	101	355	46	**2498**
PEAK HOUR SUMMARY																			
8:00 AM	to	9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME			0	364	50	310	0	67	125	125	26	84	601	242	2	101	355	46	**2498**
PHF BY MOVEMENT			0.00	0.76	0.89	0.91	0.00	0.60	0.76	0.65	0.81	0.91	0.85	0.81	0.25	0.87	0.84	0.68	OVERALL
PHF BY APPROACH			0.83				0.80				0.85				0.82				0.93

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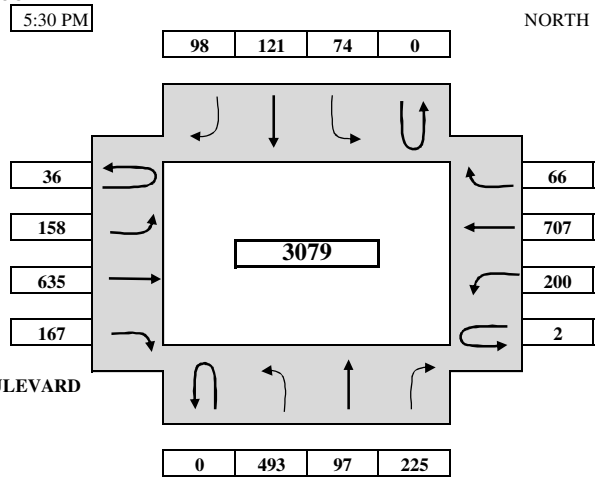
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

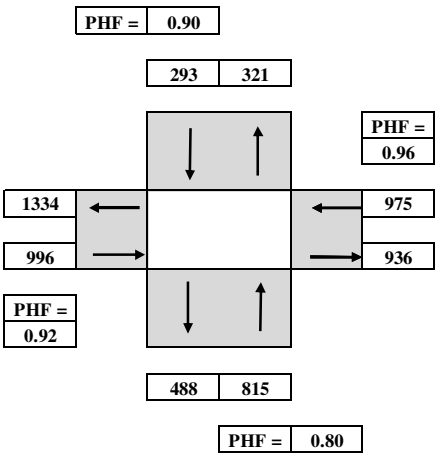
PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/14/2013**	**DAY:**	**THURSDAY**
N-S APPROACH:	**I-280 NB RAMPS**	**SURVEY TIME:**	**4:00 PM**	**TO**	**6:00 PM**
E-W APPROACH:	**HICKEY BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-20PM**

PEAK HOUR
4:30 PM to 5:30 PM

NORTH



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From		PERIOD To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																			
4:00 PM	to	4:15 PM		113	29	71		19	25	29	17	26	179	38	0	37	157	10	**750**
4:15 PM	to	4:30 PM		234	54	147		29	50	42	31	61	333	67	0	89	315	27	**1479**
4:30 PM	to	4:45 PM		379	80	231		50	78	74	45	105	510	104	0	141	498	43	**2338**
4:45 PM	to	5:00 PM		504	93	279		66	112	91	49	134	667	145	1	193	672	59	**3065**
5:00 PM	to	5:15 PM		613	119	320		81	138	116	63	177	816	188	2	242	836	71	**3782**
5:15 PM	to	5:30 PM		727	151	372		103	171	140	67	219	968	234	2	289	1022	93	**4558**
5:30 PM	to	5:45 PM		867	174	420		114	189	174	71	261	1112	280	2	341	1211	116	**5332**
5:45 PM	to	6:00 PM		962	200	476		133	221	201	82	308	1275	310	3	375	1373	135	**6054**
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	113	29	71	0	19	25	29	17	26	179	38	0	37	157	10	**750**
4:15 PM	to	4:30 PM	0	121	25	76	0	10	25	13	14	35	154	29	0	52	158	17	**729**
4:30 PM	to	4:45 PM	0	145	26	84	0	21	28	32	14	44	177	37	0	52	183	16	**859**
4:45 PM	to	5:00 PM	0	125	13	48	0	16	34	17	4	29	157	41	1	52	174	16	**727**
5:00 PM	to	5:15 PM	0	109	26	41	0	15	26	25	14	43	149	43	1	49	164	12	**717**
5:15 PM	to	5:30 PM	0	114	32	52	0	22	33	24	4	42	152	46	0	47	186	22	**776**
5:30 PM	to	5:45 PM	0	140	23	48	0	11	18	34	4	42	144	46	0	52	189	23	**774**
5:45 PM	to	6:00 PM	0	95	26	56	0	19	32	27	11	47	163	30	1	34	162	19	**722**
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	504	93	279	0	66	112	91	49	134	667	145	1	193	672	59	**3065**
4:15 PM	to	5:15 PM	0	500	90	249	0	62	113	87	46	151	637	150	2	205	679	61	**3032**
4:30 PM	to	5:30 PM	0	493	97	225	0	74	121	98	36	158	635	167	2	200	707	66	**3079**
4:45 PM	to	5:45 PM	0	488	94	189	0	64	111	100	26	156	602	176	2	200	713	73	**2994**
5:00 PM	to	6:00 PM	0	458	107	197	0	67	109	110	33	174	608	165	2	182	701	76	**2989**
PEAK HOUR SUMMARY																			
4:30 PM	to	5:30 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME			0	493	97	225	0	74	121	98	36	158	635	167	2	200	707	66	**3079**
PHF BY MOVEMENT			0.00	0.85	0.76	0.67	0.00	0.84	0.89	0.77	0.64	0.90	0.90	0.91	0.50	0.96	0.95	0.75	OVERALL
PHF BY APPROACH			0.80				0.90				0.92				0.96				0.90

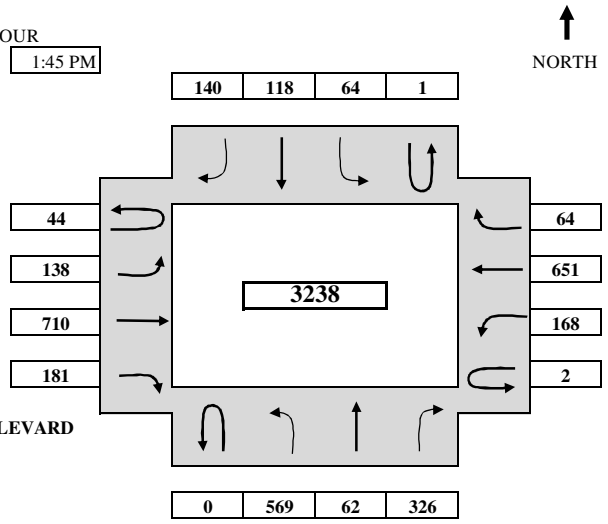
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

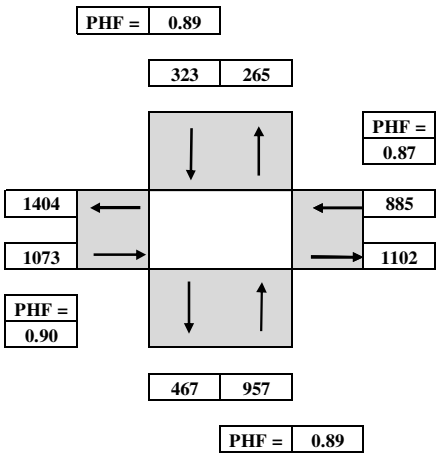
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**TRAFFIC COUNTS IN DALY CITY**	**SURVEY DATE:**	**11/16/2013**	**DAY:**	**SATURDAY**
N-S APPROACH:	**I-280 NB RAMPS**	**SURVEY TIME:**	**12:00 PM**	**TO**	**2:00 PM**
E-W APPROACH:	**HICKEY BOULEVARD**	**JURISDICTION:**	**DALY CITY**	**FILE:**	**3311110-20SAT**

PEAK HOUR
12:45 PM to 1:45 PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF



TIME From	PERIOD To	NORTHBOUND U-TURN	NORTHBOUND LEFT	NORTHBOUND THRU	NORTHBOUND RIGHT	SOUTHBOUND U-TURN	SOUTHBOUND LEFT	SOUTHBOUND THRU	SOUTHBOUND RIGHT	EASTBOUND U-TURN	EASTBOUND LEFT	EASTBOUND THRU	EASTBOUND RIGHT	WESTBOUND U-TURN	WESTBOUND LEFT	WESTBOUND THRU	WESTBOUND RIGHT	TOTAL
SURVEY DATA																		
12:00 PM	12:15 PM		137	11	62	0	16	31	26	14	19	163	45	0	41	137	23	**725**
12:15 PM	12:30 PM		282	34	123	0	32	55	56	29	58	335	91	0	79	287	33	**1494**
12:30 PM	12:45 PM		398	52	186	1	56	87	83	35	88	499	129	0	116	423	46	**2199**
12:45 PM	1:00 PM		558	67	270	1	75	115	127	48	121	674	177	0	153	599	61	**3046**
1:00 PM	1:15 PM		726	75	362	2	88	141	155	60	162	844	228	1	204	778	83	**3909**
1:15 PM	1:30 PM		839	95	419	2	105	169	184	72	183	1014	258	1	245	919	92	**4597**
1:30 PM	1:45 PM		967	114	512	2	120	205	223	79	226	1209	310	2	284	1074	110	**5437**
1:45 PM	2:00 PM		1103	148	626	2	140	237	253	88	255	1373	342	3	329	1214	127	**6240**
TOTAL BY PERIOD																		
12:00 PM	12:15 PM	0	137	11	62	0	16	31	26	14	19	163	45	0	41	137	23	**725**
12:15 PM	12:30 PM	0	145	23	61	0	16	24	30	15	39	172	46	0	38	150	10	**769**
12:30 PM	12:45 PM	0	116	18	63	1	24	32	27	6	30	164	38	0	37	136	13	**705**
12:45 PM	1:00 PM	0	160	15	84	0	19	28	44	13	33	175	48	0	37	176	15	**847**
1:00 PM	1:15 PM	0	168	8	92	1	13	26	28	12	41	170	51	1	51	179	22	**863**
1:15 PM	1:30 PM	0	113	20	57	0	17	28	29	12	21	170	30	0	41	141	9	**688**
1:30 PM	1:45 PM	0	128	19	93	0	15	36	39	7	43	195	52	1	39	155	18	**840**
1:45 PM	2:00 PM	0	136	34	114	0	20	32	30	9	29	164	32	1	45	140	17	**803**
HOURLY TOTALS																		
12:00 PM	1:00 PM	0	558	67	270	1	75	115	127	48	121	674	177	0	153	599	61	**3046**
12:15 PM	1:15 PM	0	589	64	300	2	72	110	129	46	143	681	183	1	163	641	60	**3184**
12:30 PM	1:30 PM	0	557	61	296	2	73	114	128	43	125	679	167	1	166	632	59	**3103**
12:45 PM	1:45 PM	0	569	62	326	1	64	118	140	44	138	710	181	2	168	651	64	**3238**
1:00 PM	2:00 PM	0	545	81	356	1	65	122	126	40	134	699	165	3	176	615	66	**3194**
PEAK HOUR SUMMARY																		
12:45 PM	1:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME		0	569	62	326	1	64	118	140	44	138	710	181	2	168	651	64	**3238**
PHF BY MOVEMENT		0.00	0.85	0.78	0.88	0.25	0.84	0.82	0.80	0.85	0.80	0.91	0.87	0.50	0.82	0.91	0.73	OVERALL
PHF BY APPROACH		0.89				0.89				0.90				0.87				0.94

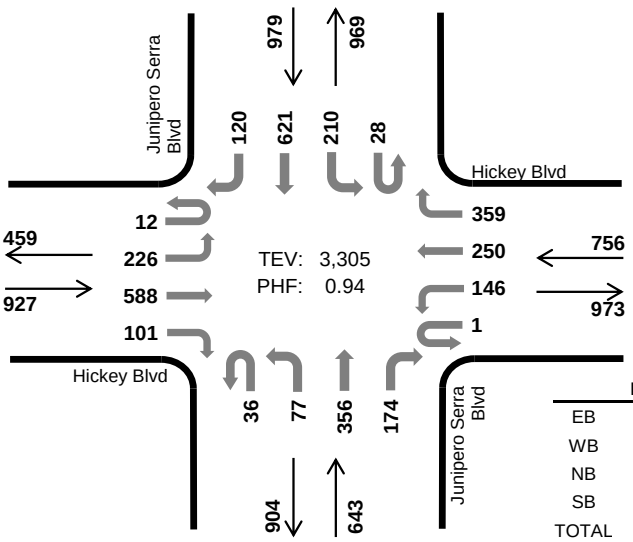
TEL: (510) 232 - 1271 FAX: (510) 232 - 1272

Junipero Serra Blvd
Hickey Blvd

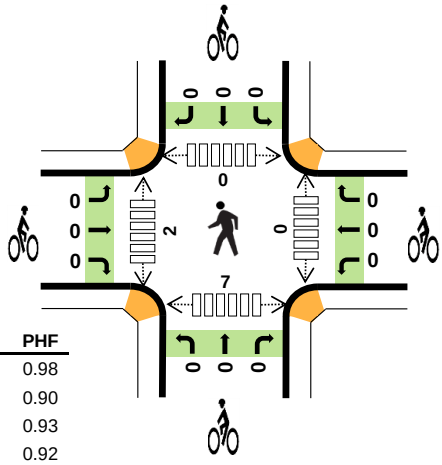
Date: 10/15/2015
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

N

Peak Hour



	HV %:	PHF
EB	1.7%	0.98
WB	2.5%	0.90
NB	1.6%	0.93
SB	1.2%	0.92
TOTAL	1.7%	0.94



Two-Hour Count Summaries

Interval Start		Hickey Blvd Eastbound UT	LT	TH	RT	Hickey Blvd Westbound UT	LT	TH	RT	Junipero Serra Blvd Northbound UT	LT	TH	RT	Junipero Serra Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		2	45	57	13	0	11	28	67	4	4	56	13	5	22	39	34	400	0
7:15 AM		4	51	79	10	0	19	42	81	9	16	74	20	2	26	75	14	522	0
7:30 AM		**3**	**75**	**130**	**28**	**0**	**18**	**40**	**94**	**5**	**14**	**82**	**47**	**7**	**37**	**133**	**22**	**735**	0
7:45 AM		**3**	**52**	**150**	**30**	**0**	**45**	**60**	**89**	**9**	**12**	**88**	**52**	**5**	**49**	**179**	**29**	**852**	2,509
8:00 AM		**2**	**49**	**161**	**21**	**1**	**46**	**72**	**91**	**7**	**27**	**93**	**45**	**8**	**75**	**149**	**33**	**880**	2,989
8:15 AM		**4**	**50**	**147**	**22**	**0**	**37**	**78**	**85**	**15**	**24**	**93**	**30**	**8**	**49**	**160**	**36**	**838**	**3,305**
8:30 AM		0	58	110	25	0	39	67	81	4	30	72	26	1	63	122	35	733	3,303
8:45 AM		1	56	122	25	0	23	71	65	6	27	64	23	5	47	103	46	684	3,135
Count Total		19	436	956	174	1	238	458	653	59	154	622	256	41	368	960	249	5,644	0
Peak Hour	**All**	**12**	**226**	**588**	**101**	**1**	**146**	**250**	**359**	**36**	**77**	**356**	**174**	**28**	**210**	**621**	**120**	**3,305**	**0**
	HV	**0**	**4**	**12**	**0**	**0**	**1**	**10**	**8**	**0**	**3**	**6**	**1**	**1**	**2**	**4**	**4**	**56**	**0**
	HV%	**0%**	**2%**	**2%**	**0%**	**0%**	**1%**	**4%**	**2%**	**0%**	**4%**	**2%**	**1%**	**4%**	**1%**	**1%**	**3%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	2	5	0	3	*10*	0	0	0	0	*0*	0	0	0	1	*1*
7:15 AM	4	6	2	3	*15*	0	0	1	0	*1*	0	0	0	0	*0*
7:30 AM	**4**	**3**	**1**	**4**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**3**	*3*
7:45 AM	**6**	**5**	**3**	**1**	***15***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
8:00 AM	**3**	**7**	**6**	**4**	***20***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**1**	*2*
8:15 AM	**3**	**4**	**0**	**2**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**2**	***3***
8:30 AM	7	7	2	6	*22*	0	0	0	0	*0*	0	1	0	3	*4*
8:45 AM	5	11	3	3	*22*	0	1	0	0	*1*	0	0	0	0	*0*
Count Total	34	48	17	26	*125*	0	1	1	0	*2*	0	3	0	11	*14*
Peak Hour	**16**	**19**	**10**	**11**	***56***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**7**	***9***

Deon Fouche: 415 - 757 - 7714 Deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Hickey Blvd				Hickey Blvd				Junipero Serra Blvd				Junipero Serra Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	3	2	0	0	0	0	0	0	1	2	10	0
7:15 AM	0	2	2	0	0	1	3	2	0	1	0	1	0	1	1	1	15	0
7:30 AM	**0**	**2**	**2**	**0**	**0**	**0**	**1**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**1**	**12**	0
7:45 AM	**0**	**1**	**5**	**0**	**0**	**1**	**2**	**2**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**15**	52
8:00 AM	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**3**	**0**	**2**	**3**	**1**	**1**	**1**	**1**	**1**	**20**	62
8:15 AM	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**9**	**56**
8:30 AM	0	2	5	0	0	0	2	5	0	0	1	1	0	0	2	4	22	66
8:45 AM	0	1	4	0	0	0	5	6	0	1	2	0	0	1	0	2	22	73
Count Total	0	9	25	0	0	2	23	23	0	5	9	3	1	4	8	13	125	0
Peak Hour	**0**	**4**	**12**	**0**	**0**	**1**	**10**	**8**	**0**	**3**	**6**	**1**	**1**	**2**	**4**	**4**	**56**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Hickey Blvd			Hickey Blvd			Junipero Serra Blvd			Junipero Serra Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:30 AM	**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**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**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
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Count Total	0	0	0	0	1	0	0	1	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714

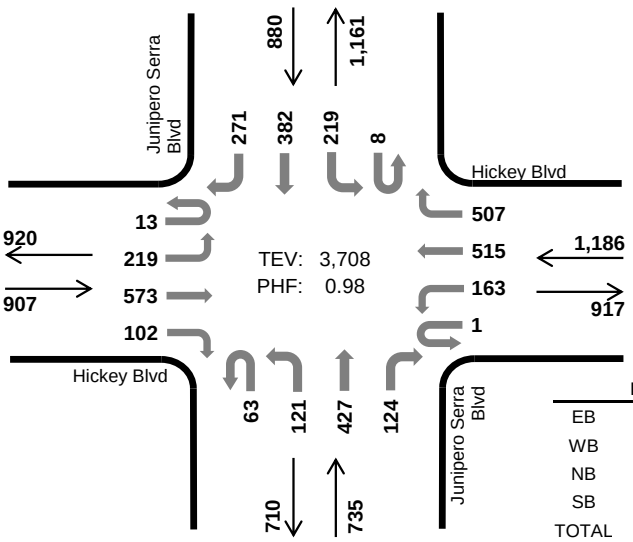
Deon.fouche@idaxdata.com

Junipero Serra Blvd
Hickey Blvd

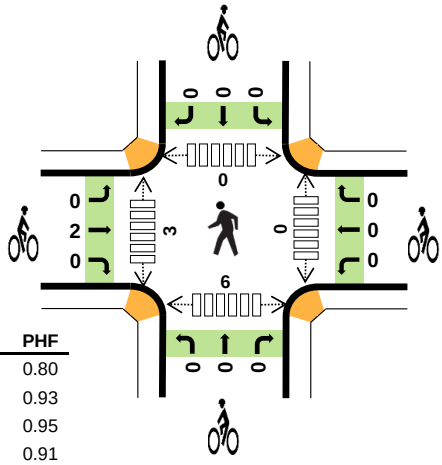
Date: 10/15/2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

N

Peak Hour



	HV %:	PHF
EB	0.8%	0.80
WB	0.6%	0.93
NB	0.4%	0.95
SB	0.1%	0.91
TOTAL	0.5%	0.98



Two-Hour Count Summaries

Interval Start		Hickey Blvd Eastbound UT	LT	TH	RT	Hickey Blvd Westbound UT	LT	TH	RT	Junipero Serra Blvd Northbound UT	LT	TH	RT	Junipero Serra Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		10	75	149	16	0	35	109	132	14	25	90	26	3	41	83	56	864	0
4:15 PM		3	74	172	16	0	28	113	123	11	23	98	37	3	53	85	68	907	0
4:30 PM		1	48	142	18	0	39	112	123	13	28	125	20	0	48	98	79	894	0
4:45 PM		**2**	**72**	**190**	**18**	**0**	**27**	**130**	**125**	**19**	**27**	**92**	**24**	**1**	**44**	**82**	**76**	**929**	3,594
5:00 PM		**4**	**50**	**129**	**28**	**1**	**41**	**113**	**128**	**13**	**23**	**119**	**32**	**3**	**54**	**105**	**79**	**922**	3,652
5:15 PM		**4**	**55**	**142**	**29**	**0**	**45**	**152**	**121**	**19**	**36**	**106**	**31**	**4**	**59**	**97**	**50**	**950**	3,695
5:30 PM		**3**	**42**	**112**	**27**	**0**	**50**	**120**	**133**	**12**	**35**	**110**	**37**	**0**	**62**	**98**	**66**	**907**	**3,708**
5:45 PM		0	47	144	17	0	44	137	113	18	37	101	33	3	49	93	49	885	3,664
Count Total		27	463	1,180	169	1	309	986	998	119	234	841	240	17	410	741	523	7,258	0
Peak Hour	**All**	**13**	**219**	**573**	**102**	**1**	**163**	**515**	**507**	**63**	**121**	**427**	**124**	**8**	**219**	**382**	**271**	**3,708**	**0**
	HV	**0**	**3**	**4**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**18**	**0**
	HV%	**0%**	**1%**	**1%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	5	3	0	1	*9*	0	0	1	0	*1*	0	0	0	1	*1*
4:15 PM	3	5	3	2	*13*	0	0	0	0	*0*	0	3	1	4	*8*
4:30 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	1	*1*
4:45 PM	**1**	**2**	**1**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**1**	*2*
5:00 PM	**3**	**1**	**1**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**4**	*5*
5:15 PM	**2**	**2**	**1**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**1**	**2**	**0**	**0**	***3***	**2**	**0**	**0**	**0**	***2***	**0**	**1**	**0**	**1**	***2***
5:45 PM	2	3	0	1	*6*	1	0	0	0	*1*	0	1	0	1	*2*
Count Total	18	19	6	5	*48*	3	0	1	0	*4*	0	7	1	13	*21*
Peak Hour	**7**	**7**	**3**	**1**	***18***	**2**	**0**	**0**	**0**	***2***	**0**	**3**	**0**	**6**	***9***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Hickey Blvd				Hickey Blvd				Junipero Serra Blvd				Junipero Serra Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	2	2	0	0	3	0	0	0	0	0	0	0	1	0	9	0
4:15 PM	0	0	3	0	0	1	4	0	0	1	2	0	0	0	0	2	13	0
4:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**5**	29
5:00 PM	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	25
5:15 PM	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	17
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**18**
5:45 PM	0	0	2	0	0	0	1	2	0	0	0	0	0	0	0	1	6	19
Count Total	0	4	12	2	0	1	16	2	0	1	5	0	0	0	2	3	48	0
Peak Hour	**0**	**3**	**4**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**18**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Hickey Blvd			Hickey Blvd			Junipero Serra Blvd			Junipero Serra Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:15 PM	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
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:00 PM	**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
5:30 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	3
Count Total	0	3	0	0	0	0	1	0	0	0	0	0	4	0
Peak Hour	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714

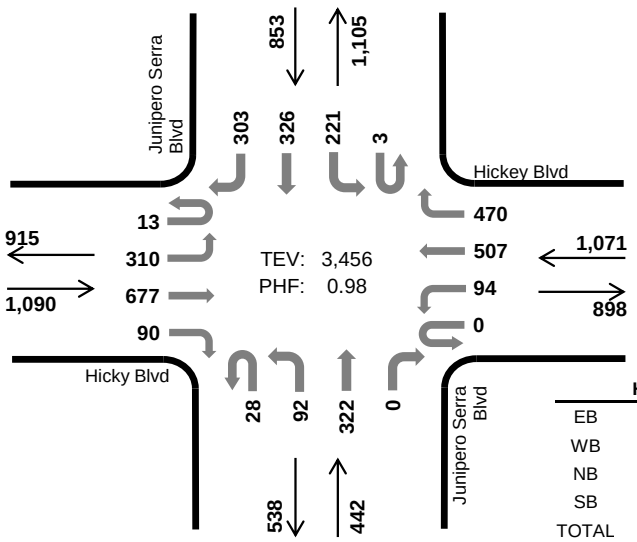
Deon.fouche@idaxdata.com

Junipero Serra Blvd
Hickey Blvd

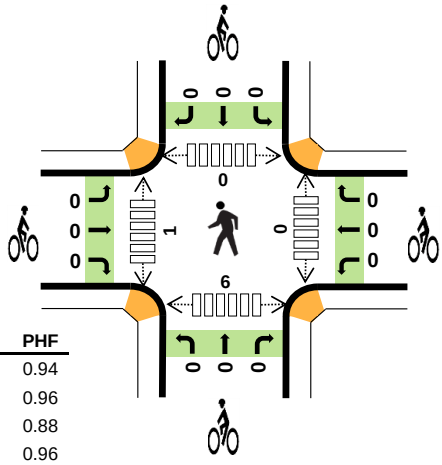
Date: 10/17/2015
Count Period: 12:00 PM to 2:00 PM
Peak Hour: 12:00 PM to 1:00 PM

N

Peak Hour



	HV %:	PHF
EB	0.7%	0.94
WB	1.1%	0.96
NB	0.7%	0.88
SB	0.5%	0.96
TOTAL	0.8%	0.98



Two-Hour Count Summaries

Interval Start		Hicky Blvd Eastbound UT	LT	TH	RT	Hickey Blvd Westbound UT	LT	TH	RT	Junipero Serra Blvd Northbound UT	LT	TH	RT	Junipero Serra Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
12:00 PM		**2**	**68**	**159**	**21**	**0**	**25**	**141**	**114**	**8**	**21**	**77**	**0**	**0**	**47**	**88**	**73**	**844**	0
12:15 PM		**4**	**81**	**163**	**22**	**0**	**25**	**123**	**107**	**7**	**26**	**93**	**0**	**3**	**54**	**78**	**85**	**871**	0
12:30 PM		**5**	**72**	**177**	**26**	**0**	**22**	**116**	**126**	**7**	**33**	**72**	**0**	**0**	**57**	**72**	**74**	**859**	0
12:45 PM		**2**	**89**	**178**	**21**	**0**	**22**	**127**	**123**	**6**	**12**	**80**	**0**	**0**	**63**	**88**	**71**	**882**	**3,456**
1:00 PM		1	70	133	16	0	22	142	124	6	25	62	0	1	41	95	70	808	3,420
1:15 PM		4	67	176	13	0	27	112	125	2	18	69	0	4	43	101	82	843	3,392
1:30 PM		4	83	158	19	0	21	110	137	6	17	86	0	4	56	65	81	847	3,380
1:45 PM		5	73	171	12	0	28	126	114	7	26	108	0	2	54	82	78	886	3,384
Count Total		27	603	1,315	150	0	192	997	970	49	178	647	0	14	415	669	614	6,840	0
Peak Hour	**All**	**13**	**310**	**677**	**90**	**0**	**94**	**507**	**470**	**28**	**92**	**322**	**0**	**3**	**221**	**326**	**303**	**3,456**	**0**
	HV	**0**	**3**	**5**	**0**	**0**	**1**	**6**	**5**	**0**	**0**	**3**	**0**	**0**	**2**	**2**	**0**	**27**	**0**
	HV%	**0%**	**1%**	**1%**	**0%**	**-**	**1%**	**1%**	**1%**	**0%**	**0%**	**1%**	**-**	**0%**	**1%**	**1%**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
12:00 PM	**1**	**1**	**0**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
12:15 PM	**3**	**6**	**2**	**1**	***12***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	*2*
12:30 PM	**1**	**1**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**2**	*3*
12:45 PM	**3**	**4**	**1**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	***1***
1:00 PM	1	3	0	1	*5*	0	0	0	0	*0*	3	0	0	0	*3*
1:15 PM	2	3	0	1	*6*	0	0	0	0	*0*	0	0	0	0	*0*
1:30 PM	0	3	0	2	*5*	0	0	0	1	*1*	0	0	0	0	*0*
1:45 PM	3	3	0	2	*8*	0	0	0	0	*0*	3	2	0	0	*5*
Count Total	14	24	3	10	*51*	0	0	0	1	*1*	6	3	0	6	*15*
Peak Hour	**8**	**12**	**3**	**4**	***27***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**6**	***7***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Hicky Blvd				Hickey Blvd				Junipero Serra Blvd				Junipero Serra Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**4**	0
12:15 PM	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**12**	0
12:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	0
12:45 PM	**0**	**2**	**1**	**0**	**0**	**1**	**2**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**8**	**27**
1:00 PM	0	1	0	0	0	0	0	3	0	0	0	0	0	0	1	0	5	28
1:15 PM	0	0	2	0	0	0	2	1	0	0	0	0	0	0	1	0	6	22
1:30 PM	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	1	5	24
1:45 PM	0	0	2	1	0	0	2	1	0	0	0	0	0	0	1	1	8	24
Count Total	0	4	9	1	0	1	11	12	0	0	3	0	0	2	6	2	51	0
Peak Hour	**0**	**3**	**5**	**0**	**0**	**1**	**6**	**5**	**0**	**0**	**3**	**0**	**0**	**2**	**2**	**0**	**27**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Hicky Blvd			Hickey Blvd			Junipero Serra Blvd			Junipero Serra Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
12:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
12:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
12:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
12:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714

Deon.fouche@idaxdata.com

ALL TRAFFIC DATA

City of Colma
All Vehicles on Unshifted
Peds & Bikes on Bank 1
Nothing on Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 13-7638-001 Hillside Boulevard-Lawndale Boulevard.ppd
Date : 11/21/2013

Unshifted Count = All Vehicles

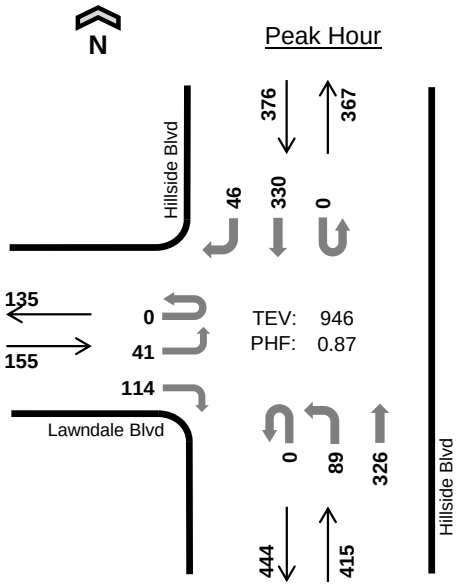
	Hillside Boulevard Southbound					Westbound					Hillside Boulevard Northbound					Lawndale Boulevard Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturn Total
07:00	0	100	7	0	107	0	0	0	0	0	16	68	0	0	84	2	0	29	0	31	222	0
07:15	0	127	5	0	132	0	0	0	0	0	25	71	0	0	96	2	0	35	0	37	265	0
07:30	0	169	8	0	177	0	0	0	0	0	23	84	0	0	107	5	0	51	0	56	340	0
07:45	0	203	17	0	220	0	0	0	0	0	31	86	0	0	117	6	0	60	0	66	403	0
Total	0	599	37	0	636	0	0	0	0	0	95	309	0	0	404	15	0	175	0	190	1230	0
08:00	0	210	15	0	225	0	0	0	0	0	32	88	0	0	120	13	0	71	0	84	429	0
08:15	0	189	5	0	194	0	0	0	0	0	37	79	0	0	116	6	0	75	0	81	391	0
08:30	0	179	9	0	188	0	0	0	0	0	22	71	0	0	93	6	0	61	0	67	348	0
08:45	0	154	9	0	163	0	0	0	0	0	25	71	0	0	96	3	0	45	0	48	307	0
Total	0	732	38	0	770	0	0	0	0	0	116	309	0	0	425	28	0	252	0	280	1475	0
16:00	0	86	14	0	100	0	0	0	0	0	35	115	0	0	150	14	0	31	0	45	295	0
16:15	0	79	7	0	86	0	0	0	0	0	44	143	0	0	187	15	0	29	0	44	317	0
16:30	0	91	7	0	98	0	0	0	0	0	39	140	0	0	179	12	0	31	0	43	320	0
16:45	0	82	8	0	90	0	0	0	0	0	33	174	0	0	207	10	0	35	0	45	342	0
Total	0	338	36	0	374	0	0	0	0	0	151	572	0	0	723	51	0	126	0	177	1274	0
17:00	0	72	4	0	76	0	0	0	0	0	45	200	0	0	245	4	0	26	0	30	351	0
17:15	0	84	13	0	97	0	0	0	0	0	43	200	0	0	243	12	0	48	0	60	400	0
17:30	0	82	11	0	93	0	0	0	0	0	58	195	0	0	253	11	0	42	0	53	399	0
17:45	0	67	11	0	78	0	0	0	0	0	58	169	0	0	227	7	0	42	0	49	354	0
Total	0	305	39	0	344	0	0	0	0	0	204	764	0	0	968	34	0	158	0	192	1504	0
Grand Total	0	1974	150	0	2124	0	0	0	0	0	566	1954	0	0	2520	128	0	711	0	839	5483	0
Apprch %	0.0%	92.9%	7.1%	0.0%		0.0%	0.0%	0.0%	0.0%		22.5%	77.5%	0.0%	0.0%		15.3%	0.0%	84.7%	0.0%			
Total %	0.0%	36.0%	2.7%	0.0%	38.7%	0.0%	0.0%	0.0%	0.0%	0.0%	10.3%	35.6%	0.0%	0.0%	46.0%	2.3%	0.0%	13.0%	0.0%	15.3%	100.0%	

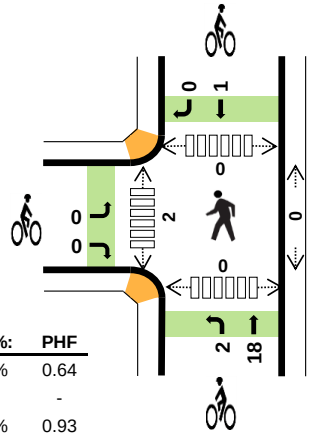
AM PEAK HOUR	Hillside Boulevard Southbound					Westbound					Hillside Boulevard Northbound					Lawndale Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
07:45	0	203	17	0	220	0	0	0	0	0	31	86	0	0	117	6	0	60	0	66	403
08:00	0	210	15	0	225	0	0	0	0	0	32	88	0	0	120	13	0	71	0	84	429
08:15	0	189	5	0	194	0	0	0	0	0	37	79	0	0	116	6	0	75	0	81	391
08:30	0	179	9	0	188	0	0	0	0	0	22	71	0	0	93	6	0	61	0	67	348
Total Volume	0	781	46	0	827	0	0	0	0	0	122	324	0	0	446	31	0	267	0	298	1571
% App Total	0.0%	94.4%	5.6%	0.0%		0.0%	0.0%	0.0%	0.0%		27.4%	72.6%	0.0%	0.0%		10.4%	0.0%	89.6%	0.0%		
PHF	.000	.930	.676	.000	.919	.000	.000	.000	.000	.000	.824	.920	.000	.000	.929	.596	.000	.890	.000	.887	.916

PM PEAK HOUR	Hillside Boulevard Southbound					Westbound					Hillside Boulevard Northbound					Lawndale Boulevard Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	72	4	0	76	0	0	0	0	0	45	200	0	0	245	4	0	26	0	30	351
17:15	0	84	13	0	97	0	0	0	0	0	43	200	0	0	243	12	0	48	0	60	400
17:30	0	82	11	0	93	0	0	0	0	0	58	195	0	0	253	11	0	42	0	53	399
17:45	0	67	11	0	78	0	0	0	0	0	58	169	0	0	227	7	0	42	0	49	354
Total Volume	0	305	39	0	344	0	0	0	0	0	204	764	0	0	968	34	0	158	0	192	1504
% App Total	0.0%	88.7%	11.3%	0.0%		0.0%	0.0%	0.0%	0.0%		21.1%	78.9%	0.0%	0.0%		17.7%	0.0%	82.3%	0.0%		
PHF	.000	.908	.750	.000	.887	.000	.000	.000	.000	.000	.879	.955	.000	.000	.957	.708	.000	.823	.000	.800	.940

Hillside Blvd
Lawndale Blvd

Date: 10/17/2015
Count Period: 12:00 PM to 2:00 PM
Peak Hour: 12:00 PM to 1:00 PM





	HV %:	PHF
EB	0.0%	0.64
WB	-	-
NB	1.4%	0.93
SB	0.5%	0.84
TOTAL	0.8%	0.87

Two-Hour Count Summaries

Interval Start		Lawndale Blvd Eastbound UT	LT	TH	RT	0 Westbound UT	LT	TH	RT	Hillside Blvd Northbound UT	LT	TH	RT	Hillside Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
12:00 PM		**0**	**15**	**0**	**46**	**0**	**0**	**0**	**0**	**0**	**30**	**82**	**0**	**0**	**0**	**87**	**11**	**271**	0
12:15 PM		**0**	**9**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**17**	**80**	**0**	**0**	**0**	**73**	**11**	**208**	0
12:30 PM		**0**	**4**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**21**	**86**	**0**	**0**	**0**	**101**	**11**	**251**	0
12:45 PM		**0**	**13**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**21**	**78**	**0**	**0**	**0**	**69**	**13**	**216**	**946**
1:00 PM		0	6	0	26	0	0	0	0	0	24	89	0	0	0	72	8	225	900
1:15 PM		0	7	0	27	0	0	0	0	0	21	96	0	0	0	83	14	248	940
1:30 PM		0	7	0	25	0	0	0	0	0	24	82	0	0	0	58	10	206	895
1:45 PM		0	5	0	20	0	0	0	0	0	24	102	0	0	0	89	12	252	931
Count Total		0	66	0	212	0	0	0	0	0	182	695	0	0	0	632	90	1,877	0
Peak Hour	**All**	**0**	**41**	**0**	**114**	**0**	**0**	**0**	**0**	**0**	**89**	**326**	**0**	**0**	**0**	**330**	**46**	**946**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**2**	**0**	**8**	**0**
	HV%	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**2%**	**1%**	**-**	**-**	**-**	**1%**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
12:00 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**4**	**0**	***4***	**0**	**1**	**0**	**0**	*1*
12:15 PM	**0**	**0**	**4**	**0**	***4***	**0**	**0**	**10**	**1**	***11***	**0**	**0**	**0**	**0**	*0*
12:30 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**4**	**0**	***4***	**0**	**0**	**0**	**0**	*0*
12:45 PM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**2**	**0**	***2***	**0**	**1**	**0**	**0**	***1***
1:00 PM	0	0	2	0	*2*	0	0	0	1	*1*	0	0	0	0	*0*
1:15 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	2	0	0	*2*
1:30 PM	0	0	3	0	*3*	0	0	0	0	*0*	0	1	0	0	*1*
1:45 PM	0	0	1	2	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	0	13	4	*17*	0	0	20	2	*22*	0	5	0	0	*5*
Peak Hr	**0**	**0**	**6**	**2**	***8***	**0**	**0**	**20**	**1**	***21***	**0**	**2**	**0**	**0**	***2***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Lawndale Blvd				0				Hillside Blvd				Hillside Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
12:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
12:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	0
12:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
12:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**2**	**8**
1:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	9
1:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	6
1:30 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3	8
1:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	9
Count Total	0	0	0	0	0	0	0	0	0	3	10	0	0	0	4	0	17	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**2**	**0**	**8**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Lawndale Blvd			0			Hillside Blvd			Hillside Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
12:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	0
12:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**1**	**0**	**11**	0
12:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	0
12:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**21**
1:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	18
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	2	18	0	0	2	0	22	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**18**	**0**	**0**	**1**	**0**	**21**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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Appendix B

Driveway Count Data

Colma Serramonte Blvd Driveway Counts

	Driveway 1			
10/15/2015	IN		OUT	
Thursday	EB Right	WB Left	NB Right	NB Left
AM				
7:00 AM	1	0	0	0
7:15 AM	4	1	0	0
7:30 AM	1	0	0	0
7:45 AM	2	0	0	0
8:00 AM	0	0	1	0
8:15 AM	1	1	0	0
8:30 AM	0	1	0	0
8:45 AM	2	1	0	0
PM				
4:00 PM	1	0	0	1
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	1
5:00 PM	0	1	0	1
5:15 PM	0	1	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	2
10/17/2015				
Saturday				
12:00 PM	0	0	1	0
12:15 PM	0	0	0	0
12:30 PM	1	0	0	0
12:45 PM	0	0	0	0
1:00 PM	0	0	0	0
1:15 PM	0	1	0	1
1:30 PM	0	0	0	0
1:45 PM	0	1	0	0

	Driveway 2			
10/15/2015	IN		OUT	
Thursday	EB Right	WB Left	NB Right	NB Left
AM				
7:00 AM	0	0	0	0
7:15 AM	1	0	0	0
7:30 AM	2	0	0	0
7:45 AM	2	0	0	0
8:00 AM	3	3	0	2
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
PM				
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	1	1
4:45 PM	0	0	0	1
5:00 PM	1	1	0	2
5:15 PM	3	0	2	5
5:30 PM	0	0	0	2
5:45 PM	0	1	0	2
Saturday				
12:00 PM	0	0	0	0
12:15 PM	1	0	0	1
12:30 PM	1	0	0	0
12:45 PM	2	0	0	2
1:00 PM	0	0	0	0
1:15 PM	5	0	0	2
1:30 PM	2	0	2	3
1:45 PM	0	0	0	0

	Driveway 3			
10/15/2015	IN		OUT	
Thursday	EB Right	WB Left	NB Right	NB Left
AM				
7:00 AM	1	2	0	0
7:15 AM	4	0	0	0
7:30 AM	2	2	0	1
7:45 AM	1	3	0	1
8:00 AM	5	1	0	0
8:15 AM	4	2	0	1
8:30 AM	6	3	0	0
8:45 AM	4	0	1	4
PM				
4:00 PM	2	1	0	3
4:15 PM	2	2	1	4
4:30 PM	0	1	2	1
4:45 PM	1	1	1	2
5:00 PM	7	0	3	4
5:15 PM	4	1	5	2
5:30 PM	0	0	2	1
5:45 PM	1	1	0	5
Saturday				
12:00 PM	0	0	0	2
12:15 PM	4	1	0	3
12:30 PM	2	2	1	1
12:45 PM	1	0	2	1
1:00 PM	3	0	2	2
1:15 PM	1	0	0	1
1:30 PM	4	2	1	2
1:45 PM	1	0	2	2

Appendix C

Intersection Level of Service Calculations

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	505	236	0	559	320
Future Volume (vph)	0	505	236	0	559	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	561	262	0	621	356
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	561	262	0	621	356
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		10.6	9.6		9.8	9.8
Effective Green, g (s)		10.6	9.6		9.8	9.8
Actuated g/C Ratio		0.38	0.35		0.35	0.35
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1354	1226		1214	986
v/s Ratio Prot		c0.16	0.07		c0.18	0.13
v/s Ratio Perm						
v/c Ratio		0.41	0.21		0.51	0.36
Uniform Delay, d1		6.3	6.4		7.1	6.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.0		0.2	0.1
Delay (s)		6.3	6.4		7.2	6.7
Level of Service		A	A		A	A
Approach Delay (s)		6.3	6.4		7.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	27.7	Sum of lost time (s)	8.3
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	144	1009	190	0	0	0
Future Volume (vph)	144	1009	190	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	166	1160	218	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	166	1160	218	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	5.2	27.7	14.9			
Effective Green, g (s)	5.2	27.7	14.9			
Actuated g/C Ratio	0.19	1.00	0.54			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	644	3539	1903			
v/s Ratio Prot	0.05	c0.33	0.06			
v/s Ratio Perm						
v/c Ratio	0.26	0.33	0.11			
Uniform Delay, d1	9.6	0.0	3.2			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.1	0.1	0.0			
Delay (s)	9.7	0.1	3.2			
Level of Service	A	A	A			
Approach Delay (s)		1.3	3.2		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	27.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	139	584	318	109	104	192	47	38	454	285	188
Future Volume (vph)	1	139	584	318	109	104	192	47	38	454	285	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.92	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3118	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3118	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	143	602	328	112	107	198	48	39	468	294	194
RTOR Reduction (vph)	0	0	0	244	0	0	52	0	0	0	0	148
Lane Group Flow (vph)	0	144	602	84	112	230	71	0	0	507	294	46
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		8.5	20.4	20.4	10.4	21.7	21.7			18.9	18.9	18.9
Effective Green, g (s)		8.5	20.4	20.4	10.4	21.7	21.7			18.9	18.9	18.9
Actuated g/C Ratio		0.11	0.26	0.26	0.13	0.27	0.27			0.24	0.24	0.24
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		367	909	406	231	852	393			817	842	376
v/s Ratio Prot		0.04	c0.17		c0.06	0.07	0.05			c0.15	0.08	
v/s Ratio Perm				0.05								0.03
v/c Ratio		0.39	0.66	0.21	0.48	0.27	0.18			0.62	0.35	0.12
Uniform Delay, d1		33.0	26.4	23.2	32.0	22.6	22.0			27.0	25.1	23.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		0.3	1.4	0.1	0.6	0.1	0.1			1.1	0.1	0.1
Delay (s)		33.3	27.8	23.2	32.6	22.7	22.1			28.1	25.2	23.8
Level of Service		C	C	C	C	C	C			C	C	C
Approach Delay (s)			27.2			24.9					26.4	
Approach LOS			C			C					C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	79.4	Sum of lost time (s)	16.2
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	116	335	26	0
Future Volume (vph)	116	335	26	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3501		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3501		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	120	345	27	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	120	372	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	14.1	14.1		
Effective Green, g (s)	14.1	14.1		
Actuated g/C Ratio	0.18	0.18		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	314	621		
v/s Ratio Prot	0.07	c0.11		
v/s Ratio Perm				
v/c Ratio	0.38	0.60		
Uniform Delay, d1	28.8	30.0		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.3	1.0		
Delay (s)	29.1	31.1		
Level of Service	C	C		
Approach Delay (s)		30.6		
Approach LOS		C		

Intersection Summary

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	75	598	0	332	98	0	69	32
Future Vol, veh/h	0	75	598	0	332	98	0	69	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	82	650	0	361	107	0	75	35
Number of Lanes	0	0	2	0	2	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15.5	11.5	10.7
HCM LOS	C	B	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	27%	0%	0%	0%	68%
Vol Thru, %	73%	100%	100%	53%	0%
Vol Right, %	0%	0%	0%	47%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	274	399	221	209	101
LT Vol	75	0	0	0	69
Through Vol	199	399	221	111	0
RT Vol	0	0	0	98	32
Lane Flow Rate	298	433	241	227	110
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.453	0.642	0.383	0.34	0.191
Departure Headway (Hd)	5.58	5.442	5.736	5.404	6.247
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	650	667	630	669	577
Service Time	3.28	3.142	3.445	3.113	4.258
HCM Lane V/C Ratio	0.458	0.649	0.383	0.339	0.191
HCM Control Delay	12.8	17.4	12	10.9	10.7
HCM Lane LOS	B	C	B	B	B
HCM 95th-tile Q	2.4	4.6	1.8	1.5	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	347	52	100	209	43	94	340	53	107	503	94
Future Volume (vph)	47	347	52	100	209	43	94	340	53	107	503	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3459			3483	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3459			3483	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	48	354	53	102	213	44	96	347	54	109	513	96
RTOR Reduction (vph)	0	10	0	0	0	35	0	0	40	0	0	72
Lane Group Flow (vph)	0	445	0	0	315	9	96	347	14	109	513	24
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		15.4			13.2	13.2	7.3	16.8	16.8	7.0	16.5	16.5
Effective Green, g (s)		15.4			13.2	13.2	7.3	16.8	16.8	7.0	16.5	16.5
Actuated g/C Ratio		0.23			0.20	0.20	0.11	0.25	0.25	0.11	0.25	0.25
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		802			692	314	194	1286	400	186	1263	393
v/s Ratio Prot		c0.13			c0.09		0.05	0.07		c0.06	c0.10	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.55			0.46	0.03	0.49	0.27	0.03	0.59	0.41	0.06
Uniform Delay, d1		22.5			23.4	21.4	27.8	19.9	18.7	28.3	20.9	19.0
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5			0.2	0.0	0.7	0.2	0.0	3.0	0.3	0.1
Delay (s)		23.0			23.6	21.4	28.5	20.0	18.7	31.3	21.1	19.1
Level of Service		C			C	C	C	C	B	C	C	B
Approach Delay (s)		23.0			23.3			21.5			22.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	3	375	3	0	2	132	239	11	2	500	170
Future Volume (vph)	92	3	375	3	0	2	132	239	11	2	500	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		3230		1770	1850		1770	1863	1583
Flt Permitted		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1777	1583		3230		1770	1850		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	3	408	3	0	2	143	260	12	2	543	185
RTOR Reduction (vph)	0	0	309	0	5	0	0	1	0	0	0	89
Lane Group Flow (vph)	0	103	99	0	0	0	143	271	0	2	543	96
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Effective Green, g (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Actuated g/C Ratio		0.11	0.24		0.05		0.13	0.63		0.01	0.51	0.51
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		201	384		169		229	1170		10	948	805
v/s Ratio Prot		c0.06	0.03		c0.00		c0.08	0.15		0.00	c0.29	
v/s Ratio Perm			0.03									0.06
v/c Ratio		0.51	0.26		0.00		0.62	0.23		0.20	0.57	0.12
Uniform Delay, d1		34.2	25.0		36.8		33.8	6.5		40.5	13.9	10.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.2	0.4		0.0		12.2	0.5		9.6	2.5	0.3
Delay (s)		36.4	25.4		36.8		46.0	6.9		50.1	16.4	10.8
Level of Service		D	C		D		D	A		D	B	B
Approach Delay (s)		27.6			36.8			20.4			15.1	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	706	0	175	654	0	0	0	0	248	0	141
Future Volume (vph)	0	706	0	175	654	0	0	0	0	248	0	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.98	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1590	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1590	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	767	0	190	711	0	0	0	0	270	0	153
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	767	0	190	711	0	0	0	0	146	145	132
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.2		7.4	25.6					9.1	9.1	9.1
Effective Green, g (s)		15.2		7.4	25.6					9.1	9.1	9.1
Actuated g/C Ratio		0.35		0.17	0.60					0.21	0.21	0.21
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1253		592	2111					356	337	319
v/s Ratio Prot		c0.22		0.06	c0.20					0.09	c0.09	0.09
v/s Ratio Perm												
v/c Ratio		0.61		0.32	0.34					0.41	0.43	0.41
Uniform Delay, d1		11.4		15.5	4.4					14.6	14.7	14.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6		0.1	0.0					0.3	0.3	0.3
Delay (s)		12.0		15.7	4.4					14.9	15.0	14.9
Level of Service		B		B	A					B	B	B
Approach Delay (s)		12.0			6.8			0.0			14.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	11.2
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	601	0	103	355	46	364	50	310	67	125	125
Future Volume (vph)	110	601	0	103	355	46	364	50	310	67	125	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3479		1681	1705	1583		1831	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3479		1681	1705	1583		1831	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	118	646	0	111	382	49	391	54	333	72	134	134
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	260	0	0	108
Lane Group Flow (vph)	118	646	0	111	422	0	223	222	73	0	206	26
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	8.3	20.2		8.0	20.4		16.3	16.3	16.3		14.3	14.3
Effective Green, g (s)	8.3	20.2		8.0	20.4		16.3	16.3	16.3		14.3	14.3
Actuated g/C Ratio	0.11	0.27		0.11	0.27		0.22	0.22	0.22		0.19	0.19
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	197	962		190	955		368	374	347		352	304
v/s Ratio Prot	c0.07	c0.18		0.06	0.12		c0.13	0.13	0.05		c0.11	0.02
v/s Ratio Perm												
v/c Ratio	0.60	0.67		0.58	0.44		0.61	0.59	0.21		0.59	0.08
Uniform Delay, d1	31.4	24.1		31.6	22.3		26.1	26.0	23.7		27.3	24.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.2	1.5		2.9	0.1		1.9	1.7	0.1		1.6	0.0
Delay (s)	34.7	25.6		34.5	22.4		28.0	27.7	23.8		28.9	24.7
Level of Service	C	C		C	C		C	C	C		C	C
Approach Delay (s)		27.0			24.9			26.2			27.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	15.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	588	101	147	250	359	113	356	174	238	621	120
Future Volume (vph)	238	588	101	147	250	359	113	356	174	238	621	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	253	626	107	156	266	382	120	379	185	253	661	128
RTOR Reduction (vph)	0	0	80	0	0	0	0	0	140	0	0	74
Lane Group Flow (vph)	228	651	27	0	422	382	120	379	45	253	661	54
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	28.1	28.1	28.1		19.0	111.1	12.5	27.0	27.0	21.0	35.5	35.5
Effective Green, g (s)	28.1	28.1	28.1		19.0	111.1	12.5	27.0	27.0	21.0	35.5	35.5
Actuated g/C Ratio	0.25	0.25	0.25		0.17	1.00	0.11	0.24	0.24	0.19	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	855	400		594	1583	199	860	384	334	1130	505
v/s Ratio Prot	0.14	c0.19			c0.12		0.07	0.11		c0.14	c0.19	
v/s Ratio Perm			0.02			0.24			0.03			0.03
v/c Ratio	0.56	0.76	0.07		0.71	0.24	0.60	0.44	0.12	0.76	0.58	0.11
Uniform Delay, d1	36.1	38.4	31.5		43.5	0.0	46.9	35.6	32.8	42.6	31.6	26.6
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	4.0	0.1		4.0	0.4	5.1	1.6	0.6	9.4	2.2	0.4
Delay (s)	37.9	42.4	31.6		47.5	0.4	52.0	37.3	33.4	52.1	33.9	27.1
Level of Service	D	D	C		D	A	D	D	C	D	C	C
Approach Delay (s)		40.2			25.1			38.8			37.4	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	111.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	267	122	324	781	46
Future Volume (vph)	31	267	122	324	781	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3510	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	290	133	352	849	50
RTOR Reduction (vph)	0	257	0	0	4	0
Lane Group Flow (vph)	34	33	133	352	895	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9	8.9	53.9	41.0	
Effective Green, g (s)	7.9	7.9	8.9	53.9	41.0	
Actuated g/C Ratio	0.11	0.11	0.13	0.77	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	179	225	2732	2061	
v/s Ratio Prot	0.02		c0.08	0.10	c0.26	
v/s Ratio Perm		c0.02				
v/c Ratio	0.17	0.18	0.59	0.13	0.43	
Uniform Delay, d1	28.0	28.0	28.7	2.0	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	4.1	0.1	0.7	
Delay (s)	28.4	28.5	32.9	2.1	8.6	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.5			10.5	8.6	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	505	236	0	560	320
Future Volume (vph)	0	505	236	0	560	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	561	262	0	622	356
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	561	262	0	622	356
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		10.6	9.6		9.8	9.8
Effective Green, g (s)		10.6	9.6		9.8	9.8
Actuated g/C Ratio		0.38	0.35		0.35	0.35
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1354	1226		1214	986
v/s Ratio Prot		c0.16	0.07		c0.18	0.13
v/s Ratio Perm						
v/c Ratio		0.41	0.21		0.51	0.36
Uniform Delay, d1		6.3	6.4		7.1	6.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.0		0.2	0.1
Delay (s)		6.3	6.4		7.2	6.7
Level of Service		A	A		A	A
Approach Delay (s)		6.3	6.4		7.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	27.7	Sum of lost time (s)	8.3
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	144	1010	190	0	0	0
Future Volume (vph)	144	1010	190	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	166	1161	218	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	166	1161	218	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	5.2	27.7	14.9			
Effective Green, g (s)	5.2	27.7	14.9			
Actuated g/C Ratio	0.19	1.00	0.54			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	644	3539	1903			
v/s Ratio Prot	0.05	c0.33	0.06			
v/s Ratio Perm						
v/c Ratio	0.26	0.33	0.11			
Uniform Delay, d1	9.6	0.0	3.2			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.1	0.1	0.0			
Delay (s)	9.7	0.1	3.2			
Level of Service	A	A	A			
Approach Delay (s)		1.3	3.2		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	27.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	139	585	318	110	104	193	47	38	454	285	189
Future Volume (vph)	1	139	585	318	110	104	193	47	38	454	285	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.92	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3118	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3118	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	143	603	328	113	107	199	48	39	468	294	195
RTOR Reduction (vph)	0	0	0	243	0	0	52	0	0	0	0	149
Lane Group Flow (vph)	0	144	603	85	113	230	72	0	0	507	294	46
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		8.5	20.6	20.6	10.4	21.9	21.9			19.0	19.0	19.0
Effective Green, g (s)		8.5	20.6	20.6	10.4	21.9	21.9			19.0	19.0	19.0
Actuated g/C Ratio		0.11	0.26	0.26	0.13	0.27	0.27			0.24	0.24	0.24
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		365	913	408	230	855	395			817	842	376
v/s Ratio Prot		0.04	c0.17		c0.06	0.07	0.05			c0.15	0.08	
v/s Ratio Perm				0.05								0.03
v/c Ratio		0.39	0.66	0.21	0.49	0.27	0.18			0.62	0.35	0.12
Uniform Delay, d1		33.2	26.5	23.2	32.2	22.7	22.1			27.2	25.3	23.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		0.3	1.4	0.1	0.6	0.1	0.1			1.1	0.1	0.1
Delay (s)		33.5	27.9	23.3	32.8	22.7	22.2			28.2	25.4	23.9
Level of Service		C	C	C	C	C	C			C	C	C
Approach Delay (s)			27.2			25.0					26.5	
Approach LOS			C			C					C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	16.2
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	116	335	26	0
Future Volume (vph)	116	335	26	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3501		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3501		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	120	345	27	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	120	372	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	14.2	14.2		
Effective Green, g (s)	14.2	14.2		
Actuated g/C Ratio	0.18	0.18		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	314	622		
v/s Ratio Prot	0.07	c0.11		
v/s Ratio Perm				
v/c Ratio	0.38	0.60		
Uniform Delay, d1	28.9	30.2		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.3	1.0		
Delay (s)	29.2	31.2		
Level of Service	C	C		
Approach Delay (s)		30.7		
Approach LOS		C		

Intersection Summary

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	75	600	0	334	98	0	69	32
Future Vol, veh/h	0	75	600	0	334	98	0	69	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	82	652	0	363	107	0	75	35
Number of Lanes	0	0	2	0	2	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15.6	11.5	10.7
HCM LOS	C	B	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	27%	0%	0%	0%	68%
Vol Thru, %	73%	100%	100%	53%	0%
Vol Right, %	0%	0%	0%	47%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	275	400	223	209	101
LT Vol	75	0	0	0	69
Through Vol	200	400	223	111	0
RT Vol	0	0	0	98	32
Lane Flow Rate	299	435	242	228	110
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.454	0.644	0.386	0.342	0.191
Departure Headway (Hd)	5.584	5.446	5.739	5.408	6.252
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	649	670	629	669	576
Service Time	3.284	3.146	3.448	3.117	4.264
HCM Lane V/C Ratio	0.461	0.649	0.385	0.341	0.191
HCM Control Delay	12.8	17.5	12	10.9	10.7
HCM Lane LOS	B	C	B	B	B
HCM 95th-tile Q	2.4	4.7	1.8	1.5	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	349	52	101	211	44	94	340	54	108	503	94
Future Volume (vph)	47	349	52	101	211	44	94	340	54	108	503	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3459			3483	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3459			3483	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	48	356	53	103	215	45	96	347	55	110	513	96
RTOR Reduction (vph)	0	10	0	0	0	36	0	0	41	0	0	72
Lane Group Flow (vph)	0	447	0	0	318	9	96	347	14	110	513	24
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		15.4			13.2	13.2	7.3	16.8	16.8	7.0	16.5	16.5
Effective Green, g (s)		15.4			13.2	13.2	7.3	16.8	16.8	7.0	16.5	16.5
Actuated g/C Ratio		0.23			0.20	0.20	0.11	0.25	0.25	0.11	0.25	0.25
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		802			692	314	194	1286	400	186	1263	393
v/s Ratio Prot		c0.13			c0.09		0.05	0.07		c0.06	c0.10	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.56			0.46	0.03	0.49	0.27	0.03	0.59	0.41	0.06
Uniform Delay, d1		22.5			23.5	21.4	27.8	19.9	18.7	28.3	20.9	19.0
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5			0.2	0.0	0.7	0.2	0.0	3.3	0.3	0.1
Delay (s)		23.0			23.6	21.4	28.5	20.0	18.7	31.7	21.1	19.1
Level of Service		C			C	C	C	C	B	C	C	B
Approach Delay (s)		23.0			23.4			21.5			22.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	66.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	3	375	3	0	2	132	239	11	2	500	170
Future Volume (vph)	92	3	375	3	0	2	132	239	11	2	500	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		3230		1770	1850		1770	1863	1583
Flt Permitted		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1777	1583		3230		1770	1850		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	3	408	3	0	2	143	260	12	2	543	185
RTOR Reduction (vph)	0	0	309	0	5	0	0	1	0	0	0	89
Lane Group Flow (vph)	0	103	99	0	0	0	143	271	0	2	543	96
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Effective Green, g (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Actuated g/C Ratio		0.11	0.24		0.05		0.13	0.63		0.01	0.51	0.51
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		201	384		169		229	1170		10	948	805
v/s Ratio Prot		c0.06	0.03		c0.00		c0.08	0.15		0.00	c0.29	
v/s Ratio Perm			0.03									0.06
v/c Ratio		0.51	0.26		0.00		0.62	0.23		0.20	0.57	0.12
Uniform Delay, d1		34.2	25.0		36.8		33.8	6.5		40.5	13.9	10.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.2	0.4		0.0		12.2	0.5		9.6	2.5	0.3
Delay (s)		36.4	25.4		36.8		46.0	6.9		50.1	16.4	10.8
Level of Service		D	C		D		D	A		D	B	B
Approach Delay (s)		27.6			36.8			20.4			15.1	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	706	0	176	654	0	0	0	0	248	0	141
Future Volume (vph)	0	706	0	176	654	0	0	0	0	248	0	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.98	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1590	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1590	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	767	0	191	711	0	0	0	0	270	0	153
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	767	0	191	711	0	0	0	0	146	145	132
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.2		7.4	25.6					9.1	9.1	9.1
Effective Green, g (s)		15.2		7.4	25.6					9.1	9.1	9.1
Actuated g/C Ratio		0.35		0.17	0.60					0.21	0.21	0.21
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1253		592	2111					356	337	319
v/s Ratio Prot		c0.22		0.06	c0.20					0.09	c0.09	0.09
v/s Ratio Perm												
v/c Ratio		0.61		0.32	0.34					0.41	0.43	0.41
Uniform Delay, d1		11.4		15.6	4.4					14.6	14.7	14.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6		0.1	0.0					0.3	0.3	0.3
Delay (s)		12.0		15.7	4.4					14.9	15.0	14.9
Level of Service		B		B	A					B	B	B
Approach Delay (s)		12.0			6.8			0.0			14.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	11.2
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	601	0	103	356	46	364	50	311	67	125	125
Future Volume (vph)	110	601	0	103	356	46	364	50	311	67	125	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3479		1681	1705	1583		1831	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3479		1681	1705	1583		1831	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	118	646	0	111	383	49	391	54	334	72	134	134
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	261	0	0	108
Lane Group Flow (vph)	118	646	0	111	423	0	223	222	73	0	206	26
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	8.3	20.2		8.0	20.4		16.3	16.3	16.3		14.3	14.3
Effective Green, g (s)	8.3	20.2		8.0	20.4		16.3	16.3	16.3		14.3	14.3
Actuated g/C Ratio	0.11	0.27		0.11	0.27		0.22	0.22	0.22		0.19	0.19
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	197	962		190	955		368	374	347		352	304
v/s Ratio Prot	c0.07	c0.18		0.06	0.12		c0.13	0.13	0.05		c0.11	0.02
v/s Ratio Perm												
v/c Ratio	0.60	0.67		0.58	0.44		0.61	0.59	0.21		0.59	0.08
Uniform Delay, d1	31.4	24.1		31.6	22.3		26.1	26.0	23.7		27.3	24.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.2	1.5		2.9	0.1		1.9	1.7	0.1		1.6	0.0
Delay (s)	34.7	25.6		34.5	22.4		28.0	27.7	23.8		28.9	24.7
Level of Service	C	C		C	C		C	C	C		C	C
Approach Delay (s)		27.0			24.9			26.2			27.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	15.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	588	101	147	250	359	113	356	174	238	621	121
Future Volume (vph)	239	588	101	147	250	359	113	356	174	238	621	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	254	626	107	156	266	382	120	379	185	253	661	129
RTOR Reduction (vph)	0	0	80	0	0	0	0	0	140	0	0	75
Lane Group Flow (vph)	229	651	27	0	422	382	120	379	45	253	661	54
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	28.1	28.1	28.1		19.0	111.1	12.5	27.0	27.0	21.0	35.5	35.5
Effective Green, g (s)	28.1	28.1	28.1		19.0	111.1	12.5	27.0	27.0	21.0	35.5	35.5
Actuated g/C Ratio	0.25	0.25	0.25		0.17	1.00	0.11	0.24	0.24	0.19	0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	407	855	400		594	1583	199	860	384	334	1130	505
v/s Ratio Prot	0.14	c0.19			c0.12		0.07	0.11		c0.14	c0.19	
v/s Ratio Perm			0.02			0.24			0.03			0.03
v/c Ratio	0.56	0.76	0.07		0.71	0.24	0.60	0.44	0.12	0.76	0.58	0.11
Uniform Delay, d1	36.1	38.4	31.5		43.5	0.0	46.9	35.6	32.8	42.6	31.6	26.6
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	4.0	0.1		4.0	0.4	5.1	1.6	0.6	9.4	2.2	0.4
Delay (s)	37.9	42.4	31.6		47.5	0.4	52.0	37.3	33.4	52.1	33.9	27.1
Level of Service	D	D	C		D	A	D	D	C	D	C	C
Approach Delay (s)		40.2			25.1			38.8			37.4	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	111.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	267	122	324	781	46
Future Volume (vph)	31	267	122	324	781	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3510	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	290	133	352	849	50
RTOR Reduction (vph)	0	257	0	0	4	0
Lane Group Flow (vph)	34	33	133	352	895	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9	8.9	53.9	41.0	
Effective Green, g (s)	7.9	7.9	8.9	53.9	41.0	
Actuated g/C Ratio	0.11	0.11	0.13	0.77	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	179	225	2732	2061	
v/s Ratio Prot	0.02		c0.08	0.10	c0.26	
v/s Ratio Perm		c0.02				
v/c Ratio	0.17	0.18	0.59	0.13	0.43	
Uniform Delay, d1	28.0	28.0	28.7	2.0	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	4.1	0.1	0.7	
Delay (s)	28.4	28.5	32.9	2.1	8.6	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.5			10.5	8.6	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	526	318	0	560	373
Future Volume (vph)	0	526	318	0	560	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	584	353	0	622	414
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	584	353	0	622	414
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		11.3	10.3		10.3	10.3
Effective Green, g (s)		11.3	10.3		10.3	10.3
Actuated g/C Ratio		0.39	0.36		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1383	1261		1223	993
v/s Ratio Prot		c0.17	0.10		c0.18	0.15
v/s Ratio Perm						
v/c Ratio		0.42	0.28		0.51	0.42
Uniform Delay, d1		6.4	6.6		7.3	7.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.0		0.1	0.1
Delay (s)		6.5	6.7		7.4	7.1
Level of Service		A	A		A	A
Approach Delay (s)		6.5	6.7		7.3	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	28.9	Sum of lost time (s)	8.3
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	147	1028	272	0	0	0
Future Volume (vph)	147	1028	272	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	169	1182	313	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	169	1182	313	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	5.1	28.0	15.3			
Effective Green, g (s)	5.1	28.0	15.3			
Actuated g/C Ratio	0.18	1.00	0.55			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	625	3539	1933			
v/s Ratio Prot	0.05	c0.33	0.09			
v/s Ratio Perm						
v/c Ratio	0.27	0.33	0.16			
Uniform Delay, d1	9.8	0.0	3.2			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.1	0.1	0.0			
Delay (s)	9.9	0.1	3.2			
Level of Service	A	A	A			
Approach Delay (s)		1.3	3.2		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	28.0	Sum of lost time (s)	7.6
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	139	588	334	110	115	193	47	109	454	285	189
Future Volume (vph)	1	139	588	334	110	115	193	47	109	454	285	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.92	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3132	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3132	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	143	606	344	113	119	199	48	112	468	294	195
RTOR Reduction (vph)	0	0	0	256	0	0	52	0	0	0	0	146
Lane Group Flow (vph)	0	144	606	88	113	242	72	0	0	580	294	49
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		8.6	21.3	21.3	10.6	22.7	22.7			20.8	20.8	20.8
Effective Green, g (s)		8.6	21.3	21.3	10.6	22.7	22.7			20.8	20.8	20.8
Actuated g/C Ratio		0.10	0.26	0.26	0.13	0.27	0.27			0.25	0.25	0.25
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		355	908	406	226	856	394			860	886	396
v/s Ratio Prot		0.04	c0.17		c0.06	0.08	0.05			c0.17	0.08	
v/s Ratio Perm				0.06								0.03
v/c Ratio		0.41	0.67	0.22	0.50	0.28	0.18			0.67	0.33	0.12
Uniform Delay, d1		34.8	27.7	24.3	33.7	23.7	23.1			28.0	25.4	24.1
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		0.3	1.4	0.1	0.6	0.1	0.1			1.7	0.1	0.1
Delay (s)		35.1	29.1	24.4	34.4	23.8	23.1			29.7	25.5	24.1
Level of Service		D	C	C	C	C	C			C	C	C
Approach Delay (s)			28.4			26.1					27.5	
Approach LOS			C			C					C	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	16.2
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	117	343	26	0
Future Volume (vph)	117	343	26	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3502		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3502		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	121	354	27	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	121	381	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	14.7	14.7		
Effective Green, g (s)	14.7	14.7		
Actuated g/C Ratio	0.18	0.18		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	313	620		
v/s Ratio Prot	0.07	c0.11		
v/s Ratio Perm				
v/c Ratio	0.39	0.61		
Uniform Delay, d1	30.2	31.5		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.3	1.3		
Delay (s)	30.5	32.8		
Level of Service	C	C		
Approach Delay (s)		32.2		
Approach LOS		C		

Intersection Summary

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	75	604	24	0	10	344	98	0	6	0	5
Future Vol, veh/h	0	75	604	24	0	10	344	98	0	6	0	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	82	657	26	0	11	374	107	0	7	0	5
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	16.2	12.4	9.8
HCM LOS	C	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	55%	20%	0%	5%	0%	68%
Vol Thru, %	0%	80%	93%	95%	64%	0%
Vol Right, %	45%	0%	7%	0%	36%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	377	326	182	270	103
LT Vol	6	75	0	10	0	70
Through Vol	0	302	302	172	172	0
RT Vol	5	0	24	0	98	33
Lane Flow Rate	12	410	354	198	293	112
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.022	0.64	0.539	0.323	0.456	0.198
Departure Headway (Hd)	6.603	5.625	5.473	5.88	5.595	6.37
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	542	643	659	611	646	564
Service Time	4.644	3.349	3.197	3.611	3.326	4.401
HCM Lane V/C Ratio	0.022	0.638	0.537	0.324	0.454	0.199
HCM Control Delay	9.8	17.8	14.4	11.4	13	11
HCM Lane LOS	A	C	B	B	B	B
HCM 95th-tile Q	0.1	4.6	3.2	1.4	2.4	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	70	0	33
Future Vol, veh/h	0	70	0	33
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	76	0	36
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	11
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	351	55	101	216	44	99	340	54	108	503	94
Future Volume (vph)	47	351	55	101	216	44	99	340	54	108	503	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3457			3484	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3457			3484	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	48	358	56	103	220	45	101	347	55	110	513	96
RTOR Reduction (vph)	0	11	0	0	0	36	0	0	41	0	0	72
Lane Group Flow (vph)	0	451	0	0	323	9	101	347	14	110	513	24
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		15.5			13.4	13.4	7.5	17.0	17.0	7.1	16.6	16.6
Effective Green, g (s)		15.5			13.4	13.4	7.5	17.0	17.0	7.1	16.6	16.6
Actuated g/C Ratio		0.23			0.20	0.20	0.11	0.25	0.25	0.11	0.25	0.25
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		799			696	316	198	1290	401	187	1259	392
v/s Ratio Prot		c0.13			c0.09		0.06	0.07		c0.06	c0.10	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.56			0.46	0.03	0.51	0.27	0.03	0.59	0.41	0.06
Uniform Delay, d1		22.8			23.6	21.6	28.0	20.0	18.8	28.6	21.1	19.2
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5			0.2	0.0	0.9	0.2	0.0	3.0	0.3	0.1
Delay (s)		23.3			23.8	21.6	28.9	20.2	18.9	31.6	21.4	19.3
Level of Service		C			C	C	C	C	B	C	C	B
Approach Delay (s)		23.3			23.5			21.8			22.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Future Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		3230		1770	1850		1770	1863	1583
Flt Permitted		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1777	1583		3230		1770	1850		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	3	410	3	0	2	146	260	12	2	543	188
RTOR Reduction (vph)	0	0	310	0	5	0	0	1	0	0	0	91
Lane Group Flow (vph)	0	103	100	0	0	0	146	271	0	2	543	97
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Effective Green, g (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Actuated g/C Ratio		0.11	0.24		0.05		0.13	0.63		0.01	0.51	0.51
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		201	384		169		229	1170		10	948	805
v/s Ratio Prot		c0.06	0.03		c0.00		c0.08	0.15		0.00	c0.29	
v/s Ratio Perm			0.03									0.06
v/c Ratio		0.51	0.26		0.00		0.64	0.23		0.20	0.57	0.12
Uniform Delay, d1		34.2	25.0		36.8		33.8	6.5		40.5	13.9	10.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.2	0.4		0.0		12.8	0.5		9.6	2.5	0.3
Delay (s)		36.4	25.4		36.8		46.6	6.9		50.1	16.4	10.8
Level of Service		D	C		D		D	A		D	B	B
Approach Delay (s)		27.6			36.8			20.8			15.1	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	706	0	176	666	0	0	0	0	248	0	141
Future Volume (vph)	0	706	0	176	666	0	0	0	0	248	0	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.98	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1590	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1590	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	767	0	191	724	0	0	0	0	270	0	153
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	767	0	191	724	0	0	0	0	146	145	132
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.2		7.4	25.6					9.1	9.1	9.1
Effective Green, g (s)		15.2		7.4	25.6					9.1	9.1	9.1
Actuated g/C Ratio		0.35		0.17	0.60					0.21	0.21	0.21
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1253		592	2111					356	337	319
v/s Ratio Prot		c0.22		0.06	c0.20					0.09	c0.09	0.09
v/s Ratio Perm												
v/c Ratio		0.61		0.32	0.34					0.41	0.43	0.41
Uniform Delay, d1		11.4		15.6	4.4					14.6	14.7	14.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6		0.1	0.0					0.3	0.3	0.3
Delay (s)		12.0		15.7	4.4					14.9	15.0	14.9
Level of Service		B		B	A					B	B	B
Approach Delay (s)		12.0			6.8			0.0			14.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	11.2
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	601	0	103	356	46	376	50	311	67	125	125
Future Volume (vph)	110	601	0	103	356	46	376	50	311	67	125	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3479		1681	1704	1583		1831	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3479		1681	1704	1583		1831	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	118	646	0	111	383	49	404	54	334	72	134	134
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	259	0	0	108
Lane Group Flow (vph)	118	646	0	111	423	0	226	232	75	0	206	26
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	8.3	20.2		8.0	20.4		16.7	16.7	16.7		14.3	14.3
Effective Green, g (s)	8.3	20.2		8.0	20.4		16.7	16.7	16.7		14.3	14.3
Actuated g/C Ratio	0.11	0.27		0.11	0.27		0.22	0.22	0.22		0.19	0.19
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	196	956		189	950		375	380	353		350	303
v/s Ratio Prot	c0.07	c0.18		0.06	0.12		0.13	c0.14	0.05		c0.11	0.02
v/s Ratio Perm												
v/c Ratio	0.60	0.68		0.59	0.45		0.60	0.61	0.21		0.59	0.08
Uniform Delay, d1	31.6	24.3		31.8	22.5		26.0	26.1	23.6		27.5	24.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.5	1.5		3.0	0.1		1.9	2.0	0.1		1.6	0.0
Delay (s)	35.2	25.8		34.8	22.6		27.9	28.1	23.7		29.2	24.9
Level of Service	D	C		C	C		C	C	C		C	C
Approach Delay (s)		27.3			25.1			26.2			27.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	74.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	239	588	101	147	250	379	113	407	174	245	638	121
Future Volume (vph)	239	588	101	147	250	379	113	407	174	245	638	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	254	626	107	156	266	403	120	433	185	261	679	129
RTOR Reduction (vph)	0	0	80	0	0	0	0	0	139	0	0	73
Lane Group Flow (vph)	229	651	27	0	422	403	120	433	46	261	679	56
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	27.8	27.8	27.8		19.1	111.9	12.5	27.7	27.7	21.3	36.5	36.5
Effective Green, g (s)	27.8	27.8	27.8		19.1	111.9	12.5	27.7	27.7	21.3	36.5	36.5
Actuated g/C Ratio	0.25	0.25	0.25		0.17	1.00	0.11	0.25	0.25	0.19	0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	399	840	393		593	1583	197	876	391	336	1154	516
v/s Ratio Prot	0.14	c0.19			c0.12		0.07	0.12		c0.15	c0.19	
v/s Ratio Perm			0.02			0.25			0.03			0.04
v/c Ratio	0.57	0.78	0.07		0.71	0.25	0.61	0.49	0.12	0.78	0.59	0.11
Uniform Delay, d1	36.9	39.1	32.1		43.8	0.0	47.4	36.1	32.6	43.0	31.4	26.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	4.5	0.1		4.0	0.4	5.3	2.0	0.6	10.7	2.2	0.4
Delay (s)	38.9	43.6	32.2		47.8	0.4	52.6	38.1	33.2	53.8	33.6	26.8
Level of Service	D	D	C		D	A	D	D	C	D	C	C
Approach Delay (s)		41.3			24.7			39.2			37.7	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	111.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	267	122	326	783	46
Future Volume (vph)	31	267	122	326	783	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3510	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	290	133	354	851	50
RTOR Reduction (vph)	0	257	0	0	4	0
Lane Group Flow (vph)	34	33	133	354	897	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9	8.9	53.9	41.0	
Effective Green, g (s)	7.9	7.9	8.9	53.9	41.0	
Actuated g/C Ratio	0.11	0.11	0.13	0.77	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	179	225	2732	2061	
v/s Ratio Prot	0.02		c0.08	0.10	c0.26	
v/s Ratio Perm		c0.02				
v/c Ratio	0.17	0.18	0.59	0.13	0.44	
Uniform Delay, d1	28.0	28.0	28.7	2.0	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	4.1	0.1	0.7	
Delay (s)	28.4	28.5	32.9	2.1	8.7	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.5			10.5	8.7	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	526	318	0	559	373
Future Volume (vph)	0	526	318	0	559	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	584	353	0	621	414
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	584	353	0	621	414
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		11.2	10.2		10.3	10.3
Effective Green, g (s)		11.2	10.2		10.3	10.3
Actuated g/C Ratio		0.39	0.35		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1376	1253		1227	996
v/s Ratio Prot		c0.17	0.10		c0.18	0.15
v/s Ratio Perm						
v/c Ratio		0.42	0.28		0.51	0.42
Uniform Delay, d1		6.4	6.7		7.3	7.0
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.0		0.1	0.1
Delay (s)		6.5	6.7		7.4	7.1
Level of Service		A	A		A	A
Approach Delay (s)		6.5	6.7		7.3	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	28.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	147	1027	272	0	0	0
Future Volume (vph)	147	1027	272	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	169	1180	313	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	169	1180	313	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	5.1	28.0	15.3			
Effective Green, g (s)	5.1	28.0	15.3			
Actuated g/C Ratio	0.18	1.00	0.55			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	625	3539	1933			
v/s Ratio Prot	0.05	c0.33	0.09			
v/s Ratio Perm						
v/c Ratio	0.27	0.33	0.16			
Uniform Delay, d1	9.8	0.0	3.2			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.1	0.1	0.0			
Delay (s)	9.9	0.1	3.2			
Level of Service	A	A	A			
Approach Delay (s)		1.3	3.2		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	28.0	Sum of lost time (s)	7.6
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	139	587	334	109	115	192	47	109	454	285	188
Future Volume (vph)	1	139	587	334	109	115	192	47	109	454	285	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.92	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3132	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3132	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	143	605	344	112	119	198	48	112	468	294	194
RTOR Reduction (vph)	0	0	0	256	0	0	52	0	0	0	0	145
Lane Group Flow (vph)	0	144	605	88	112	242	71	0	0	580	294	49
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		8.6	21.2	21.2	10.6	22.6	22.6			20.8	20.8	20.8
Effective Green, g (s)		8.6	21.2	21.2	10.6	22.6	22.6			20.8	20.8	20.8
Actuated g/C Ratio		0.10	0.26	0.26	0.13	0.27	0.27			0.25	0.25	0.25
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		356	905	404	226	853	392			861	887	397
v/s Ratio Prot		0.04	c0.17		c0.06	0.08	0.05			c0.17	0.08	
v/s Ratio Perm				0.06								0.03
v/c Ratio		0.40	0.67	0.22	0.50	0.28	0.18			0.67	0.33	0.12
Uniform Delay, d1		34.8	27.7	24.3	33.7	23.8	23.1			28.0	25.4	24.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		0.3	1.5	0.1	0.6	0.1	0.1			1.6	0.1	0.1
Delay (s)		35.0	29.2	24.4	34.3	23.8	23.1			29.6	25.4	24.0
Level of Service		D	C	C	C	C	C			C	C	C
Approach Delay (s)			28.4			26.1					27.5	
Approach LOS			C			C					C	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	16.2
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	117	343	26	0
Future Volume (vph)	117	343	26	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3502		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3502		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	121	354	27	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	121	381	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	14.7	14.7		
Effective Green, g (s)	14.7	14.7		
Actuated g/C Ratio	0.18	0.18		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	313	620		
v/s Ratio Prot	0.07	c0.11		
v/s Ratio Perm				
v/c Ratio	0.39	0.61		
Uniform Delay, d1	30.1	31.5		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.3	1.3		
Delay (s)	30.4	32.8		
Level of Service	C	C		
Approach Delay (s)		32.2		
Approach LOS		C		

Intersection Summary

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	75	602	24	0	10	342	98	0	6	0	5
Future Vol, veh/h	0	75	602	24	0	10	342	98	0	6	0	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	82	654	26	0	11	372	107	0	7	0	5
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	16.2	12.3	9.8
HCM LOS	C	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	55%	20%	0%	6%	0%	68%
Vol Thru, %	0%	80%	93%	94%	64%	0%
Vol Right, %	45%	0%	7%	0%	36%	32%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	376	325	181	269	103
LT Vol	6	75	0	10	0	70
Through Vol	0	301	301	171	171	0
RT Vol	5	0	24	0	98	33
Lane Flow Rate	12	409	353	197	292	112
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.022	0.638	0.537	0.321	0.454	0.198
Departure Headway (Hd)	6.597	5.623	5.47	5.876	5.59	6.364
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	543	646	661	612	646	564
Service Time	4.637	3.346	3.193	3.607	3.322	4.395
HCM Lane V/C Ratio	0.022	0.633	0.534	0.322	0.452	0.199
HCM Control Delay	9.8	17.8	14.4	11.4	12.9	11
HCM Lane LOS	A	C	B	B	B	B
HCM 95th-tile Q	0.1	4.6	3.2	1.4	2.4	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	70	0	33
Future Vol, veh/h	0	70	0	33
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	76	0	36
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	11
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	349	55	100	214	43	99	340	53	107	503	94
Future Volume (vph)	47	349	55	100	214	43	99	340	53	107	503	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3457			3484	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3457			3484	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	48	356	56	102	218	44	101	347	54	109	513	96
RTOR Reduction (vph)	0	11	0	0	0	35	0	0	40	0	0	72
Lane Group Flow (vph)	0	449	0	0	320	9	101	347	14	109	513	24
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		15.5			13.3	13.3	7.5	17.1	17.1	7.0	16.6	16.6
Effective Green, g (s)		15.5			13.3	13.3	7.5	17.1	17.1	7.0	16.6	16.6
Actuated g/C Ratio		0.23			0.20	0.20	0.11	0.26	0.26	0.10	0.25	0.25
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		800			692	314	198	1299	404	185	1261	392
v/s Ratio Prot		c0.13			c0.09		0.06	0.07		c0.06	c0.10	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.56			0.46	0.03	0.51	0.27	0.03	0.59	0.41	0.06
Uniform Delay, d1		22.7			23.6	21.6	28.0	19.9	18.7	28.6	21.0	19.2
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5			0.2	0.0	0.9	0.2	0.0	3.1	0.3	0.1
Delay (s)		23.2			23.8	21.6	28.9	20.0	18.7	31.7	21.3	19.3
Level of Service		C			C	C	C	C	B	C	C	B
Approach Delay (s)		23.2			23.6			21.7			22.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	66.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Future Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		3230		1770	1850		1770	1863	1583
Flt Permitted		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1777	1583		3230		1770	1850		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	3	410	3	0	2	146	260	12	2	543	188
RTOR Reduction (vph)	0	0	310	0	5	0	0	1	0	0	0	91
Lane Group Flow (vph)	0	103	100	0	0	0	146	271	0	2	543	97
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Effective Green, g (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Actuated g/C Ratio		0.11	0.24		0.05		0.13	0.63		0.01	0.51	0.51
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		201	384		169		229	1170		10	948	805
v/s Ratio Prot		c0.06	0.03		c0.00		c0.08	0.15		0.00	c0.29	
v/s Ratio Perm			0.03									0.06
v/c Ratio		0.51	0.26		0.00		0.64	0.23		0.20	0.57	0.12
Uniform Delay, d1		34.2	25.0		36.8		33.8	6.5		40.5	13.9	10.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.2	0.4		0.0		12.8	0.5		9.6	2.5	0.3
Delay (s)		36.4	25.4		36.8		46.6	6.9		50.1	16.4	10.8
Level of Service		D	C		D		D	A		D	B	B
Approach Delay (s)		27.6			36.8			20.8			15.1	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	706	0	175	666	0	0	0	0	248	0	141
Future Volume (vph)	0	706	0	175	666	0	0	0	0	248	0	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.98	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1590	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1590	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	767	0	190	724	0	0	0	0	270	0	153
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	767	0	190	724	0	0	0	0	146	145	132
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.2		7.4	25.6					9.1	9.1	9.1
Effective Green, g (s)		15.2		7.4	25.6					9.1	9.1	9.1
Actuated g/C Ratio		0.35		0.17	0.60					0.21	0.21	0.21
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1253		592	2111					356	337	319
v/s Ratio Prot		c0.22		0.06	c0.20					0.09	c0.09	0.09
v/s Ratio Perm												
v/c Ratio		0.61		0.32	0.34					0.41	0.43	0.41
Uniform Delay, d1		11.4		15.5	4.4					14.6	14.7	14.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6		0.1	0.0					0.3	0.3	0.3
Delay (s)		12.0		15.7	4.4					14.9	15.0	14.9
Level of Service		B		B	A					B	B	B
Approach Delay (s)		12.0			6.8			0.0			14.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	42.9	Sum of lost time (s)	11.2
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	601	0	103	355	46	376	50	310	67	125	125
Future Volume (vph)	110	601	0	103	355	46	376	50	310	67	125	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3479		1681	1704	1583		1831	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3479		1681	1704	1583		1831	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	118	646	0	111	382	49	404	54	333	72	134	134
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	259	0	0	108
Lane Group Flow (vph)	118	646	0	111	422	0	226	232	74	0	206	26
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	8.3	20.2		8.0	20.4		16.7	16.7	16.7		14.3	14.3
Effective Green, g (s)	8.3	20.2		8.0	20.4		16.7	16.7	16.7		14.3	14.3
Actuated g/C Ratio	0.11	0.27		0.11	0.27		0.22	0.22	0.22		0.19	0.19
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	196	956		189	950		375	380	353		350	303
v/s Ratio Prot	c0.07	c0.18		0.06	0.12		0.13	c0.14	0.05		c0.11	0.02
v/s Ratio Perm												
v/c Ratio	0.60	0.68		0.59	0.44		0.60	0.61	0.21		0.59	0.08
Uniform Delay, d1	31.6	24.3		31.8	22.5		26.0	26.1	23.6		27.5	24.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.5	1.5		3.0	0.1		1.9	2.0	0.1		1.6	0.0
Delay (s)	35.2	25.8		34.8	22.6		27.9	28.1	23.7		29.2	24.9
Level of Service	D	C		C	C		C	C	C		C	C
Approach Delay (s)		27.3			25.1			26.2			27.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	74.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	238	588	101	147	250	379	113	407	174	245	638	120
Future Volume (vph)	238	588	101	147	250	379	113	407	174	245	638	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3475	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	253	626	107	156	266	403	120	433	185	261	679	128
RTOR Reduction (vph)	0	0	80	0	0	0	0	0	139	0	0	72
Lane Group Flow (vph)	228	651	27	0	422	403	120	433	46	261	679	56
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	27.8	27.8	27.8		19.1	111.9	12.5	27.7	27.7	21.3	36.5	36.5
Effective Green, g (s)	27.8	27.8	27.8		19.1	111.9	12.5	27.7	27.7	21.3	36.5	36.5
Actuated g/C Ratio	0.25	0.25	0.25		0.17	1.00	0.11	0.25	0.25	0.19	0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	399	840	393		593	1583	197	876	391	336	1154	516
v/s Ratio Prot	0.14	c0.19			c0.12		0.07	0.12		c0.15	c0.19	
v/s Ratio Perm			0.02			0.25			0.03			0.04
v/c Ratio	0.57	0.78	0.07		0.71	0.25	0.61	0.49	0.12	0.78	0.59	0.11
Uniform Delay, d1	36.8	39.1	32.1		43.8	0.0	47.4	36.1	32.6	43.0	31.4	26.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	4.5	0.1		4.0	0.4	5.3	2.0	0.6	10.7	2.2	0.4
Delay (s)	38.8	43.6	32.2		47.8	0.4	52.6	38.1	33.2	53.8	33.6	26.8
Level of Service	D	D	C		D	A	D	D	C	D	C	C
Approach Delay (s)		41.3			24.7			39.2			37.7	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	111.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	267	122	326	783	46
Future Volume (vph)	31	267	122	326	783	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3510	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	290	133	354	851	50
RTOR Reduction (vph)	0	257	0	0	4	0
Lane Group Flow (vph)	34	33	133	354	897	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9	8.9	53.9	41.0	
Effective Green, g (s)	7.9	7.9	8.9	53.9	41.0	
Actuated g/C Ratio	0.11	0.11	0.13	0.77	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	179	225	2732	2061	
v/s Ratio Prot	0.02		c0.08	0.10	c0.26	
v/s Ratio Perm		c0.02				
v/c Ratio	0.17	0.18	0.59	0.13	0.44	
Uniform Delay, d1	28.0	28.0	28.7	2.0	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	4.1	0.1	0.7	
Delay (s)	28.4	28.5	32.9	2.1	8.7	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.5			10.5	8.7	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	808	342	0	573	372
Future Volume (vph)	0	808	342	0	573	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	878	372	0	623	404
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	878	372	0	623	404
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		15.5	14.5		11.8	11.8
Effective Green, g (s)		15.5	14.5		11.8	11.8
Actuated g/C Ratio		0.45	0.42		0.34	0.34
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1585	1483		1170	950
v/s Ratio Prot		c0.25	0.11		c0.18	0.14
v/s Ratio Perm						
v/c Ratio		0.55	0.25		0.53	0.43
Uniform Delay, d1		7.0	6.5		9.2	8.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.2	0.0		0.2	0.1
Delay (s)		7.3	6.6		9.4	8.9
Level of Service		A	A		A	A
Approach Delay (s)		7.3	6.6		9.2	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	34.6	Sum of lost time (s)	8.3
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	208	1236	309	0	0	0
Future Volume (vph)	208	1236	309	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	1343	336	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	226	1343	336	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	6.5	27.8	13.7			
Effective Green, g (s)	6.5	27.8	13.7			
Actuated g/C Ratio	0.23	1.00	0.49			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	802	3539	1744			
v/s Ratio Prot	0.07	c0.38	0.09			
v/s Ratio Perm						
v/c Ratio	0.28	0.38	0.19			
Uniform Delay, d1	8.7	0.0	4.0			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.1	0.1	0.0			
Delay (s)	8.8	0.1	4.0			
Level of Service	A	A	A			
Approach Delay (s)		1.3	4.0		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	27.8	Sum of lost time (s)	7.6
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	139	695	433	166	116	188	61	110	468	449	390
Future Volume (vph)	1	139	695	433	166	116	188	61	110	468	449	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.92	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3128	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3128	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	143	716	446	171	120	194	63	113	482	463	402
RTOR Reduction (vph)	0	0	0	327	0	0	49	0	0	0	0	226
Lane Group Flow (vph)	0	144	716	119	171	248	80	0	0	595	463	176
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		9.2	28.1	28.1	14.6	32.9	32.9			24.5	24.5	24.5
Effective Green, g (s)		9.2	28.1	28.1	14.6	32.9	32.9			24.5	24.5	24.5
Actuated g/C Ratio		0.09	0.27	0.27	0.14	0.31	0.31			0.23	0.23	0.23
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		300	946	423	245	979	451			800	824	369
v/s Ratio Prot		0.04	c0.20		c0.10	0.08	0.06			c0.17	0.13	
v/s Ratio Perm				0.08								0.11
v/c Ratio		0.48	0.76	0.28	0.70	0.25	0.18			0.74	0.56	0.48
Uniform Delay, d1		45.7	35.4	30.5	43.1	26.9	26.2			37.4	35.6	34.8
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		0.4	3.1	0.1	6.8	0.0	0.1			3.3	0.5	0.4
Delay (s)		46.1	38.5	30.6	50.0	27.0	26.3			40.7	36.1	35.1
Level of Service		D	D	C	D	C	C			D	D	D
Approach Delay (s)			36.6			34.0					37.7	
Approach LOS			D			C					D	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	105.1	Sum of lost time (s)	16.2
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	170	551	27	0
Future Volume (vph)	170	551	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3514		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3514		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	175	568	28	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	175	596	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	22.3	22.3		
Effective Green, g (s)	22.3	22.3		
Actuated g/C Ratio	0.21	0.21		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	375	745		
v/s Ratio Prot	0.10	c0.17		
v/s Ratio Perm				
v/c Ratio	0.47	0.80		
Uniform Delay, d1	36.2	39.3		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.3	5.8		
Delay (s)	36.5	45.1		
Level of Service	D	D		
Approach Delay (s)		43.2		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	36.1
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	141	878	45	0	12	407	117	0	7	0	8
Future Vol, veh/h	0	141	878	45	0	12	407	117	0	7	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	153	954	49	0	13	442	127	0	8	0	9
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	49.2	16.9	10.4
HCM LOS	E	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	47%	24%	0%	6%	0%	72%
Vol Thru, %	0%	76%	91%	94%	63%	0%
Vol Right, %	53%	0%	9%	0%	37%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	580	484	216	321	140
LT Vol	7	141	0	12	0	101
Through Vol	0	439	439	204	204	0
RT Vol	8	0	45	0	117	39
Lane Flow Rate	16	630	526	234	348	152
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.032	1	0.863	0.431	0.613	0.286
Departure Headway (Hd)	7.169	6.096	5.907	6.622	6.339	6.758
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	599	616	546	571	531
Service Time	5.187	3.814	3.625	4.347	4.063	4.804
HCM Lane V/C Ratio	0.032	1.052	0.854	0.429	0.609	0.286
HCM Control Delay	10.4	61.3	34.8	14.3	18.6	12.5
HCM Lane LOS	B	F	D	B	C	B
HCM 95th-tile Q	0.1	14.9	9.8	2.2	4.1	1.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	101	0	39
Future Vol, veh/h	0	101	0	39
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	110	0	42
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	12.5
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	359	106	100	213	86	99	596	53	114	722	177
Future Volume (vph)	296	359	106	100	213	86	99	596	53	114	722	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3399			3484	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.98			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3399			3484	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	302	366	108	102	217	88	101	608	54	116	737	181
RTOR Reduction (vph)	0	12	0	0	0	73	0	0	40	0	0	134
Lane Group Flow (vph)	0	764	0	0	319	15	101	608	14	116	737	47
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		24.7			14.2	14.2	7.9	22.0	22.0	7.4	21.5	21.5
Effective Green, g (s)		24.7			14.2	14.2	7.9	22.0	22.0	7.4	21.5	21.5
Actuated g/C Ratio		0.30			0.17	0.17	0.10	0.27	0.27	0.09	0.26	0.26
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		1020			601	273	169	1359	423	159	1328	413
v/s Ratio Prot		c0.22			c0.09		0.06	0.12		c0.07	c0.14	
v/s Ratio Perm						0.01			0.01			0.03
v/c Ratio		0.75			0.53	0.06	0.60	0.45	0.03	0.73	0.55	0.11
Uniform Delay, d1		26.0			31.0	28.4	35.7	25.1	22.3	36.5	26.3	23.2
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		2.7			0.5	0.0	3.8	0.3	0.0	13.2	0.6	0.2
Delay (s)		28.7			31.5	28.5	39.4	25.4	22.3	49.7	26.9	23.3
Level of Service		C			C	C	D	C	C	D	C	C
Approach Delay (s)		28.7			30.8			27.1			28.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Future Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		3230		1770	1850		1770	1863	1583
Flt Permitted		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1777	1583		3230		1770	1850		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	3	410	3	0	2	146	260	12	2	543	188
RTOR Reduction (vph)	0	0	310	0	5	0	0	1	0	0	0	91
Lane Group Flow (vph)	0	103	100	0	0	0	146	271	0	2	543	97
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Effective Green, g (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Actuated g/C Ratio		0.11	0.24		0.05		0.13	0.63		0.01	0.51	0.51
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		201	384		169		229	1170		10	948	805
v/s Ratio Prot		c0.06	0.03		c0.00		c0.08	0.15		0.00	c0.29	
v/s Ratio Perm			0.03									0.06
v/c Ratio		0.51	0.26		0.00		0.64	0.23		0.20	0.57	0.12
Uniform Delay, d1		34.2	25.0		36.8		33.8	6.5		40.5	13.9	10.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.2	0.4		0.0		12.8	0.5		9.6	2.5	0.3
Delay (s)		36.4	25.4		36.8		46.6	6.9		50.1	16.4	10.8
Level of Service		D	C		D		D	A		D	B	B
Approach Delay (s)		27.6			36.8			20.8			15.1	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	707	0	181	810	0	0	0	0	248	0	194
Future Volume (vph)	0	707	0	181	810	0	0	0	0	248	0	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.94	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1552	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1552	1504
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	760	0	195	871	0	0	0	0	267	0	209
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	760	0	195	871	0	0	0	0	166	160	150
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.3		7.6	25.9					10.1	10.1	10.1
Effective Green, g (s)		15.3		7.6	25.9					10.1	10.1	10.1
Actuated g/C Ratio		0.35		0.17	0.59					0.23	0.23	0.23
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1225		590	2073					384	354	343
v/s Ratio Prot		c0.21		0.06	c0.25					0.10	c0.10	0.10
v/s Ratio Perm												
v/c Ratio		0.62		0.33	0.42					0.43	0.45	0.44
Uniform Delay, d1		12.0		16.1	5.0					14.6	14.7	14.6
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.7		0.1	0.1					0.3	0.3	0.3
Delay (s)		12.7		16.2	5.1					14.9	15.0	14.9
Level of Service		B		B	A					B	B	B
Approach Delay (s)		12.7			7.1			0.0			14.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	11.2
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	601	0	103	387	46	479	53	365	67	125	125
Future Volume (vph)	110	601	0	103	387	46	479	53	365	67	125	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3483		1681	1701	1583		1831	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3483		1681	1701	1583		1831	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	118	646	0	111	416	49	515	57	392	72	134	134
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	294	0	0	110
Lane Group Flow (vph)	118	646	0	111	457	0	283	289	98	0	206	24
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	10.5	22.6		8.3	20.9		20.2	20.2	20.2		14.4	14.4
Effective Green, g (s)	10.5	22.6		8.3	20.9		20.2	20.2	20.2		14.4	14.4
Actuated g/C Ratio	0.13	0.28		0.10	0.26		0.25	0.25	0.25		0.18	0.18
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	229	987		181	898		419	424	394		325	281
v/s Ratio Prot	0.07	c0.18		c0.06	0.13		0.17	c0.17	0.06		c0.11	0.02
v/s Ratio Perm												
v/c Ratio	0.52	0.65		0.61	0.51		0.68	0.68	0.25		0.63	0.08
Uniform Delay, d1	32.9	25.8		34.8	25.7		27.4	27.5	24.3		30.9	27.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	1.2		4.3	0.2		3.4	3.6	0.1		3.0	0.0
Delay (s)	33.7	27.0		39.1	25.8		30.8	31.1	24.4		33.8	27.8
Level of Service	C	C		D	C		C	C	C		C	C
Approach Delay (s)		28.0			28.4			28.3			31.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	623	107	147	267	555	120	598	174	345	894	128
Future Volume (vph)	252	623	107	147	267	555	120	598	174	345	894	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3478	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3478	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	268	663	114	156	284	590	128	636	185	367	951	136
RTOR Reduction (vph)	0	0	85	0	0	0	0	0	124	0	0	55
Lane Group Flow (vph)	241	690	29	0	440	590	128	636	61	367	951	81
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	29.3	29.3	29.3		20.0	116.3	13.0	24.2	24.2	26.8	38.0	38.0
Effective Green, g (s)	29.3	29.3	29.3		20.0	116.3	13.0	24.2	24.2	26.8	38.0	38.0
Actuated g/C Ratio	0.25	0.25	0.25		0.17	1.00	0.11	0.21	0.21	0.23	0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	405	852	398		598	1583	197	736	329	407	1156	517
v/s Ratio Prot	0.15	c0.20			c0.13		0.07	0.18		c0.21	c0.27	
v/s Ratio Perm			0.02			0.37			0.04			0.05
v/c Ratio	0.60	0.81	0.07		0.74	0.37	0.65	0.86	0.18	0.90	0.82	0.16
Uniform Delay, d1	38.3	40.9	33.2		45.6	0.0	49.5	44.5	37.9	43.5	36.0	27.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	5.7	0.1		4.7	0.7	7.2	12.9	1.2	22.6	6.7	0.7
Delay (s)	40.6	46.6	33.2		50.3	0.7	56.7	57.3	39.2	66.0	42.7	28.4
Level of Service	D	D	C		D	A	E	E	D	E	D	C
Approach Delay (s)		43.8			21.9			53.7			47.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	116.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	267	122	344	791	46
Future Volume (vph)	31	267	122	344	791	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3510	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	290	133	374	860	50
RTOR Reduction (vph)	0	257	0	0	4	0
Lane Group Flow (vph)	34	33	133	374	906	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9	8.9	53.9	41.0	
Effective Green, g (s)	7.9	7.9	8.9	53.9	41.0	
Actuated g/C Ratio	0.11	0.11	0.13	0.77	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	179	225	2732	2061	
v/s Ratio Prot	0.02		c0.08	0.11	c0.26	
v/s Ratio Perm		c0.02				
v/c Ratio	0.17	0.18	0.59	0.14	0.44	
Uniform Delay, d1	28.0	28.0	28.7	2.0	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	4.1	0.1	0.7	
Delay (s)	28.4	28.5	32.9	2.1	8.7	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.5			10.2	8.7	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	808	342	0	574	372
Future Volume (vph)	0	808	342	0	574	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	878	372	0	624	404
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	878	372	0	624	404
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		15.5	14.5		11.9	11.9
Effective Green, g (s)		15.5	14.5		11.9	11.9
Actuated g/C Ratio		0.45	0.42		0.34	0.34
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1580	1478		1177	955
v/s Ratio Prot		c0.25	0.11		c0.18	0.14
v/s Ratio Perm						
v/c Ratio		0.56	0.25		0.53	0.42
Uniform Delay, d1		7.1	6.6		9.2	8.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.2	0.0		0.2	0.1
Delay (s)		7.3	6.6		9.4	8.9
Level of Service		A	A		A	A
Approach Delay (s)		7.3	6.6		9.2	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	34.7	Sum of lost time (s)	8.3
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	208	1237	309	0	0	0
Future Volume (vph)	208	1237	309	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	1345	336	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	226	1345	336	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	6.5	27.8	13.7			
Effective Green, g (s)	6.5	27.8	13.7			
Actuated g/C Ratio	0.23	1.00	0.49			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	802	3539	1744			
v/s Ratio Prot	0.07	c0.38	0.09			
v/s Ratio Perm						
v/c Ratio	0.28	0.38	0.19			
Uniform Delay, d1	8.7	0.0	4.0			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.1	0.1	0.0			
Delay (s)	8.8	0.1	4.0			
Level of Service	A	A	A			
Approach Delay (s)		1.3	4.0		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	1.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	27.8	Sum of lost time (s)	7.6
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	139	696	433	167	116	189	61	110	468	449	391
Future Volume (vph)	1	139	696	433	167	116	189	61	110	468	449	391
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.92	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3127	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3127	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	143	718	446	172	120	195	63	113	482	463	403
RTOR Reduction (vph)	0	0	0	327	0	0	49	0	0	0	0	227
Lane Group Flow (vph)	0	144	718	119	172	249	80	0	0	595	463	176
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		9.2	28.2	28.2	14.7	33.1	33.1			24.5	24.5	24.5
Effective Green, g (s)		9.2	28.2	28.2	14.7	33.1	33.1			24.5	24.5	24.5
Actuated g/C Ratio		0.09	0.27	0.27	0.14	0.31	0.31			0.23	0.23	0.23
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		299	947	423	247	982	452			798	823	368
v/s Ratio Prot		0.04	c0.20		c0.10	0.08	0.06			c0.17	0.13	
v/s Ratio Perm				0.08								0.11
v/c Ratio		0.48	0.76	0.28	0.70	0.25	0.18			0.75	0.56	0.48
Uniform Delay, d1		45.8	35.4	30.5	43.2	26.9	26.2			37.5	35.7	34.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		0.4	3.1	0.1	6.7	0.0	0.1			3.3	0.5	0.4
Delay (s)		46.2	38.5	30.7	49.9	26.9	26.3			40.8	36.2	35.2
Level of Service		D	D	C	D	C	C			D	D	D
Approach Delay (s)			36.7			34.0					37.8	
Approach LOS			D			C					D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	16.2
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	170	551	27	0
Future Volume (vph)	170	551	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3514		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3514		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	175	568	28	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	175	596	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	22.3	22.3		
Effective Green, g (s)	22.3	22.3		
Actuated g/C Ratio	0.21	0.21		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	374	744		
v/s Ratio Prot	0.10	c0.17		
v/s Ratio Perm				
v/c Ratio	0.47	0.80		
Uniform Delay, d1	36.3	39.4		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.3	5.9		
Delay (s)	36.6	45.2		
Level of Service	D	D		
Approach Delay (s)		43.3		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	36.2
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	141	880	45	0	12	409	117	0	7	0	8
Future Vol, veh/h	0	141	880	45	0	12	409	117	0	7	0	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	153	957	49	0	13	445	127	0	8	0	9
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	49.4	16.9	10.4
HCM LOS	E	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	47%	24%	0%	6%	0%	72%
Vol Thru, %	0%	76%	91%	94%	64%	0%
Vol Right, %	53%	0%	9%	0%	36%	28%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	581	485	217	322	140
LT Vol	7	141	0	12	0	101
Through Vol	0	440	440	205	205	0
RT Vol	8	0	45	0	117	39
Lane Flow Rate	16	632	527	235	349	152
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.032	1	0.865	0.433	0.616	0.286
Departure Headway (Hd)	7.172	6.099	5.91	6.623	6.341	6.762
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	600	617	546	570	531
Service Time	5.191	3.818	3.629	4.348	4.066	4.807
HCM Lane V/C Ratio	0.032	1.053	0.854	0.43	0.612	0.286
HCM Control Delay	10.4	61.3	35.1	14.3	18.7	12.5
HCM Lane LOS	B	F	E	B	C	B
HCM 95th-tile Q	0.1	14.9	9.8	2.2	4.2	1.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	101	0	39
Future Vol, veh/h	0	101	0	39
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	110	0	42
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	12.5
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	361	106	101	215	87	99	596	54	115	722	177
Future Volume (vph)	296	361	106	101	215	87	99	596	54	115	722	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.98			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3400			3484	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.98			0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3400			3484	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	302	368	108	103	219	89	101	608	55	117	737	181
RTOR Reduction (vph)	0	12	0	0	0	74	0	0	40	0	0	134
Lane Group Flow (vph)	0	766	0	0	322	15	101	608	15	117	737	47
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		24.7			14.2	14.2	7.9	21.9	21.9	7.5	21.5	21.5
Effective Green, g (s)		24.7			14.2	14.2	7.9	21.9	21.9	7.5	21.5	21.5
Actuated g/C Ratio		0.30			0.17	0.17	0.10	0.27	0.27	0.09	0.26	0.26
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		1020			601	273	169	1353	421	161	1328	413
v/s Ratio Prot		c0.23			c0.09		0.06	0.12		c0.07	c0.14	
v/s Ratio Perm						0.01			0.01			0.03
v/c Ratio		0.75			0.54	0.06	0.60	0.45	0.03	0.73	0.55	0.11
Uniform Delay, d1		26.0			31.0	28.5	35.7	25.2	22.4	36.4	26.3	23.2
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		2.8			0.5	0.0	3.8	0.3	0.0	12.9	0.6	0.2
Delay (s)		28.8			31.5	28.5	39.4	25.5	22.4	49.3	26.9	23.3
Level of Service		C			C	C	D	C	C	D	C	C
Approach Delay (s)		28.8			30.9			27.1			28.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Future Volume (vph)	92	3	377	3	0	2	134	239	11	2	500	173
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1777	1583		3230		1770	1850		1770	1863	1583
Flt Permitted		0.95	1.00		0.97		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1777	1583		3230		1770	1850		1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	3	410	3	0	2	146	260	12	2	543	188
RTOR Reduction (vph)	0	0	310	0	5	0	0	1	0	0	0	91
Lane Group Flow (vph)	0	103	100	0	0	0	146	271	0	2	543	97
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Effective Green, g (s)		9.3	19.9		4.3		10.6	51.8		0.5	41.7	41.7
Actuated g/C Ratio		0.11	0.24		0.05		0.13	0.63		0.01	0.51	0.51
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		201	384		169		229	1170		10	948	805
v/s Ratio Prot		c0.06	0.03		c0.00		c0.08	0.15		0.00	c0.29	
v/s Ratio Perm			0.03									0.06
v/c Ratio		0.51	0.26		0.00		0.64	0.23		0.20	0.57	0.12
Uniform Delay, d1		34.2	25.0		36.8		33.8	6.5		40.5	13.9	10.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		2.2	0.4		0.0		12.8	0.5		9.6	2.5	0.3
Delay (s)		36.4	25.4		36.8		46.6	6.9		50.1	16.4	10.8
Level of Service		D	C		D		D	A		D	B	B
Approach Delay (s)		27.6			36.8			20.8			15.1	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	81.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	707	0	182	810	0	0	0	0	248	0	194
Future Volume (vph)	0	707	0	182	810	0	0	0	0	248	0	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.94	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1552	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1552	1504
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	760	0	196	871	0	0	0	0	267	0	209
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	760	0	196	871	0	0	0	0	166	160	150
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.4		7.6	26.0					10.1	10.1	10.1
Effective Green, g (s)		15.4		7.6	26.0					10.1	10.1	10.1
Actuated g/C Ratio		0.35		0.17	0.59					0.23	0.23	0.23
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1230		588	2077					383	353	342
v/s Ratio Prot		c0.21		0.06	c0.25					0.10	c0.10	0.10
v/s Ratio Perm												
v/c Ratio		0.62		0.33	0.42					0.43	0.45	0.44
Uniform Delay, d1		12.0		16.1	5.0					14.6	14.7	14.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.7		0.1	0.1					0.3	0.3	0.3
Delay (s)		12.7		16.2	5.1					14.9	15.1	15.0
Level of Service		B		B	A					B	B	B
Approach Delay (s)		12.7			7.1			0.0			15.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	44.3	Sum of lost time (s)	11.2
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	601	0	103	388	46	479	53	366	67	125	125
Future Volume (vph)	110	601	0	103	388	46	479	53	366	67	125	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.98		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3483		1681	1701	1583		1831	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3483		1681	1701	1583		1831	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	118	646	0	111	417	49	515	57	394	72	134	134
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	296	0	0	110
Lane Group Flow (vph)	118	646	0	111	458	0	283	289	98	0	206	24
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	10.5	22.6		8.3	20.9		20.2	20.2	20.2		14.4	14.4
Effective Green, g (s)	10.5	22.6		8.3	20.9		20.2	20.2	20.2		14.4	14.4
Actuated g/C Ratio	0.13	0.28		0.10	0.26		0.25	0.25	0.25		0.18	0.18
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	229	987		181	898		419	424	394		325	281
v/s Ratio Prot	0.07	c0.18		c0.06	0.13		0.17	c0.17	0.06		c0.11	0.02
v/s Ratio Perm												
v/c Ratio	0.52	0.65		0.61	0.51		0.68	0.68	0.25		0.63	0.08
Uniform Delay, d1	32.9	25.8		34.8	25.7		27.4	27.5	24.3		30.9	27.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	1.2		4.3	0.2		3.4	3.6	0.1		3.0	0.0
Delay (s)	33.7	27.0		39.1	25.8		30.8	31.1	24.5		33.8	27.8
Level of Service	C	C		D	C		C	C	C		C	C
Approach Delay (s)		28.0			28.4			28.3			31.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	253	623	107	147	267	555	120	598	174	345	894	129
Future Volume (vph)	253	623	107	147	267	555	120	598	174	345	894	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3478	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3478	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	269	663	114	156	284	590	128	636	185	367	951	137
RTOR Reduction (vph)	0	0	85	0	0	0	0	0	124	0	0	55
Lane Group Flow (vph)	242	690	29	0	440	590	128	636	61	367	951	82
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	29.3	29.3	29.3		20.0	116.3	13.0	24.2	24.2	26.8	38.0	38.0
Effective Green, g (s)	29.3	29.3	29.3		20.0	116.3	13.0	24.2	24.2	26.8	38.0	38.0
Actuated g/C Ratio	0.25	0.25	0.25		0.17	1.00	0.11	0.21	0.21	0.23	0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	405	852	398		598	1583	197	736	329	407	1156	517
v/s Ratio Prot	0.15	c0.20			c0.13		0.07	0.18		c0.21	c0.27	
v/s Ratio Perm			0.02			0.37			0.04			0.05
v/c Ratio	0.60	0.81	0.07		0.74	0.37	0.65	0.86	0.18	0.90	0.82	0.16
Uniform Delay, d1	38.3	40.9	33.2		45.6	0.0	49.5	44.5	37.9	43.5	36.0	27.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	5.7	0.1		4.7	0.7	7.2	12.9	1.2	22.6	6.7	0.7
Delay (s)	40.7	46.6	33.2		50.3	0.7	56.7	57.3	39.2	66.0	42.7	28.4
Level of Service	D	D	C		D	A	E	E	D	E	D	C
Approach Delay (s)		43.8			21.9			53.7			47.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	116.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	31	267	122	344	791	46
Future Volume (vph)	31	267	122	344	791	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3510	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	290	133	374	860	50
RTOR Reduction (vph)	0	257	0	0	4	0
Lane Group Flow (vph)	34	33	133	374	906	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9	8.9	53.9	41.0	
Effective Green, g (s)	7.9	7.9	8.9	53.9	41.0	
Actuated g/C Ratio	0.11	0.11	0.13	0.77	0.59	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	200	179	225	2732	2061	
v/s Ratio Prot	0.02		c0.08	0.11	c0.26	
v/s Ratio Perm		c0.02				
v/c Ratio	0.17	0.18	0.59	0.14	0.44	
Uniform Delay, d1	28.0	28.0	28.7	2.0	8.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.5	4.1	0.1	0.7	
Delay (s)	28.4	28.5	32.9	2.1	8.7	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.5			10.2	8.7	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1152	516	0	594	705
Future Volume (vph)	0	1152	516	0	594	705
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1280	573	0	660	783
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1280	573	0	660	783
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		28.0	27.0		20.5	20.5
Effective Green, g (s)		28.0	27.0		20.5	20.5
Actuated g/C Ratio		0.50	0.48		0.37	0.37
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1775	1712		1261	1023
v/s Ratio Prot		c0.36	0.16		0.19	c0.28
v/s Ratio Perm						
v/c Ratio		0.72	0.33		0.52	0.77
Uniform Delay, d1		10.9	8.9		13.8	15.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.2	0.0		0.2	3.1
Delay (s)		12.1	8.9		14.0	18.7
Level of Service		B	A		B	B
Approach Delay (s)		12.1	8.9		16.5	
Approach LOS		B	A		B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	525	1174	535	0	0	0
Future Volume (vph)	525	1174	535	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	603	1349	615	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	603	1349	615	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	9.4	27.4	10.4			
Effective Green, g (s)	9.4	27.4	10.4			
Actuated g/C Ratio	0.34	1.00	0.38			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1177	3539	1343			
v/s Ratio Prot	0.18	c0.38	0.17			
v/s Ratio Perm						
v/c Ratio	0.51	0.38	0.46			
Uniform Delay, d1	7.2	0.0	6.4			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.2	0.1	0.1			
Delay (s)	7.3	0.1	6.5			
Level of Service	A	A	A			
Approach Delay (s)		2.3	6.5		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	27.4	Sum of lost time (s)	7.6
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	413	541	259	205	310	400	94	91	346	507	111
Future Volume (vph)	1	413	541	259	205	310	400	94	91	346	507	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.93	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3169	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3169	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	426	558	267	211	320	412	97	94	357	523	114
RTOR Reduction (vph)	0	0	0	207	0	0	55	0	0	0	0	86
Lane Group Flow (vph)	0	427	558	60	211	567	207	0	0	451	523	28
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		17.5	21.7	21.7	19.2	22.8	22.8			21.0	21.0	21.0
Effective Green, g (s)		17.5	21.7	21.7	19.2	22.8	22.8			21.0	21.0	21.0
Actuated g/C Ratio		0.18	0.23	0.23	0.20	0.24	0.24			0.22	0.22	0.22
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		627	801	358	354	754	342			752	775	347
v/s Ratio Prot		0.12	c0.16		0.12	c0.18	0.14			0.13	c0.15	
v/s Ratio Perm				0.04								0.02
v/c Ratio		0.68	0.70	0.17	0.60	0.75	0.61			0.60	0.67	0.08
Uniform Delay, d1		36.5	34.0	29.8	34.8	33.9	32.5			33.6	34.3	29.7
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		2.4	2.1	0.1	1.8	3.8	2.1			0.9	1.8	0.0
Delay (s)		39.0	36.2	29.9	36.6	37.7	34.6			34.5	36.1	29.8
Level of Service		D	D	C	D	D	C			C	D	C
Approach Delay (s)			35.8			36.7					34.8	
Approach LOS			D			D					C	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.8	Sum of lost time (s)	16.2
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	94	335	112	0
Future Volume (vph)	94	335	112	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3406		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3406		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	345	115	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	97	460	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	18.3	18.3		
Effective Green, g (s)	18.3	18.3		
Actuated g/C Ratio	0.19	0.19		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	338	650		
v/s Ratio Prot	0.05	c0.14		
v/s Ratio Perm				
v/c Ratio	0.29	0.71		
Uniform Delay, d1	33.2	36.2		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.2	2.9		
Delay (s)	33.3	39.1		
Level of Service	C	D		
Approach Delay (s)		38.1		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	31.9
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	80	458	0	782	208	0	113	77
Future Vol, veh/h	0	80	458	0	782	208	0	113	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	87	498	0	850	226	0	123	84
Number of Lanes	0	0	2	0	2	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	18.1	42.9	13.9
HCM LOS	C	E	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	34%	0%	0%	0%	59%
Vol Thru, %	66%	100%	100%	56%	0%
Vol Right, %	0%	0%	0%	44%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	305	521	469	190
LT Vol	80	0	0	0	113
Through Vol	153	305	521	261	0
RT Vol	0	0	0	208	77
Lane Flow Rate	253	332	567	509	207
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.483	0.617	0.968	0.825	0.385
Departure Headway (Hd)	6.872	6.697	6.147	5.831	6.719
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	524	538	589	621	537
Service Time	4.638	4.463	3.899	3.583	4.756
HCM Lane V/C Ratio	0.483	0.617	0.963	0.82	0.385
HCM Control Delay	15.9	19.7	54.2	30.3	13.9
HCM Lane LOS	C	C	F	D	B
HCM 95th-tile Q	2.6	4.2	13.4	8.6	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	215	113	86	362	61	207	655	68	66	471	123
Future Volume (vph)	137	215	113	86	362	61	207	655	68	66	471	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3361			3505	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3361			3505	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	140	219	115	88	369	62	211	668	69	67	481	126
RTOR Reduction (vph)	0	32	0	0	0	49	0	0	47	0	0	98
Lane Group Flow (vph)	0	442	0	0	457	13	211	668	22	67	481	28
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		16.4			16.3	16.3	13.7	24.7	24.7	6.2	17.2	17.2
Effective Green, g (s)		16.4			16.3	16.3	13.7	24.7	24.7	6.2	17.2	17.2
Actuated g/C Ratio		0.21			0.21	0.21	0.18	0.32	0.32	0.08	0.22	0.22
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		710			736	332	312	1618	503	141	1127	350
v/s Ratio Prot		c0.13			c0.13		c0.12	c0.13		0.04	0.09	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.62			0.62	0.04	0.68	0.41	0.04	0.48	0.43	0.08
Uniform Delay, d1		27.8			27.8	24.4	29.9	20.8	18.3	34.1	26.0	23.9
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.2			1.2	0.0	4.5	0.2	0.0	0.9	0.4	0.1
Delay (s)		29.0			29.0	24.4	34.4	21.0	18.3	35.1	26.3	24.1
Level of Service		C			C	C	C	C	B	D	C	C
Approach Delay (s)		29.0			28.5			23.8			26.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	77.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1	226	2	6	0	292	505	0	0	218	142
Future Volume (vph)	170	1	226	2	6	0	292	505	0	0	218	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1774	1583		3500		1770	1863			1863	1583
Flt Permitted		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)		1774	1583		3500		1770	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	1	246	2	7	0	317	549	0	0	237	154
RTOR Reduction (vph)	0	0	149	0	0	0	0	0	0	0	0	99
Lane Group Flow (vph)	0	186	97	0	9	0	317	549	0	0	237	55
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		13.9	32.5		4.6		18.6	51.8			29.2	29.2
Effective Green, g (s)		13.9	32.5		4.6		18.6	51.8			29.2	29.2
Actuated g/C Ratio		0.17	0.39		0.06		0.23	0.63			0.35	0.35
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		299	625		195		400	1172			660	561
v/s Ratio Prot		c0.10	0.04		c0.00		c0.18	c0.29			0.13	
v/s Ratio Perm			0.03									0.03
v/c Ratio		0.62	0.16		0.05		0.79	0.47			0.36	0.10
Uniform Delay, d1		31.8	16.1		36.8		30.0	8.0			19.6	17.7
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.0	0.1		0.1		14.8	0.3			1.5	0.3
Delay (s)		35.7	16.2		36.9		44.9	8.3			21.2	18.1
Level of Service		D	B		D		D	A			C	B
Approach Delay (s)		24.6			36.9			21.7			19.9	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	512	0	371	991	0	0	0	0	474	0	419
Future Volume (vph)	0	512	0	371	991	0	0	0	0	474	0	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1539	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1539	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	557	0	403	1077	0	0	0	0	515	0	455
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	557	0	403	1077	0	0	0	0	335	326	309
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		14.3		11.6	28.9					18.1	18.1	18.1
Effective Green, g (s)		14.3		11.6	28.9					18.1	18.1	18.1
Actuated g/C Ratio		0.26		0.21	0.52					0.33	0.33	0.33
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		916		721	1852					551	504	493
v/s Ratio Prot		0.16		0.12	c0.30					0.20	c0.21	0.21
v/s Ratio Perm												
v/c Ratio		0.61		0.56	0.58					0.61	0.65	0.63
Uniform Delay, d1		18.0		19.5	9.0					15.6	15.8	15.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8		0.5	0.3					1.3	2.1	1.8
Delay (s)		18.8		20.0	9.3					16.9	18.0	17.5
Level of Service		B		C	A					B	B	B
Approach Delay (s)		18.8			12.2			0.0			17.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	11.2
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	635	0	202	707	66	493	97	225	74	121	98
Future Volume (vph)	194	635	0	202	707	66	493	97	225	74	121	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3494		1681	1712	1583		1828	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3494		1681	1712	1583		1828	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	209	683	0	217	760	71	530	104	242	80	130	105
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	185	0	0	89
Lane Group Flow (vph)	209	683	0	217	825	0	313	321	57	0	210	16
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	16.2	28.4		16.4	29.1		23.1	23.1	23.1		15.4	15.4
Effective Green, g (s)	16.2	28.4		16.4	29.1		23.1	23.1	23.1		15.4	15.4
Actuated g/C Ratio	0.16	0.29		0.17	0.29		0.23	0.23	0.23		0.16	0.16
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	290	1017		293	1029		393	400	370		284	246
v/s Ratio Prot	0.12	0.19		c0.12	c0.24		0.19	c0.19	0.04		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.72	0.67		0.74	0.80		0.80	0.80	0.15		0.74	0.07
Uniform Delay, d1	39.2	31.1		39.2	32.2		35.6	35.7	30.1		39.8	35.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.3	1.4		8.5	4.3		10.0	10.5	0.1		8.4	0.0
Delay (s)	46.4	32.5		47.7	36.5		45.7	46.2	30.1		48.2	35.6
Level of Service	D	C		D	D		D	D	C		D	D
Approach Delay (s)		35.7			38.8			41.6			44.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	98.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	573	102	164	515	507	184	427	124	227	382	271
Future Volume (vph)	232	573	102	164	515	507	184	427	124	227	382	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	237	585	104	167	526	517	188	436	127	232	390	277
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	101	0	0	213
Lane Group Flow (vph)	213	609	43	0	693	517	188	436	26	232	390	64
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	26.4	26.4	26.4		27.6	112.8	16.9	23.5	23.5	19.3	25.9	25.9
Effective Green, g (s)	26.4	26.4	26.4		27.6	112.8	16.9	23.5	23.5	19.3	25.9	25.9
Actuated g/C Ratio	0.23	0.23	0.23		0.24	1.00	0.15	0.21	0.21	0.17	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	376	792	370		855	1583	265	737	329	302	812	363
v/s Ratio Prot	0.13	c0.18			c0.20		0.11	c0.12		c0.13	0.11	
v/s Ratio Perm			0.03			c0.33			0.02			0.04
v/c Ratio	0.57	0.77	0.12		0.81	0.33	0.71	0.59	0.08	0.77	0.48	0.18
Uniform Delay, d1	38.1	40.4	34.0		40.1	0.0	45.6	40.3	36.0	44.6	37.6	34.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	4.5	0.1		5.9	0.6	8.4	3.5	0.5	11.1	2.0	1.1
Delay (s)	40.1	44.9	34.2		46.0	0.6	54.0	43.8	36.4	55.8	39.7	35.9
Level of Service	D	D	C		D	A	D	D	D	E	D	D
Approach Delay (s)		42.6			26.6			45.1			42.7	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	112.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	158	204	764	305	39
Future Volume (vph)	34	158	204	764	305	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3480	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	172	222	830	332	42
RTOR Reduction (vph)	0	154	0	0	9	0
Lane Group Flow (vph)	37	18	222	830	365	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.3	7.3	13.6	53.1	35.5	
Effective Green, g (s)	7.3	7.3	13.6	53.1	35.5	
Actuated g/C Ratio	0.11	0.11	0.20	0.78	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	188	168	351	2747	1806	
v/s Ratio Prot	c0.02		c0.13	c0.23	0.10	
v/s Ratio Perm		0.01				
v/c Ratio	0.20	0.11	0.63	0.30	0.20	
Uniform Delay, d1	27.9	27.6	25.1	2.2	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	3.7	0.3	0.3	
Delay (s)	28.4	27.9	28.8	2.5	9.1	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.0			8.1	9.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1152	516	0	598	705
Future Volume (vph)	0	1152	516	0	598	705
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1280	573	0	664	783
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1280	573	0	664	783
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		28.0	27.0		20.5	20.5
Effective Green, g (s)		28.0	27.0		20.5	20.5
Actuated g/C Ratio		0.50	0.48		0.37	0.37
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1775	1712		1261	1023
v/s Ratio Prot		c0.36	0.16		0.19	c0.28
v/s Ratio Perm						
v/c Ratio		0.72	0.33		0.53	0.77
Uniform Delay, d1		10.9	8.9		13.8	15.5
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.2	0.0		0.2	3.1
Delay (s)		12.1	8.9		14.0	18.7
Level of Service		B	A		B	B
Approach Delay (s)		12.1	8.9		16.5	
Approach LOS		B	A		B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	525	1178	535	0	0	0
Future Volume (vph)	525	1178	535	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	603	1354	615	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	603	1354	615	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	9.4	27.4	10.4			
Effective Green, g (s)	9.4	27.4	10.4			
Actuated g/C Ratio	0.34	1.00	0.38			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1177	3539	1343			
v/s Ratio Prot	0.18	c0.38	0.17			
v/s Ratio Perm						
v/c Ratio	0.51	0.38	0.46			
Uniform Delay, d1	7.2	0.0	6.4			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.2	0.1	0.1			
Delay (s)	7.3	0.1	6.5			
Level of Service	A	A	A			
Approach Delay (s)		2.3	6.5		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	27.4	Sum of lost time (s)	7.6
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	413	545	259	210	310	407	94	91	346	507	115
Future Volume (vph)	1	413	545	259	210	310	407	94	91	346	507	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.93	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3166	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3166	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	426	562	267	216	320	420	97	94	357	523	119
RTOR Reduction (vph)	0	0	0	206	0	0	55	0	0	0	0	86
Lane Group Flow (vph)	0	427	562	61	216	572	210	0	0	451	523	33
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		17.5	21.8	21.8	19.2	22.9	22.9			21.0	21.0	21.0
Effective Green, g (s)		17.5	21.8	21.8	19.2	22.9	22.9			21.0	21.0	21.0
Actuated g/C Ratio		0.18	0.23	0.23	0.20	0.24	0.24			0.22	0.22	0.22
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		626	804	359	354	756	344			751	774	346
v/s Ratio Prot		0.12	c0.16		0.12	c0.18	0.15			0.13	c0.15	
v/s Ratio Perm				0.04								0.02
v/c Ratio		0.68	0.70	0.17	0.61	0.76	0.61			0.60	0.68	0.10
Uniform Delay, d1		36.6	34.0	29.8	34.9	33.9	32.5			33.7	34.3	29.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		2.5	2.2	0.1	2.2	3.9	2.3			0.9	1.8	0.0
Delay (s)		39.1	36.2	29.9	37.1	37.8	34.8			34.6	36.2	29.9
Level of Service		D	D	C	D	D	C			C	D	C
Approach Delay (s)			35.8			36.9					34.8	
Approach LOS			D			D					C	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	95.9	Sum of lost time (s)	16.2
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	94	335	112	0
Future Volume (vph)	94	335	112	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3406		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3406		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	345	115	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	97	460	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	18.3	18.3		
Effective Green, g (s)	18.3	18.3		
Actuated g/C Ratio	0.19	0.19		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	337	649		
v/s Ratio Prot	0.05	c0.14		
v/s Ratio Perm				
v/c Ratio	0.29	0.71		
Uniform Delay, d1	33.2	36.3		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.2	2.9		
Delay (s)	33.4	39.2		
Level of Service	C	D		
Approach Delay (s)		38.2		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	33.6
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	80	466	0	794	208	0	113	77
Future Vol, veh/h	0	80	466	0	794	208	0	113	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	87	507	0	863	226	0	123	84
Number of Lanes	0	0	2	0	2	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	18.5	45.6	14
HCM LOS	C	E	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	34%	0%	0%	0%	59%
Vol Thru, %	66%	100%	100%	56%	0%
Vol Right, %	0%	0%	0%	44%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	311	529	473	190
LT Vol	80	0	0	0	113
Through Vol	155	311	529	265	0
RT Vol	0	0	0	208	77
Lane Flow Rate	256	338	575	514	207
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.49	0.63	0.985	0.835	0.386
Departure Headway (Hd)	6.894	6.721	6.165	5.852	6.737
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	522	537	587	617	535
Service Time	4.66	4.487	3.917	3.604	4.772
HCM Lane V/C Ratio	0.49	0.629	0.98	0.833	0.387
HCM Control Delay	16.2	20.3	58.1	31.5	14
HCM Lane LOS	C	C	F	D	B
HCM 95th-tile Q	2.7	4.3	14.1	8.9	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	223	113	87	374	62	207	655	69	67	471	123
Future Volume (vph)	137	223	113	87	374	62	207	655	69	67	471	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3364			3506	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3364			3506	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	140	228	115	89	382	63	211	668	70	68	481	126
RTOR Reduction (vph)	0	31	0	0	0	50	0	0	48	0	0	98
Lane Group Flow (vph)	0	452	0	0	471	13	211	668	22	68	481	28
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		16.7			16.7	16.7	13.8	24.7	24.7	6.2	17.1	17.1
Effective Green, g (s)		16.7			16.7	16.7	13.8	24.7	24.7	6.2	17.1	17.1
Actuated g/C Ratio		0.21			0.21	0.21	0.18	0.32	0.32	0.08	0.22	0.22
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		717			747	337	311	1604	499	140	1110	345
v/s Ratio Prot		c0.13			c0.13		c0.12	c0.13		0.04	0.09	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.63			0.63	0.04	0.68	0.42	0.04	0.49	0.43	0.08
Uniform Delay, d1		28.0			28.0	24.4	30.2	21.1	18.6	34.5	26.4	24.3
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.3			1.3	0.0	4.6	0.2	0.1	1.0	0.4	0.1
Delay (s)		29.3			29.3	24.5	34.7	21.4	18.7	35.5	26.8	24.5
Level of Service		C			C	C	C	C	B	D	C	C
Approach Delay (s)		29.3			28.7			24.1			27.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1	227	2	6	0	293	505	0	0	218	142
Future Volume (vph)	170	1	227	2	6	0	293	505	0	0	218	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1774	1583		3500		1770	1863			1863	1583
Flt Permitted		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)		1774	1583		3500		1770	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	1	247	2	7	0	318	549	0	0	237	154
RTOR Reduction (vph)	0	0	149	0	0	0	0	0	0	0	0	99
Lane Group Flow (vph)	0	186	98	0	9	0	318	549	0	0	237	55
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		13.9	32.5		4.6		18.6	51.8			29.2	29.2
Effective Green, g (s)		13.9	32.5		4.6		18.6	51.8			29.2	29.2
Actuated g/C Ratio		0.17	0.39		0.06		0.23	0.63			0.35	0.35
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		299	625		195		400	1172			660	561
v/s Ratio Prot		c0.10	0.04		c0.00		c0.18	c0.29			0.13	
v/s Ratio Perm			0.03									0.03
v/c Ratio		0.62	0.16		0.05		0.80	0.47			0.36	0.10
Uniform Delay, d1		31.8	16.1		36.8		30.1	8.0			19.6	17.7
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.0	0.1		0.1		15.0	1.3			1.5	0.3
Delay (s)		35.7	16.2		36.9		45.1	9.4			21.2	18.1
Level of Service		D	B		D		D	A			C	B
Approach Delay (s)		24.6			36.9			22.5			19.9	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	512	0	375	991	0	0	0	0	474	0	419
Future Volume (vph)	0	512	0	375	991	0	0	0	0	474	0	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1539	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1539	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	557	0	408	1077	0	0	0	0	515	0	455
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	557	0	408	1077	0	0	0	0	335	326	309
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		14.3		11.7	29.0					18.1	18.1	18.1
Effective Green, g (s)		14.3		11.7	29.0					18.1	18.1	18.1
Actuated g/C Ratio		0.26		0.21	0.52					0.33	0.33	0.33
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		915		726	1855					550	503	492
v/s Ratio Prot		0.16		0.12	c0.30					0.20	c0.21	0.21
v/s Ratio Perm												
v/c Ratio		0.61		0.56	0.58					0.61	0.65	0.63
Uniform Delay, d1		18.0		19.5	9.0					15.6	15.9	15.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8		0.6	0.3					1.3	2.2	1.8
Delay (s)		18.8		20.1	9.3					16.9	18.0	17.6
Level of Service		B		C	A					B	B	B
Approach Delay (s)		18.8			12.3			0.0			17.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	11.2
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	635	0	202	711	66	493	97	228	74	121	98
Future Volume (vph)	194	635	0	202	711	66	493	97	228	74	121	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3494		1681	1712	1583		1828	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3494		1681	1712	1583		1828	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	209	683	0	217	765	71	530	104	245	80	130	105
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	188	0	0	89
Lane Group Flow (vph)	209	683	0	217	830	0	313	321	57	0	210	16
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	16.2	28.8		16.4	29.5		23.2	23.2	23.2		15.5	15.5
Effective Green, g (s)	16.2	28.8		16.4	29.5		23.2	23.2	23.2		15.5	15.5
Actuated g/C Ratio	0.16	0.29		0.16	0.30		0.23	0.23	0.23		0.16	0.16
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	288	1025		292	1036		392	399	369		285	246
v/s Ratio Prot	0.12	0.19		c0.12	c0.24		0.19	c0.19	0.04		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.73	0.67		0.74	0.80		0.80	0.80	0.15		0.74	0.07
Uniform Delay, d1	39.5	31.1		39.5	32.2		35.9	36.0	30.3		40.0	35.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.5	1.3		8.6	4.3		10.1	10.6	0.1		8.3	0.0
Delay (s)	47.0	32.4		48.1	36.5		46.0	46.6	30.4		48.3	35.8
Level of Service	D	C		D	D		D	D	C		D	D
Approach Delay (s)		35.8			38.9			41.9			44.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	99.4	Sum of lost time (s)	15.5
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	573	102	164	515	507	184	428	124	227	383	275
Future Volume (vph)	235	573	102	164	515	507	184	428	124	227	383	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	240	585	104	167	526	517	188	437	127	232	391	281
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	101	0	0	216
Lane Group Flow (vph)	216	609	43	0	693	517	188	437	26	232	391	65
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	26.4	26.4	26.4		27.6	112.8	16.9	23.5	23.5	19.3	25.9	25.9
Effective Green, g (s)	26.4	26.4	26.4		27.6	112.8	16.9	23.5	23.5	19.3	25.9	25.9
Actuated g/C Ratio	0.23	0.23	0.23		0.24	1.00	0.15	0.21	0.21	0.17	0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	376	792	370		855	1583	265	737	329	302	812	363
v/s Ratio Prot	0.13	c0.18			c0.20		0.11	c0.12		c0.13	0.11	
v/s Ratio Perm			0.03			c0.33			0.02			0.04
v/c Ratio	0.57	0.77	0.12		0.81	0.33	0.71	0.59	0.08	0.77	0.48	0.18
Uniform Delay, d1	38.2	40.4	34.0		40.1	0.0	45.6	40.3	36.0	44.6	37.6	34.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	4.5	0.1		5.9	0.6	8.4	3.5	0.5	11.1	2.0	1.1
Delay (s)	40.4	44.9	34.2		46.0	0.6	54.0	43.8	36.4	55.8	39.7	36.0
Level of Service	D	D	C		D	A	D	D	D	E	D	D
Approach Delay (s)		42.6			26.6			45.1			42.6	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	112.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	158	204	765	306	39
Future Volume (vph)	34	158	204	765	306	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3480	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	172	222	832	333	42
RTOR Reduction (vph)	0	154	0	0	9	0
Lane Group Flow (vph)	37	18	222	832	366	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.3	7.3	13.6	53.1	35.5	
Effective Green, g (s)	7.3	7.3	13.6	53.1	35.5	
Actuated g/C Ratio	0.11	0.11	0.20	0.78	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	188	168	351	2747	1806	
v/s Ratio Prot	c0.02		c0.13	c0.24	0.11	
v/s Ratio Perm		0.01				
v/c Ratio	0.20	0.11	0.63	0.30	0.20	
Uniform Delay, d1	27.9	27.6	25.1	2.2	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	3.7	0.3	0.3	
Delay (s)	28.4	27.9	28.8	2.5	9.1	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.0			8.1	9.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	158	204	767	309	39
Future Volume (vph)	34	158	204	767	309	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3480	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	172	222	834	336	42
RTOR Reduction (vph)	0	154	0	0	9	0
Lane Group Flow (vph)	37	18	222	834	369	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.3	7.3	13.6	53.1	35.5	
Effective Green, g (s)	7.3	7.3	13.6	53.1	35.5	
Actuated g/C Ratio	0.11	0.11	0.20	0.78	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	188	168	351	2747	1806	
v/s Ratio Prot	c0.02		c0.13	c0.24	0.11	
v/s Ratio Perm		0.01				
v/c Ratio	0.20	0.11	0.63	0.30	0.20	
Uniform Delay, d1	27.9	27.6	25.1	2.2	8.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	3.7	0.3	0.3	
Delay (s)	28.4	27.9	28.8	2.5	9.1	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.0			8.0	9.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1211	605	0	594	763
Future Volume (vph)	0	1211	605	0	594	763
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1346	672	0	660	848
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1346	672	0	660	848
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		30.1	29.1		22.4	22.4
Effective Green, g (s)		30.1	29.1		22.4	22.4
Actuated g/C Ratio		0.50	0.49		0.37	0.37
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1781	1722		1285	1043
v/s Ratio Prot		c0.38	0.19		0.19	c0.30
v/s Ratio Perm						
v/c Ratio		0.76	0.39		0.51	0.81
Uniform Delay, d1		11.9	9.7		14.5	16.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.7	0.1		0.1	4.7
Delay (s)		13.6	9.8		14.6	21.5
Level of Service		B	A		B	C
Approach Delay (s)		13.6	9.8		18.5	
Approach LOS		B	A		B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	528	1228	624	0	0	0
Future Volume (vph)	528	1228	624	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	607	1411	717	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	607	1411	717	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	9.9	29.6	12.1			
Effective Green, g (s)	9.9	29.6	12.1			
Actuated g/C Ratio	0.33	1.00	0.41			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1148	3539	1446			
v/s Ratio Prot	0.18	c0.40	0.20			
v/s Ratio Perm						
v/c Ratio	0.53	0.40	0.50			
Uniform Delay, d1	8.0	0.0	6.5			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.2	0.1	0.1			
Delay (s)	8.2	0.1	6.6			
Level of Service	A	A	A			
Approach Delay (s)		2.5	6.6		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	29.6	Sum of lost time (s)	7.6
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	413	554	301	205	322	400	94	168	346	507	111
Future Volume (vph)	1	413	554	301	205	322	400	94	168	346	507	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.94	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3173	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3173	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	426	571	310	211	332	412	97	173	357	523	114
RTOR Reduction (vph)	0	0	0	239	0	0	55	0	0	0	0	85
Lane Group Flow (vph)	0	427	571	71	211	579	207	0	0	530	523	29
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		17.7	22.5	22.5	19.1	23.3	23.3			22.1	22.1	22.1
Effective Green, g (s)		17.7	22.5	22.5	19.1	23.3	23.3			22.1	22.1	22.1
Actuated g/C Ratio		0.18	0.23	0.23	0.20	0.24	0.24			0.23	0.23	0.23
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		620	813	363	345	755	342			774	798	357
v/s Ratio Prot		0.12	c0.16		0.12	c0.18	0.14			c0.15	0.15	
v/s Ratio Perm				0.04								0.02
v/c Ratio		0.69	0.70	0.20	0.61	0.77	0.61			0.68	0.66	0.08
Uniform Delay, d1		37.5	34.6	30.4	36.0	34.8	33.2			34.7	34.4	29.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		2.5	2.3	0.1	2.3	4.2	2.1			2.0	1.5	0.0
Delay (s)		40.1	36.9	30.5	38.3	39.0	35.3			36.7	35.9	29.9
Level of Service		D	D	C	D	D	D			D	D	C
Approach Delay (s)			36.4			37.9					35.7	
Approach LOS			D			D					D	

Intersection Summary			
HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	97.9	Sum of lost time (s)	16.2
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	94	338	112	0
Future Volume (vph)	94	338	112	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3407		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3407		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	348	115	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	97	463	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	18.6	18.6		
Effective Green, g (s)	18.6	18.6		
Actuated g/C Ratio	0.19	0.19		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	336	647		
v/s Ratio Prot	0.05	c0.14		
v/s Ratio Perm				
v/c Ratio	0.29	0.72		
Uniform Delay, d1	34.0	37.2		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.2	3.1		
Delay (s)	34.2	40.3		
Level of Service	C	D		
Approach Delay (s)		39.2		
Approach LOS		D		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	222	120	86	367	61	219	655	68	66	471	123
Future Volume (vph)	137	222	120	86	367	61	219	655	68	66	471	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3359			3506	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3359			3506	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	140	227	122	88	374	62	223	668	69	67	481	126
RTOR Reduction (vph)	0	34	0	0	0	49	0	0	47	0	0	98
Lane Group Flow (vph)	0	455	0	0	462	13	223	668	22	67	481	28
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		16.8			16.5	16.5	14.2	25.3	25.3	6.2	17.3	17.3
Effective Green, g (s)		16.8			16.5	16.5	14.2	25.3	25.3	6.2	17.3	17.3
Actuated g/C Ratio		0.21			0.21	0.21	0.18	0.32	0.32	0.08	0.22	0.22
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		716			734	331	318	1632	508	139	1116	347
v/s Ratio Prot		c0.14			c0.13		c0.13	c0.13		0.04	0.09	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.64			0.63	0.04	0.70	0.41	0.04	0.48	0.43	0.08
Uniform Delay, d1		28.2			28.4	24.8	30.3	20.9	18.4	34.8	26.5	24.4
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.4			1.2	0.0	5.6	0.2	0.0	1.0	0.4	0.1
Delay (s)		29.6			29.6	24.8	35.9	21.1	18.5	35.7	26.9	24.6
Level of Service		C			C	C	D	C	B	D	C	C
Approach Delay (s)		29.6			29.0			24.4			27.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	78.8	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1	230	2	6	0	295	505	0	0	218	144
Future Volume (vph)	173	1	230	2	6	0	295	505	0	0	218	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1774	1583		3500		1770	1863			1863	1583
Flt Permitted		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)		1774	1583		3500		1770	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	188	1	250	2	7	0	321	549	0	0	237	157
RTOR Reduction (vph)	0	0	151	0	0	0	0	0	0	0	0	101
Lane Group Flow (vph)	0	189	99	0	9	0	321	549	0	0	237	56
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		14.0	32.6		4.6		18.6	51.8			29.2	29.2
Effective Green, g (s)		14.0	32.6		4.6		18.6	51.8			29.2	29.2
Actuated g/C Ratio		0.17	0.40		0.06		0.23	0.63			0.35	0.35
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		301	626		195		399	1171			660	560
v/s Ratio Prot		c0.11	0.04		c0.00		c0.18	c0.29			0.13	
v/s Ratio Perm			0.03									0.04
v/c Ratio		0.63	0.16		0.05		0.80	0.47			0.36	0.10
Uniform Delay, d1		31.8	16.1		36.8		30.2	8.1			19.7	17.8
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.1	0.1		0.1		15.7	1.3			1.5	0.4
Delay (s)		35.8	16.2		36.9		45.9	9.4			21.2	18.2
Level of Service		D	B		D		D	A			C	B
Approach Delay (s)		24.6			36.9			22.9			20.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	512	0	371	1011	0	0	0	0	474	0	419
Future Volume (vph)	0	512	0	371	1011	0	0	0	0	474	0	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1539	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1539	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	557	0	403	1099	0	0	0	0	515	0	455
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	557	0	403	1099	0	0	0	0	335	326	309
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		14.3		11.6	28.9					18.1	18.1	18.1
Effective Green, g (s)		14.3		11.6	28.9					18.1	18.1	18.1
Actuated g/C Ratio		0.26		0.21	0.52					0.33	0.33	0.33
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		916		721	1852					551	504	493
v/s Ratio Prot		0.16		0.12	c0.31					0.20	c0.21	0.21
v/s Ratio Perm												
v/c Ratio		0.61		0.56	0.59					0.61	0.65	0.63
Uniform Delay, d1		18.0		19.5	9.1					15.6	15.8	15.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8		0.5	0.3					1.3	2.1	1.8
Delay (s)		18.8		20.0	9.4					16.9	18.0	17.5
Level of Service		B		C	A					B	B	B
Approach Delay (s)		18.8			12.3			0.0			17.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	55.2	Sum of lost time (s)	11.2
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	635	0	202	707	66	513	97	225	74	121	98
Future Volume (vph)	194	635	0	202	707	66	513	97	225	74	121	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3494		1681	1711	1583		1828	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3494		1681	1711	1583		1828	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	209	683	0	217	760	71	552	104	242	80	130	105
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	184	0	0	89
Lane Group Flow (vph)	209	683	0	217	825	0	326	330	58	0	210	16
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	16.2	28.5		16.4	29.2		24.0	24.0	24.0		15.5	15.5
Effective Green, g (s)	16.2	28.5		16.4	29.2		24.0	24.0	24.0		15.5	15.5
Actuated g/C Ratio	0.16	0.29		0.16	0.29		0.24	0.24	0.24		0.16	0.16
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	287	1009		290	1021		403	411	380		283	245
v/s Ratio Prot	0.12	0.19		c0.12	c0.24		c0.19	0.19	0.04		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.73	0.68		0.75	0.81		0.81	0.80	0.15		0.74	0.07
Uniform Delay, d1	39.8	31.6		39.8	32.8		35.8	35.7	29.9		40.3	36.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.6	1.4		8.9	4.5		10.8	10.2	0.1		8.8	0.0
Delay (s)	47.4	33.1		48.7	37.3		46.5	46.0	30.0		49.1	36.1
Level of Service	D	C		D	D		D	D	C		D	D
Approach Delay (s)		36.4			39.6			41.9			44.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	15.5
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	573	102	164	515	542	184	469	124	247	407	271
Future Volume (vph)	232	573	102	164	515	542	184	469	124	247	407	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	237	585	104	167	526	553	188	479	127	252	415	277
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	100	0	0	210
Lane Group Flow (vph)	213	609	43	0	693	553	188	479	27	252	415	67
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	26.0	26.0	26.0		27.5	114.4	17.2	24.3	24.3	20.6	27.7	27.7
Effective Green, g (s)	26.0	26.0	26.0		27.5	114.4	17.2	24.3	24.3	20.6	27.7	27.7
Actuated g/C Ratio	0.23	0.23	0.23		0.24	1.00	0.15	0.21	0.21	0.18	0.24	0.24
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	365	769	359		840	1583	266	751	336	318	856	383
v/s Ratio Prot	0.13	c0.18			c0.20		0.11	c0.14		c0.14	0.12	
v/s Ratio Perm			0.03			c0.35			0.02			0.04
v/c Ratio	0.58	0.79	0.12		0.82	0.35	0.71	0.64	0.08	0.79	0.48	0.18
Uniform Delay, d1	39.4	41.7	35.1		41.2	0.0	46.2	41.0	36.1	44.9	37.2	34.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	5.6	0.1		6.6	0.6	8.3	4.1	0.5	12.7	2.0	1.0
Delay (s)	41.8	47.2	35.3		47.8	0.6	54.5	45.2	36.6	57.5	39.2	35.3
Level of Service	D	D	D		D	A	D	D	D	E	D	D
Approach Delay (s)		44.6			26.9			46.0			42.9	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	114.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	35.2
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	80	471	17	0	7	794	213	0	22	0	16
Future Vol, veh/h	0	80	471	17	0	7	794	213	0	22	0	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	87	512	18	0	8	863	232	0	24	0	17
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	19.8	48.7	11.4
HCM LOS	C	E	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	58%	25%	0%	2%	0%	60%
Vol Thru, %	0%	75%	93%	98%	65%	0%
Vol Right, %	42%	0%	7%	0%	35%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	316	253	404	610	191
LT Vol	22	80	0	7	0	114
Through Vol	0	236	236	397	397	0
RT Vol	16	0	17	0	213	77
Lane Flow Rate	41	343	274	439	663	208
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.087	0.663	0.517	0.787	1	0.394
Departure Headway (Hd)	7.607	6.956	6.782	6.454	6.196	6.833
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	473	521	532	562	590	525
Service Time	5.627	4.682	4.508	4.178	3.92	4.908
HCM Lane V/C Ratio	0.087	0.658	0.515	0.781	1.124	0.396
HCM Control Delay	11.4	22.4	16.6	29	61.8	14.3
HCM Lane LOS	B	C	C	D	F	B
HCM 95th-tile Q	0.3	4.8	2.9	7.4	14.7	1.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	114	0	77
Future Vol, veh/h	0	114	0	77
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	124	0	84
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.3
HCM LOS	B

Lane

HCM Signalized Intersection Capacity Analysis
1: Serramonte Boulevard & I-280 SB Off-Ramp

11/9/2015

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1211	605	0	598	763
Future Volume (vph)	0	1211	605	0	598	763
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1346	672	0	664	848
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1346	672	0	664	848
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		30.1	29.1		22.4	22.4
Effective Green, g (s)		30.1	29.1		22.4	22.4
Actuated g/C Ratio		0.50	0.49		0.37	0.37
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1781	1722		1285	1043
v/s Ratio Prot		c0.38	0.19		0.19	c0.30
v/s Ratio Perm						
v/c Ratio		0.76	0.39		0.52	0.81
Uniform Delay, d1		11.9	9.7		14.5	16.8
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		1.7	0.1		0.1	4.7
Delay (s)		13.6	9.8		14.6	21.5
Level of Service		B	A		B	C
Approach Delay (s)		13.6	9.8		18.5	
Approach LOS		B	A		B	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	528	1232	624	0	0	0
Future Volume (vph)	528	1232	624	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	607	1416	717	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	607	1416	717	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	9.9	29.6	12.1			
Effective Green, g (s)	9.9	29.6	12.1			
Actuated g/C Ratio	0.33	1.00	0.41			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1148	3539	1446			
v/s Ratio Prot	0.18	c0.40	0.20			
v/s Ratio Perm						
v/c Ratio	0.53	0.40	0.50			
Uniform Delay, d1	8.0	0.0	6.5			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.2	0.1	0.1			
Delay (s)	8.2	0.1	6.6			
Level of Service	A	A	A			
Approach Delay (s)		2.5	6.6		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	29.6	Sum of lost time (s)	7.6
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	413	558	301	210	322	407	94	168	346	507	115
Future Volume (vph)	1	413	558	301	210	322	407	94	168	346	507	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.94	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3171	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3171	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1	426	575	310	216	332	420	97	173	357	523	119
RTOR Reduction (vph)	0	0	0	239	0	0	55	0	0	0	0	85
Lane Group Flow (vph)	0	427	575	71	216	584	210	0	0	530	523	34
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		17.7	22.6	22.6	19.2	23.5	23.5			22.1	22.1	22.1
Effective Green, g (s)		17.7	22.6	22.6	19.2	23.5	23.5			22.1	22.1	22.1
Actuated g/C Ratio		0.18	0.23	0.23	0.20	0.24	0.24			0.23	0.23	0.23
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		619	815	364	346	759	345			773	797	356
v/s Ratio Prot		0.12	c0.16		0.12	c0.18	0.15			c0.15	0.15	
v/s Ratio Perm				0.05								0.02
v/c Ratio		0.69	0.71	0.20	0.62	0.77	0.61			0.69	0.66	0.09
Uniform Delay, d1		37.6	34.7	30.4	36.1	34.8	33.2			34.8	34.5	30.1
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		2.6	2.3	0.1	2.5	4.3	2.1			2.0	1.5	0.0
Delay (s)		40.2	37.0	30.5	38.7	39.0	35.3			36.8	36.0	30.1
Level of Service		D	D	C	D	D	D			D	D	C
Approach Delay (s)			36.5			38.0					35.8	
Approach LOS			D			D					D	

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	98.1	Sum of lost time (s)	16.2
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	94	338	112	0
Future Volume (vph)	94	338	112	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3407		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3407		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	348	115	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	97	463	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	18.6	18.6		
Effective Green, g (s)	18.6	18.6		
Actuated g/C Ratio	0.19	0.19		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	335	645		
v/s Ratio Prot	0.05	c0.14		
v/s Ratio Perm				
v/c Ratio	0.29	0.72		
Uniform Delay, d1	34.1	37.3		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.2	3.2		
Delay (s)	34.3	40.5		
Level of Service	C	D		
Approach Delay (s)		39.4		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	35.7
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	80	479	17	0	7	806	213	0	22	0	16
Future Vol, veh/h	0	80	479	17	0	7	806	213	0	22	0	16
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	87	521	18	0	8	876	232	0	24	0	17
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	20.1	49.3	11.4
HCM LOS	C	E	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	58%	25%	0%	2%	0%	60%
Vol Thru, %	0%	75%	93%	98%	65%	0%
Vol Right, %	42%	0%	7%	0%	35%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	320	257	410	616	191
LT Vol	22	80	0	7	0	114
Through Vol	0	240	240	403	403	0
RT Vol	16	0	17	0	213	77
Lane Flow Rate	41	347	279	446	670	208
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.087	0.672	0.526	0.801	1	0.395
Departure Headway (Hd)	7.624	6.966	6.794	6.472	6.217	6.85
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	472	521	533	562	589	523
Service Time	5.642	4.693	4.521	4.195	3.939	4.918
HCM Lane V/C Ratio	0.087	0.666	0.523	0.794	1.138	0.398
HCM Control Delay	11.4	22.8	16.8	30.3	61.9	14.4
HCM Lane LOS	B	C	C	D	F	B
HCM 95th-tile Q	0.3	5	3	7.7	14.7	1.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	114	0	77
Future Vol, veh/h	0	114	0	77
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	124	0	84
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	14.4
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	230	120	87	379	62	219	655	69	67	471	123
Future Volume (vph)	137	230	120	87	379	62	219	655	69	67	471	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3362			3506	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3362			3506	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	140	235	122	89	387	63	223	668	70	68	481	126
RTOR Reduction (vph)	0	32	0	0	0	50	0	0	48	0	0	99
Lane Group Flow (vph)	0	465	0	0	476	13	223	668	22	68	481	27
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		17.0			16.8	16.8	14.2	25.2	25.2	6.2	17.2	17.2
Effective Green, g (s)		17.0			16.8	16.8	14.2	25.2	25.2	6.2	17.2	17.2
Actuated g/C Ratio		0.21			0.21	0.21	0.18	0.32	0.32	0.08	0.22	0.22
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		721			743	335	317	1617	503	138	1104	343
v/s Ratio Prot		c0.14			c0.14		c0.13	c0.13		0.04	0.09	
v/s Ratio Perm						0.01			0.01			0.02
v/c Ratio		0.64			0.64	0.04	0.70	0.41	0.04	0.49	0.44	0.08
Uniform Delay, d1		28.3			28.4	24.8	30.5	21.2	18.7	35.0	26.8	24.7
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.5			1.4	0.0	5.7	0.2	0.0	1.0	0.4	0.1
Delay (s)		29.8			29.9	24.8	36.2	21.4	18.7	36.0	27.2	24.8
Level of Service		C			C	C	D	C	B	D	C	C
Approach Delay (s)		29.8			29.3			24.7			27.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1	231	2	6	0	296	505	0	0	218	144
Future Volume (vph)	173	1	231	2	6	0	296	505	0	0	218	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1774	1583		3500		1770	1863			1863	1583
Flt Permitted		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)		1774	1583		3500		1770	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	188	1	251	2	7	0	322	549	0	0	237	157
RTOR Reduction (vph)	0	0	152	0	0	0	0	0	0	0	0	101
Lane Group Flow (vph)	0	189	99	0	9	0	322	549	0	0	237	56
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		14.0	32.6		4.6		18.6	51.8			29.2	29.2
Effective Green, g (s)		14.0	32.6		4.6		18.6	51.8			29.2	29.2
Actuated g/C Ratio		0.17	0.40		0.06		0.23	0.63			0.35	0.35
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		301	626		195		399	1171			660	560
v/s Ratio Prot		c0.11	0.04		c0.00		c0.18	c0.29			0.13	
v/s Ratio Perm			0.03									0.04
v/c Ratio		0.63	0.16		0.05		0.81	0.47			0.36	0.10
Uniform Delay, d1		31.8	16.1		36.8		30.2	8.1			19.7	17.8
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.1	0.1		0.1		15.9	1.3			1.5	0.4
Delay (s)		35.8	16.2		36.9		46.1	9.4			21.2	18.2
Level of Service		D	B		D		D	A			C	B
Approach Delay (s)		24.6			36.9			23.0			20.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	512	0	375	1011	0	0	0	0	474	0	419
Future Volume (vph)	0	512	0	375	1011	0	0	0	0	474	0	419
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1539	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.97	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1539	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	557	0	408	1099	0	0	0	0	515	0	455
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	557	0	408	1099	0	0	0	0	335	326	309
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		14.3		11.7	29.0					18.1	18.1	18.1
Effective Green, g (s)		14.3		11.7	29.0					18.1	18.1	18.1
Actuated g/C Ratio		0.26		0.21	0.52					0.33	0.33	0.33
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		915		726	1855					550	503	492
v/s Ratio Prot		0.16		0.12	c0.31					0.20	c0.21	0.21
v/s Ratio Perm												
v/c Ratio		0.61		0.56	0.59					0.61	0.65	0.63
Uniform Delay, d1		18.0		19.5	9.1					15.6	15.9	15.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8		0.6	0.3					1.3	2.2	1.8
Delay (s)		18.8		20.1	9.4					16.9	18.0	17.6
Level of Service		B		C	A					B	B	B
Approach Delay (s)		18.8			12.3			0.0			17.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	11.2
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	635	0	202	711	66	513	97	228	74	121	98
Future Volume (vph)	194	635	0	202	711	66	513	97	228	74	121	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3494		1681	1711	1583		1828	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3494		1681	1711	1583		1828	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	209	683	0	217	765	71	552	104	245	80	130	105
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	186	0	0	89
Lane Group Flow (vph)	209	683	0	217	830	0	326	330	59	0	210	16
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	16.3	29.0		16.5	29.7		24.2	24.2	24.2		15.5	15.5
Effective Green, g (s)	16.3	29.0		16.5	29.7		24.2	24.2	24.2		15.5	15.5
Actuated g/C Ratio	0.16	0.29		0.16	0.29		0.24	0.24	0.24		0.15	0.15
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	286	1019		290	1030		403	411	380		281	243
v/s Ratio Prot	0.12	0.19		c0.12	c0.24		c0.19	0.19	0.04		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.73	0.67		0.75	0.81		0.81	0.80	0.15		0.75	0.07
Uniform Delay, d1	40.1	31.6		40.1	32.8		36.1	36.0	30.2		40.7	36.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.0	1.4		8.9	4.4		10.8	10.2	0.1		9.1	0.0
Delay (s)	48.1	33.0		49.0	37.3		46.8	46.2	30.3		49.8	36.5
Level of Service	D	C		D	D		D	D	C		D	D
Approach Delay (s)		36.5			39.7			42.1			45.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	573	102	164	515	542	184	470	124	247	408	275
Future Volume (vph)	235	573	102	164	515	542	184	470	124	247	408	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3384	1583		3497	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	240	585	104	167	526	553	188	480	127	252	416	281
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	100	0	0	213
Lane Group Flow (vph)	216	609	43	0	693	553	188	480	27	252	416	68
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	26.0	26.0	26.0		27.5	114.4	17.2	24.3	24.3	20.6	27.7	27.7
Effective Green, g (s)	26.0	26.0	26.0		27.5	114.4	17.2	24.3	24.3	20.6	27.7	27.7
Actuated g/C Ratio	0.23	0.23	0.23		0.24	1.00	0.15	0.21	0.21	0.18	0.24	0.24
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	365	769	359		840	1583	266	751	336	318	856	383
v/s Ratio Prot	0.13	c0.18			c0.20		0.11	c0.14		c0.14	0.12	
v/s Ratio Perm			0.03			c0.35			0.02			0.04
v/c Ratio	0.59	0.79	0.12		0.82	0.35	0.71	0.64	0.08	0.79	0.49	0.18
Uniform Delay, d1	39.5	41.7	35.1		41.2	0.0	46.2	41.1	36.1	44.9	37.2	34.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	5.6	0.1		6.6	0.6	8.3	4.1	0.5	12.7	2.0	1.0
Delay (s)	42.0	47.2	35.3		47.8	0.6	54.5	45.2	36.6	57.5	39.2	35.3
Level of Service	D	D	D		D	A	D	D	D	E	D	D
Approach Delay (s)		44.7			26.9			46.0			42.9	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	114.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	158	204	768	310	39
Future Volume (vph)	34	158	204	768	310	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3480	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3480	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	172	222	835	337	42
RTOR Reduction (vph)	0	154	0	0	9	0
Lane Group Flow (vph)	37	18	222	835	370	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.3	7.3	13.6	53.1	35.5	
Effective Green, g (s)	7.3	7.3	13.6	53.1	35.5	
Actuated g/C Ratio	0.11	0.11	0.20	0.78	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	188	168	351	2747	1806	
v/s Ratio Prot	c0.02		c0.13	c0.24	0.11	
v/s Ratio Perm		0.01				
v/c Ratio	0.20	0.11	0.63	0.30	0.21	
Uniform Delay, d1	27.9	27.6	25.1	2.2	8.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	3.7	0.3	0.3	
Delay (s)	28.4	27.9	28.8	2.5	9.1	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.0			8.0	9.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1346	970	0	669	751
Future Volume (vph)	0	1346	970	0	669	751
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1463	1054	0	727	816
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1463	1054	0	727	816
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		32.0	31.0		22.5	22.5
Effective Green, g (s)		32.0	31.0		22.5	22.5
Actuated g/C Ratio		0.52	0.50		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1832	1775		1249	1014
v/s Ratio Prot		c0.41	0.30		0.21	c0.29
v/s Ratio Perm						
v/c Ratio		0.80	0.59		0.58	0.80
Uniform Delay, d1		12.3	10.9		15.9	17.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		2.4	0.4		0.4	4.5
Delay (s)		14.6	11.3		16.3	22.1
Level of Service		B	B		B	C
Approach Delay (s)		14.6	11.3		19.4	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	61.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	557	1406	993	0	0	0
Future Volume (vph)	557	1406	993	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	574	1449	1024	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	574	1449	1024	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	10.8	35.7	17.3			
Effective Green, g (s)	10.8	35.7	17.3			
Actuated g/C Ratio	0.30	1.00	0.48			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1038	3539	1714			
v/s Ratio Prot	c0.17	0.41	c0.29			
v/s Ratio Perm						
v/c Ratio	0.55	0.41	0.60			
Uniform Delay, d1	10.4	0.0	6.7			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.4	0.1	0.4			
Delay (s)	10.8	0.1	7.1			
Level of Service	B	A	A			
Approach Delay (s)		3.1	7.1		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	35.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	414	737	299	471	667	489	150	242	498	507	321
Future Volume (vph)	1	414	737	299	471	667	489	150	242	498	507	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.96	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3258	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3258	1441			3433	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1	422	752	305	481	681	499	153	247	508	517	328
RTOR Reduction (vph)	0	0	0	225	0	0	52	0	0	0	0	162
Lane Group Flow (vph)	0	423	752	80	481	921	360	0	0	755	517	166
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		18.7	30.4	30.4	20.7	31.8	31.8			29.3	29.3	29.3
Effective Green, g (s)		18.7	30.4	30.4	20.7	31.8	31.8			29.3	29.3	29.3
Actuated g/C Ratio		0.16	0.26	0.26	0.18	0.27	0.27			0.25	0.25	0.25
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		551	923	413	314	889	393			863	890	398
v/s Ratio Prot		0.12	c0.21		c0.27	c0.28	0.25			c0.22	0.15	
v/s Ratio Perm				0.05								0.11
v/c Ratio		0.77	0.81	0.19	1.53	1.04	0.92			0.87	0.58	0.42
Uniform Delay, d1		46.8	40.4	33.5	47.9	42.4	41.0			41.8	38.2	36.5
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		5.7	5.3	0.1	254.8	39.9	25.0			9.5	0.6	0.3
Delay (s)		52.6	45.7	33.6	302.7	82.2	66.1			51.4	38.8	36.7
Level of Service		D	D	C	F	F	E			D	D	D
Approach Delay (s)			45.2			137.0					44.3	
Approach LOS			D			F					D	

Intersection Summary			
HCM 2000 Control Delay	75.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	116.5	Sum of lost time (s)	16.2
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	184	365	110	0
Future Volume (vph)	184	365	110	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3416		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3416		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98
Adj. Flow (vph)	188	372	112	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	188	484	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	20.5	20.5		
Effective Green, g (s)	20.5	20.5		
Actuated g/C Ratio	0.18	0.18		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	311	601		
v/s Ratio Prot	0.11	c0.14		
v/s Ratio Perm				
v/c Ratio	0.60	0.81		
Uniform Delay, d1	44.3	46.1		
Progression Factor	1.00	1.00		
Incremental Delay, d2	2.3	7.3		
Delay (s)	46.5	53.4		
Level of Service	D	D		
Approach Delay (s)		51.5		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	67.6
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	273	720	58	0	7	1339	213	0	69	0	26
Future Vol, veh/h	0	273	720	58	0	7	1339	213	0	69	0	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	297	783	63	0	8	1455	232	0	75	0	28
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	72.3	71.4	15.9
HCM LOS	F	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	73%	43%	0%	1%	0%	42%
Vol Thru, %	0%	57%	86%	99%	76%	0%
Vol Right, %	27%	0%	14%	0%	24%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	633	418	677	883	415
LT Vol	69	273	0	7	0	174
Through Vol	0	360	360	670	670	0
RT Vol	26	0	58	0	213	241
Lane Flow Rate	103	688	454	735	959	451
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.27	1	1	1	1	0.934
Departure Headway (Hd)	9.4	8.429	8.116	8.228	8.053	7.451
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	383	433	450	449	460	487
Service Time	7.441	6.166	5.853	5.955	5.781	5.469
HCM Lane V/C Ratio	0.269	1.589	1.009	1.637	2.085	0.926
HCM Control Delay	15.9	72.9	71.4	71.9	71.1	53.6
HCM Lane LOS	C	F	F	F	F	F
HCM 95th-tile Q	1.1	12.6	12.9	12.8	12.9	11.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	174	0	241
Future Vol, veh/h	0	174	0	241
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	189	0	262
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	53.6
HCM LOS	F

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	443	222	132	86	447	85	271	948	68	102	811	536
Future Volume (vph)	443	222	132	86	447	85	271	948	68	102	811	536
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3358			3511	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3358			3511	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	241	143	93	486	92	295	1030	74	111	882	583
RTOR Reduction (vph)	0	17	0	0	0	75	0	0	47	0	0	359
Lane Group Flow (vph)	0	849	0	0	579	17	295	1030	27	111	882	224
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		23.7			19.1	19.1	18.8	36.7	36.7	8.0	25.9	25.9
Effective Green, g (s)		23.7			19.1	19.1	18.8	36.7	36.7	8.0	25.9	25.9
Actuated g/C Ratio		0.23			0.19	0.19	0.19	0.36	0.36	0.08	0.26	0.26
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		784			660	297	327	1838	572	139	1297	403
v/s Ratio Prot		c0.25			c0.16		c0.17	0.20		0.06	c0.17	
v/s Ratio Perm						0.01			0.02			0.14
v/c Ratio		1.12dl			0.88	0.06	0.90	0.56	0.05	0.80	0.68	0.56
Uniform Delay, d1		38.9			40.1	33.8	40.5	25.9	21.0	46.0	34.1	32.8
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		57.0			12.2	0.0	26.1	0.5	0.0	25.0	1.6	2.0
Delay (s)		95.9			52.3	33.8	66.6	26.4	21.1	70.9	35.7	34.9
Level of Service		F			D	C	E	C	C	E	D	C
Approach Delay (s)		95.9			49.8			34.6			37.9	
Approach LOS		F			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	49.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	101.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	1	251	2	6	0	355	505	0	0	218	188
Future Volume (vph)	188	1	251	2	6	0	355	505	0	0	218	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1774	1583		3496		1770	1863			1863	1583
Flt Permitted		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)		1774	1583		3496		1770	1863			1863	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	192	1	256	2	6	0	362	515	0	0	222	192
RTOR Reduction (vph)	0	0	154	0	0	0	0	0	0	0	0	124
Lane Group Flow (vph)	0	193	102	0	8	0	362	515	0	0	222	68
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		14.1	32.7		4.6		18.6	51.7			29.1	29.1
Effective Green, g (s)		14.1	32.7		4.6		18.6	51.7			29.1	29.1
Actuated g/C Ratio		0.17	0.40		0.06		0.23	0.63			0.35	0.35
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		303	628		195		399	1168			657	559
v/s Ratio Prot		c0.11	0.04		c0.00		c0.20	c0.28			0.12	
v/s Ratio Perm			0.03									0.04
v/c Ratio		0.64	0.16		0.04		0.91	0.44			0.34	0.12
Uniform Delay, d1		31.8	16.0		36.8		31.1	7.9			19.6	18.0
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.3	0.1		0.1		26.9	1.2			1.4	0.4
Delay (s)		36.1	16.1		36.9		57.9	9.1			21.0	18.5
Level of Service		D	B		D		E	A			C	B
Approach Delay (s)		24.7			36.9			29.3			19.8	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	557	0	427	1120	0	0	0	0	517	0	484
Future Volume (vph)	0	557	0	427	1120	0	0	0	0	517	0	484
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1531	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.98	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1531	1504
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	593	0	454	1191	0	0	0	0	550	0	515
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	593	0	454	1191	0	0	0	0	368	357	340
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.7		12.9	31.6					20.9	20.9	20.9
Effective Green, g (s)		15.7		12.9	31.6					20.9	20.9	20.9
Actuated g/C Ratio		0.26		0.21	0.52					0.34	0.34	0.34
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		915		729	1842					578	527	517
v/s Ratio Prot		0.17		0.13	c0.34					0.22	c0.23	0.23
v/s Ratio Perm												
v/c Ratio		0.65		0.62	0.65					0.64	0.68	0.66
Uniform Delay, d1		20.0		21.7	10.5					16.7	17.0	16.9
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.2		1.2	0.6					1.7	2.7	2.3
Delay (s)		21.2		22.9	11.1					18.4	19.7	19.2
Level of Service		C		C	B					B	B	B
Approach Delay (s)		21.2			14.4			0.0			19.1	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.7	Sum of lost time (s)	11.2
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	740	0	202	729	66	650	97	280	75	121	102
Future Volume (vph)	194	740	0	202	729	66	650	97	280	75	121	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3495		1681	1706	1583		1828	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3495		1681	1706	1583		1828	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	804	0	220	792	72	707	105	304	82	132	111
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	223	0	0	95
Lane Group Flow (vph)	211	804	0	220	858	0	403	409	81	0	214	16
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	16.6	30.4		16.7	31.0		28.5	28.5	28.5		15.8	15.8
Effective Green, g (s)	16.6	30.4		16.7	31.0		28.5	28.5	28.5		15.8	15.8
Actuated g/C Ratio	0.16	0.28		0.16	0.29		0.27	0.27	0.27		0.15	0.15
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	274	1006		276	1013		448	454	422		270	233
v/s Ratio Prot	0.12	0.23		c0.12	c0.25		0.24	c0.24	0.05		c0.12	0.01
v/s Ratio Perm												
v/c Ratio	0.77	0.80		0.80	0.85		0.90	0.90	0.19		0.79	0.07
Uniform Delay, d1	43.3	35.4		43.5	35.7		37.8	37.8	30.3		44.0	39.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	11.5	4.2		13.8	6.4		20.0	20.3	0.1		13.8	0.0
Delay (s)	54.8	39.6		57.3	42.1		57.8	58.1	30.4		57.7	39.3
Level of Service	D	D		E	D		E	E	C		E	D
Approach Delay (s)		42.8			45.2			50.5			51.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	106.9	Sum of lost time (s)	15.5
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	641	114	164	527	732	188	634	124	355	586	277
Future Volume (vph)	313	641	114	164	527	732	188	634	124	355	586	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3382	1583		3498	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3382	1583		3498	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	319	654	116	167	538	747	192	647	127	362	598	283
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	85	0	0	180
Lane Group Flow (vph)	287	686	55	0	705	747	192	647	42	362	598	103
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	28.1	28.1	28.1		28.7	121.9	18.0	24.1	24.1	25.0	31.1	31.1
Effective Green, g (s)	28.1	28.1	28.1		28.7	121.9	18.0	24.1	24.1	25.0	31.1	31.1
Actuated g/C Ratio	0.23	0.23	0.23		0.24	1.00	0.15	0.20	0.20	0.21	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	779	364		823	1583	261	699	312	363	902	403
v/s Ratio Prot	0.18	c0.20			c0.20		0.11	c0.18		c0.20	0.17	
v/s Ratio Perm			0.03			0.47			0.03			0.06
v/c Ratio	0.77	0.88	0.15		0.86	0.47	0.74	0.93	0.13	1.00	0.66	0.25
Uniform Delay, d1	43.9	45.3	37.4		44.6	0.0	49.7	48.0	40.3	48.4	40.7	36.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.7	11.4	0.2		8.7	1.0	10.3	20.0	0.9	46.2	3.8	1.5
Delay (s)	53.6	56.6	37.6		53.4	1.0	60.0	68.1	41.2	94.6	44.5	37.7
Level of Service	D	E	D		D	A	E	E	D	F	D	D
Approach Delay (s)		53.8			26.4			62.9			57.6	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	48.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	121.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	158	204	837	330	39
Future Volume (vph)	34	158	204	837	330	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3484	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3484	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	172	222	910	359	42
RTOR Reduction (vph)	0	154	0	0	8	0
Lane Group Flow (vph)	37	18	222	910	393	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.3	7.3	13.6	53.1	35.5	
Effective Green, g (s)	7.3	7.3	13.6	53.1	35.5	
Actuated g/C Ratio	0.11	0.11	0.20	0.78	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	188	168	351	2747	1808	
v/s Ratio Prot	c0.02		c0.13	c0.26	0.11	
v/s Ratio Perm		0.01				
v/c Ratio	0.20	0.11	0.63	0.33	0.22	
Uniform Delay, d1	27.9	27.6	25.1	2.3	8.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	3.7	0.3	0.3	
Delay (s)	28.4	27.9	28.8	2.6	9.2	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.0			7.8	9.2	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1346	970	0	673	751
Future Volume (vph)	0	1346	970	0	673	751
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1463	1054	0	732	816
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1463	1054	0	732	816
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		32.0	31.0		22.5	22.5
Effective Green, g (s)		32.0	31.0		22.5	22.5
Actuated g/C Ratio		0.52	0.50		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1832	1775		1249	1014
v/s Ratio Prot		c0.41	0.30		0.21	c0.29
v/s Ratio Perm						
v/c Ratio		0.80	0.59		0.59	0.80
Uniform Delay, d1		12.3	10.9		15.9	17.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		2.4	0.4		0.5	4.5
Delay (s)		14.6	11.3		16.3	22.1
Level of Service		B	B		B	C
Approach Delay (s)		14.6	11.3		19.4	
Approach LOS		B	B		B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	61.8	Sum of lost time (s)	8.3
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	557	1410	993	0	0	0
Future Volume (vph)	557	1410	993	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	574	1454	1024	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	574	1454	1024	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	10.8	35.7	17.3			
Effective Green, g (s)	10.8	35.7	17.3			
Actuated g/C Ratio	0.30	1.00	0.48			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1038	3539	1714			
v/s Ratio Prot	c0.17	0.41	c0.29			
v/s Ratio Perm						
v/c Ratio	0.55	0.41	0.60			
Uniform Delay, d1	10.4	0.0	6.7			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.4	0.1	0.4			
Delay (s)	10.8	0.1	7.1			
Level of Service	B	A	A			
Approach Delay (s)		3.1	7.1		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	35.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	1	414	741	299	476	667	496	150	242	498	507	325
Future Volume (vph)	1	414	741	299	476	667	496	150	242	498	507	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.96	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3254	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3254	1441			3433	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	1	422	756	305	486	681	506	153	247	508	517	332
RTOR Reduction (vph)	0	0	0	225	0	0	52	0	0	0	0	163
Lane Group Flow (vph)	0	423	756	80	486	929	359	0	0	755	517	169
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		18.7	30.6	30.6	20.7	32.0	32.0			29.3	29.3	29.3
Effective Green, g (s)		18.7	30.6	30.6	20.7	32.0	32.0			29.3	29.3	29.3
Actuated g/C Ratio		0.16	0.26	0.26	0.18	0.27	0.27			0.25	0.25	0.25
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		550	927	415	313	892	395			861	888	397
v/s Ratio Prot		0.12	c0.21		c0.27	c0.29	0.25			c0.22	0.15	
v/s Ratio Perm				0.05								0.11
v/c Ratio		0.77	0.82	0.19	1.55	1.04	0.91			0.88	0.58	0.43
Uniform Delay, d1		46.9	40.4	33.5	48.0	42.4	40.9			42.0	38.3	36.6
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		5.8	5.3	0.1	263.9	41.5	23.5			9.7	0.6	0.3
Delay (s)		52.7	45.7	33.5	311.9	83.8	64.5			51.7	39.0	36.9
Level of Service		D	D	C	F	F	E			D	D	D
Approach Delay (s)			45.2			140.2					44.5	
Approach LOS			D			F					D	

Intersection Summary			
HCM 2000 Control Delay	76.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	16.2
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	184	365	110	0
Future Volume (vph)	184	365	110	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3416		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3416		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98
Adj. Flow (vph)	188	372	112	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	188	484	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	20.5	20.5		
Effective Green, g (s)	20.5	20.5		
Actuated g/C Ratio	0.18	0.18		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	310	600		
v/s Ratio Prot	0.11	c0.14		
v/s Ratio Perm				
v/c Ratio	0.61	0.81		
Uniform Delay, d1	44.4	46.2		
Progression Factor	1.00	1.00		
Incremental Delay, d2	2.3	7.4		
Delay (s)	46.7	53.6		
Level of Service	D	D		
Approach Delay (s)		51.6		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	67.7
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	273	728	58	0	7	1351	213	0	69	0	26
Future Vol, veh/h	0	273	728	58	0	7	1351	213	0	69	0	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	297	791	63	0	8	1468	232	0	75	0	28
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	72.3	71.4	15.9
HCM LOS	F	F	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	73%	43%	0%	1%	0%	42%
Vol Thru, %	0%	57%	86%	99%	76%	0%
Vol Right, %	27%	0%	14%	0%	24%	58%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	95	637	422	683	889	415
LT Vol	69	273	0	7	0	174
Through Vol	0	364	364	676	676	0
RT Vol	26	0	58	0	213	241
Lane Flow Rate	103	692	459	742	966	451
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.27	1	1	1	1	0.934
Departure Headway (Hd)	9.405	8.43	8.118	8.22	8.047	7.453
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	383	436	450	445	464	487
Service Time	7.441	6.165	5.853	5.955	5.782	5.469
HCM Lane V/C Ratio	0.269	1.587	1.02	1.667	2.082	0.926
HCM Control Delay	15.9	72.9	71.4	71.9	71.1	53.6
HCM Lane LOS	C	F	F	F	F	F
HCM 95th-tile Q	1.1	12.6	12.9	12.8	12.9	11.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	174	0	241
Future Vol, veh/h	0	174	0	241
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	189	0	262
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	53.6
HCM LOS	F

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	443	230	132	87	459	86	271	948	69	103	811	536
Future Volume (vph)	443	230	132	87	459	86	271	948	69	103	811	536
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.98			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3360			3511	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3360			3511	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	250	143	95	499	93	295	1030	75	112	882	583
RTOR Reduction (vph)	0	16	0	0	0	75	0	0	48	0	0	358
Lane Group Flow (vph)	0	859	0	0	594	18	295	1030	27	112	882	225
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		23.7			19.1	19.1	18.8	36.7	36.7	8.0	25.9	25.9
Effective Green, g (s)		23.7			19.1	19.1	18.8	36.7	36.7	8.0	25.9	25.9
Actuated g/C Ratio		0.23			0.19	0.19	0.19	0.36	0.36	0.08	0.26	0.26
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		784			660	297	327	1838	572	139	1297	403
v/s Ratio Prot		c0.26			c0.17		c0.17	0.20		0.06	c0.17	
v/s Ratio Perm						0.01			0.02			0.14
v/c Ratio		1.12dl			0.90	0.06	0.90	0.56	0.05	0.81	0.68	0.56
Uniform Delay, d1		38.9			40.3	33.8	40.5	25.9	21.0	46.0	34.1	32.8
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		61.4			15.1	0.0	26.1	0.5	0.0	26.4	1.6	2.1
Delay (s)		100.3			55.3	33.9	66.6	26.4	21.1	72.4	35.7	34.9
Level of Service		F			E	C	E	C	C	E	D	C
Approach Delay (s)		100.3			52.4			34.6			38.0	
Approach LOS		F			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	51.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	101.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	1	252	2	6	0	356	505	0	0	218	188
Future Volume (vph)	188	1	252	2	6	0	356	505	0	0	218	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1774	1583		3500		1770	1863			1863	1583
Flt Permitted		0.95	1.00		0.99		0.95	1.00			1.00	1.00
Satd. Flow (perm)		1774	1583		3500		1770	1863			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	204	1	274	2	7	0	387	549	0	0	237	204
RTOR Reduction (vph)	0	0	164	0	0	0	0	0	0	0	0	132
Lane Group Flow (vph)	0	205	110	0	9	0	387	549	0	0	237	72
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		14.6	33.2		4.6		18.6	51.7			29.1	29.1
Effective Green, g (s)		14.6	33.2		4.6		18.6	51.7			29.1	29.1
Actuated g/C Ratio		0.18	0.40		0.06		0.22	0.62			0.35	0.35
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)		312	633		194		397	1161			653	555
v/s Ratio Prot		c0.12	0.04		c0.00		c0.22	c0.29			0.13	
v/s Ratio Perm			0.03									0.05
v/c Ratio		0.66	0.17		0.05		0.97	0.47			0.36	0.13
Uniform Delay, d1		31.8	16.0		37.1		31.9	8.3			20.0	18.3
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		4.9	0.1		0.1		39.3	1.4			1.6	0.5
Delay (s)		36.7	16.1		37.2		71.2	9.7			21.6	18.8
Level of Service		D	B		D		E	A			C	B
Approach Delay (s)		25.0			37.2			35.1			20.3	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	557	0	431	1120	0	0	0	0	517	0	484
Future Volume (vph)	0	557	0	431	1120	0	0	0	0	517	0	484
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.93	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1531	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.98	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1531	1504
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	593	0	459	1191	0	0	0	0	550	0	515
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	593	0	459	1191	0	0	0	0	368	357	340
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.7		13.0	31.7					20.9	20.9	20.9
Effective Green, g (s)		15.7		13.0	31.7					20.9	20.9	20.9
Actuated g/C Ratio		0.26		0.21	0.52					0.34	0.34	0.34
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		913		734	1845					577	526	517
v/s Ratio Prot		0.17		0.13	c0.34					0.22	c0.23	0.23
v/s Ratio Perm												
v/c Ratio		0.65		0.63	0.65					0.64	0.68	0.66
Uniform Delay, d1		20.1		21.7	10.5					16.8	17.1	16.9
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		1.2		1.2	0.6					1.7	2.7	2.3
Delay (s)		21.3		22.9	11.1					18.5	19.8	19.2
Level of Service		C		C	B					B	B	B
Approach Delay (s)		21.3			14.4			0.0			19.2	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	11.2
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	194	740	0	202	733	66	650	97	283	75	121	102
Future Volume (vph)	194	740	0	202	733	66	650	97	283	75	121	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3495		1681	1706	1583		1828	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3495		1681	1706	1583		1828	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	804	0	220	797	72	707	105	308	82	132	111
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	226	0	0	95
Lane Group Flow (vph)	211	804	0	220	863	0	403	409	82	0	214	16
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	16.7	30.5		16.8	31.1		28.5	28.5	28.5		15.8	15.8
Effective Green, g (s)	16.7	30.5		16.8	31.1		28.5	28.5	28.5		15.8	15.8
Actuated g/C Ratio	0.16	0.28		0.16	0.29		0.27	0.27	0.27		0.15	0.15
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	275	1007		277	1014		447	453	421		269	233
v/s Ratio Prot	0.12	0.23		c0.12	c0.25		0.24	c0.24	0.05		c0.12	0.01
v/s Ratio Perm												
v/c Ratio	0.77	0.80		0.79	0.85		0.90	0.90	0.19		0.80	0.07
Uniform Delay, d1	43.3	35.5		43.5	35.8		37.9	38.0	30.4		44.1	39.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.9	4.2		13.6	6.7		20.6	20.6	0.1		14.0	0.0
Delay (s)	54.3	39.6		57.0	42.6		58.6	58.6	30.5		58.1	39.4
Level of Service	D	D		E	D		E	E	C		E	D
Approach Delay (s)		42.7			45.5			50.8			51.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	107.1	Sum of lost time (s)	15.5
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	641	114	164	527	732	188	635	124	355	587	281
Future Volume (vph)	316	641	114	164	527	732	188	635	124	355	587	281
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.91	0.91	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3382	1583		3498	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.95	1.00	1.00		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1610	3382	1583		3498	1583	1770	3539	1583	1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	322	654	116	167	538	747	192	648	127	362	599	287
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	85	0	0	182
Lane Group Flow (vph)	290	686	55	0	705	747	192	648	42	362	599	105
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	28.1	28.1	28.1		28.7	121.9	18.0	24.1	24.1	25.0	31.1	31.1
Effective Green, g (s)	28.1	28.1	28.1		28.7	121.9	18.0	24.1	24.1	25.0	31.1	31.1
Actuated g/C Ratio	0.23	0.23	0.23		0.24	1.00	0.15	0.20	0.20	0.21	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0		4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	371	779	364		823	1583	261	699	312	363	902	403
v/s Ratio Prot	0.18	c0.20			c0.20		0.11	c0.18		c0.20	0.17	
v/s Ratio Perm			0.03			0.47			0.03			0.07
v/c Ratio	0.78	0.88	0.15		0.86	0.47	0.74	0.93	0.13	1.00	0.66	0.26
Uniform Delay, d1	44.0	45.3	37.4		44.6	0.0	49.7	48.0	40.3	48.4	40.7	36.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.3	11.4	0.2		8.7	1.0	10.3	20.2	0.9	46.2	3.8	1.6
Delay (s)	54.3	56.6	37.6		53.4	1.0	60.0	68.3	41.2	94.6	44.6	37.8
Level of Service	D	E	D		D	A	E	E	D	F	D	D
Approach Delay (s)		54.0			26.4			63.1			57.5	
Approach LOS		D			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	48.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	121.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	158	204	838	331	39
Future Volume (vph)	34	158	204	838	331	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3484	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3484	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	172	222	911	360	42
RTOR Reduction (vph)	0	154	0	0	8	0
Lane Group Flow (vph)	37	18	222	911	394	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.3	7.3	13.6	53.1	35.5	
Effective Green, g (s)	7.3	7.3	13.6	53.1	35.5	
Actuated g/C Ratio	0.11	0.11	0.20	0.78	0.52	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	188	168	351	2747	1808	
v/s Ratio Prot	c0.02		c0.13	c0.26	0.11	
v/s Ratio Perm		0.01				
v/c Ratio	0.20	0.11	0.63	0.33	0.22	
Uniform Delay, d1	27.9	27.6	25.1	2.3	8.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3	3.7	0.3	0.3	
Delay (s)	28.4	27.9	28.8	2.6	9.2	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.0			7.8	9.2	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	68.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1566	552	0	840	900
Future Volume (vph)	0	1566	552	0	840	900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1740	613	0	933	1000
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1740	613	0	933	1000
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		37.2	36.2		26.0	26.0
Effective Green, g (s)		37.2	36.2		26.0	26.0
Actuated g/C Ratio		0.53	0.51		0.37	0.37
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1867	1817		1266	1027
v/s Ratio Prot		c0.49	0.17		0.27	c0.36
v/s Ratio Perm						
v/c Ratio		0.93	0.34		0.74	0.97
Uniform Delay, d1		15.5	10.1		19.3	21.9
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		8.9	0.0		2.0	21.7
Delay (s)		24.4	10.1		21.2	43.6
Level of Service		C	B		C	D
Approach Delay (s)		24.4	10.1		32.8	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	8.3
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	690	1656	595	0	0	0
Future Volume (vph)	690	1656	595	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	793	1903	684	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	793	1903	684	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	11.8	32.7	13.3			
Effective Green, g (s)	11.8	32.7	13.3			
Actuated g/C Ratio	0.36	1.00	0.41			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1238	3539	1439			
v/s Ratio Prot	0.23	c0.54	0.19			
v/s Ratio Perm						
v/c Ratio	0.64	0.54	0.48			
Uniform Delay, d1	8.7	0.0	7.1			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.9	0.2	0.1			
Delay (s)	9.5	0.2	7.2			
Level of Service	A	A	A			
Approach Delay (s)		2.9	7.2		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	32.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	2	608	762	264	160	335	363	104	105	351	449	210
Future Volume (vph)	2	608	762	264	160	335	363	104	105	351	449	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.94	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3190	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3190	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	627	786	272	165	345	374	107	108	362	463	216
RTOR Reduction (vph)	0	0	0	192	0	0	56	0	0	0	0	127
Lane Group Flow (vph)	0	629	786	80	165	569	201	0	0	470	463	89
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		24.1	30.2	30.2	19.2	24.7	24.7			21.5	21.5	21.5
Effective Green, g (s)		24.1	30.2	30.2	19.2	24.7	24.7			21.5	21.5	21.5
Actuated g/C Ratio		0.22	0.28	0.28	0.18	0.23	0.23			0.20	0.20	0.20
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		762	985	440	313	726	328			680	701	313
v/s Ratio Prot		c0.18	c0.22		0.09	c0.18	0.14			c0.14	0.13	
v/s Ratio Perm				0.05								0.06
v/c Ratio		0.83	0.80	0.18	0.53	0.78	0.61			0.69	0.66	0.29
Uniform Delay, d1		40.2	36.3	29.8	40.5	39.4	37.6			40.4	40.1	37.0
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		6.9	4.3	0.1	0.7	5.1	2.4			2.5	1.8	0.2
Delay (s)		47.1	40.6	29.8	41.3	44.5	40.0			42.9	41.9	37.2
Level of Service		D	D	C	D	D	D			D	D	D
Approach Delay (s)			41.3			42.8					41.4	
Approach LOS			D			D					D	

Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	108.5	Sum of lost time (s)	16.2
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	178	385	159	0
Future Volume (vph)	178	385	159	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3384		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3384		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	184	397	164	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	184	561	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	22.0	22.0		
Effective Green, g (s)	22.0	22.0		
Actuated g/C Ratio	0.20	0.20		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	358	686		
v/s Ratio Prot	0.10	c0.17		
v/s Ratio Perm				
v/c Ratio	0.51	0.82		
Uniform Delay, d1	38.5	41.3		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.5	7.1		
Delay (s)	39.0	48.5		
Level of Service	D	D		
Approach Delay (s)		46.1		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	51.8
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	159	744	0	796	187	0	135	119
Future Vol, veh/h	0	159	744	0	796	187	0	135	119
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	173	809	0	865	203	0	147	129
Number of Lanes	0	0	2	0	2	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	55.9	56.9	17.3
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	39%	0%	0%	0%	53%
Vol Thru, %	61%	100%	100%	59%	0%
Vol Right, %	0%	0%	0%	41%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	407	496	531	452	254
LT Vol	159	0	0	0	135
Through Vol	248	496	531	265	0
RT Vol	0	0	0	187	119
Lane Flow Rate	442	539	577	492	276
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.885	1	1	0.915	0.528
Departure Headway (Hd)	7.204	7.008	6.993	6.703	6.891
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	504	523	525	541	530
Service Time	4.923	4.728	4.708	4.418	4.848
HCM Lane V/C Ratio	0.877	1.031	1.099	0.909	0.521
HCM Control Delay	43.6	66	65.9	46.3	17.3
HCM Lane LOS	E	F	F	E	C
HCM 95th-tile Q	9.8	13.9	13.9	11	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	293	151	124	308	76	273	630	136	70	577	196
Future Volume (vph)	165	293	151	124	308	76	273	630	136	70	577	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3362			3489	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3362			3489	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	168	299	154	127	314	78	279	643	139	71	589	200
RTOR Reduction (vph)	0	32	0	0	0	63	0	0	90	0	0	154
Lane Group Flow (vph)	0	589	0	0	441	15	279	643	49	71	589	46
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		20.8			16.9	16.9	17.2	31.4	31.4	6.4	20.6	20.6
Effective Green, g (s)		20.8			16.9	16.9	17.2	31.4	31.4	6.4	20.6	20.6
Actuated g/C Ratio		0.23			0.19	0.19	0.19	0.35	0.35	0.07	0.23	0.23
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		781			658	298	340	1784	555	126	1170	364
v/s Ratio Prot		c0.18			c0.13		c0.16	0.13		0.04	c0.12	
v/s Ratio Perm						0.01			0.03			0.03
v/c Ratio		0.75			0.67	0.05	0.82	0.36	0.09	0.56	0.50	0.13
Uniform Delay, d1		32.0			33.7	29.7	34.7	21.6	19.5	40.2	30.0	27.3
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		3.7			2.1	0.0	14.0	0.2	0.1	3.4	0.5	0.2
Delay (s)		35.7			35.8	29.7	48.6	21.8	19.6	43.6	30.5	27.5
Level of Service		D			D	C	D	C	B	D	C	C
Approach Delay (s)		35.7			34.9			28.5			30.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	14.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	109	289	54	104	14	296	229	32	11	229	163
Future Volume (vph)	159	109	289	54	104	14	296	229	32	11	229	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1809	1583		3441		1770	1829		1770	1863	1583
Flt Permitted		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1809	1583		3441		1770	1829		1770	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	166	114	301	56	108	15	308	239	33	11	239	170
RTOR Reduction (vph)	0	0	186	0	7	0	0	3	0	0	0	114
Lane Group Flow (vph)	0	280	115	0	172	0	308	269	0	11	239	56
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		18.7	36.9		11.8		18.2	49.2		0.7	31.7	31.7
Effective Green, g (s)		18.7	36.9		11.8		18.2	49.2		0.7	31.7	31.7
Actuated g/C Ratio		0.19	0.38		0.12		0.19	0.51		0.01	0.33	0.33
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		350	605		421		334	933		12	612	520
v/s Ratio Prot		c0.15	0.04		c0.05		c0.17	0.15		0.01	c0.13	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.80	0.19		0.41		0.92	0.29		0.92	0.39	0.11
Uniform Delay, d1		37.1	19.8		39.1		38.4	13.5		47.8	24.9	22.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		12.3	0.2		0.6		32.9	0.2		212.2	1.9	0.4
Delay (s)		49.4	20.0		39.7		71.3	13.7		260.0	26.8	22.9
Level of Service		D	B		D		E	B		F	C	C
Approach Delay (s)		34.1			39.7			44.3			31.3	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	96.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	556	0	370	1012	0	0	0	0	461	1	282
Future Volume (vph)	0	556	0	370	1012	0	0	0	0	461	1	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.97	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1581	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1581	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	604	0	402	1100	0	0	0	0	501	1	307
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	604	0	402	1100	0	0	0	0	281	276	252
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.1		11.4	29.5					15.2	15.2	15.2
Effective Green, g (s)		15.1		11.4	29.5					15.2	15.2	15.2
Actuated g/C Ratio		0.29		0.22	0.56					0.29	0.29	0.29
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1010		739	1973					483	454	432
v/s Ratio Prot		0.17		0.12	c0.31					0.17	c0.17	0.17
v/s Ratio Perm												
v/c Ratio		0.60		0.54	0.56					0.58	0.61	0.58
Uniform Delay, d1		16.3		18.4	7.5					16.1	16.3	16.1
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6		0.4	0.2					1.2	1.6	1.3
Delay (s)		16.9		18.9	7.7					17.3	17.9	17.4
Level of Service		B		B	A					B	B	B
Approach Delay (s)		16.9			10.7			0.0			17.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	11.2
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	710	0	170	651	64	569	62	326	65	118	140
Future Volume (vph)	182	710	0	170	651	64	569	62	326	65	118	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	196	763	0	183	700	69	612	67	351	70	127	151
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	262	0	0	128
Lane Group Flow (vph)	196	763	0	183	763	0	337	342	89	0	197	23
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	15.4	27.3		14.5	26.9		24.5	24.5	24.5		14.7	14.7
Effective Green, g (s)	15.4	27.3		14.5	26.9		24.5	24.5	24.5		14.7	14.7
Actuated g/C Ratio	0.16	0.28		0.15	0.28		0.25	0.25	0.25		0.15	0.15
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	282	1001		265	973		426	431	401		278	241
v/s Ratio Prot	c0.11	0.22		0.10	c0.22		0.20	c0.20	0.06		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.70	0.76		0.69	0.78		0.79	0.79	0.22		0.71	0.10
Uniform Delay, d1	38.3	31.6		38.9	32.1		33.6	33.6	28.5		38.9	35.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.9	3.1		6.1	3.9		9.0	9.1	0.1		6.6	0.1
Delay (s)	44.2	34.8		45.0	36.0		42.7	42.7	28.6		45.5	35.2
Level of Service	D	C		D	D		D	D	C		D	D
Approach Delay (s)		36.7			37.7			37.9			41.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	5	0	1	6	5	120	322	0	224	326	303
Future Volume (vph)	3	5	0	1	6	5	120	322	0	224	326	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91			0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3390			3514	1583	1770	3539		1770	3539	1583
Flt Permitted	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3390			3514	1583	1770	3539		1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	5	0	1	6	5	122	329	0	229	333	309
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	115
Lane Group Flow (vph)	3	5	0	0	7	5	122	329	0	229	333	194
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	0.9	0.9			0.9	69.6	8.0	38.7		13.1	43.8	43.8
Effective Green, g (s)	0.9	0.9			0.9	69.6	8.0	38.7		13.1	43.8	43.8
Actuated g/C Ratio	0.01	0.01			0.01	1.00	0.11	0.56		0.19	0.63	0.63
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	20	43			45	1583	203	1967		333	2227	996
v/s Ratio Prot	c0.00	0.00			c0.00		0.07	0.09		c0.13	0.09	
v/s Ratio Perm						0.00						c0.12
v/c Ratio	0.15	0.12			0.16	0.00	0.60	0.17		0.69	0.15	0.20
Uniform Delay, d1	34.0	34.0			34.0	0.0	29.3	7.6		26.3	5.3	5.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.5	1.2			1.6	0.0	4.9	0.2		5.8	0.1	0.4
Delay (s)	37.4	35.2			35.6	0.0	34.2	7.7		32.1	5.4	5.9
Level of Service	D	D			D	A	C	A		C	A	A
Approach Delay (s)		36.0			20.8			14.9			12.6	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	69.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	114	89	326	330	46
Future Volume (vph)	41	114	89	326	330	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3474	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	124	97	354	359	50
RTOR Reduction (vph)	0	113	0	0	8	0
Lane Group Flow (vph)	45	11	97	354	401	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	6.1	6.1	7.7	53.2	41.5	
Effective Green, g (s)	6.1	6.1	7.7	53.2	41.5	
Actuated g/C Ratio	0.09	0.09	0.11	0.79	0.62	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	160	143	202	2797	2142	
v/s Ratio Prot	c0.03		c0.05	0.10	c0.12	
v/s Ratio Perm		0.01				
v/c Ratio	0.28	0.08	0.48	0.13	0.19	
Uniform Delay, d1	28.6	28.0	27.9	1.6	5.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.2	1.8	0.1	0.2	
Delay (s)	29.5	28.3	29.7	1.7	5.8	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.6			7.8	5.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1567	553	0	852	900
Future Volume (vph)	0	1567	553	0	852	900
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1741	614	0	947	1000
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1741	614	0	947	1000
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		37.2	36.2		26.0	26.0
Effective Green, g (s)		37.2	36.2		26.0	26.0
Actuated g/C Ratio		0.53	0.51		0.37	0.37
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1867	1817		1266	1027
v/s Ratio Prot		c0.49	0.17		0.28	c0.36
v/s Ratio Perm						
v/c Ratio		0.93	0.34		0.75	0.97
Uniform Delay, d1		15.5	10.1		19.4	21.9
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		9.0	0.0		2.2	21.7
Delay (s)		24.5	10.1		21.5	43.6
Level of Service		C	B		C	D
Approach Delay (s)		24.5	10.1		32.9	
Approach LOS		C	B		C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	8.3
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	690	1669	596	0	0	0
Future Volume (vph)	690	1669	596	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	793	1918	685	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	793	1918	685	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	11.9	32.7	13.2			
Effective Green, g (s)	11.9	32.7	13.2			
Actuated g/C Ratio	0.36	1.00	0.40			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1249	3539	1428			
v/s Ratio Prot	0.23	c0.54	0.19			
v/s Ratio Perm						
v/c Ratio	0.63	0.54	0.48			
Uniform Delay, d1	8.6	0.0	7.2			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	0.8	0.2	0.1			
Delay (s)	9.4	0.2	7.3			
Level of Service	A	A	A			
Approach Delay (s)		2.9	7.3		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	32.7	Sum of lost time (s)	7.6
Intersection Capacity Utilization	101.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	2	608	775	264	168	336	375	104	105	351	449	218
Future Volume (vph)	2	608	775	264	168	336	375	104	105	351	449	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.94	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3186	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3186	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	627	799	272	173	346	387	107	108	362	463	225
RTOR Reduction (vph)	0	0	0	189	0	0	55	0	0	0	0	132
Lane Group Flow (vph)	0	629	799	83	173	578	207	0	0	470	463	93
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		24.1	30.6	30.6	19.2	25.1	25.1			21.6	21.6	21.6
Effective Green, g (s)		24.1	30.6	30.6	19.2	25.1	25.1			21.6	21.6	21.6
Actuated g/C Ratio		0.22	0.28	0.28	0.18	0.23	0.23			0.20	0.20	0.20
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		758	992	443	311	732	331			679	700	313
v/s Ratio Prot		c0.18	c0.23		0.10	c0.18	0.14			c0.14	0.13	
v/s Ratio Perm				0.05								0.06
v/c Ratio		0.83	0.81	0.19	0.56	0.79	0.62			0.69	0.66	0.30
Uniform Delay, d1		40.5	36.5	29.8	41.1	39.5	37.8			40.7	40.4	37.3
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		7.2	4.6	0.1	1.2	5.2	2.6			2.5	1.8	0.2
Delay (s)		47.7	41.1	29.9	42.3	44.8	40.4			43.1	42.2	37.5
Level of Service		D	D	C	D	D	D			D	D	D
Approach Delay (s)			41.7			43.2					41.7	
Approach LOS			D			D					D	

Intersection Summary			
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	109.1	Sum of lost time (s)	16.2
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	178	385	159	0
Future Volume (vph)	178	385	159	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3384		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3384		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	184	397	164	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	184	561	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	22.1	22.1		
Effective Green, g (s)	22.1	22.1		
Actuated g/C Ratio	0.20	0.20		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	358	685		
v/s Ratio Prot	0.10	c0.17		
v/s Ratio Perm				
v/c Ratio	0.51	0.82		
Uniform Delay, d1	38.7	41.6		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.5	7.2		
Delay (s)	39.2	48.8		
Level of Service	D	D		
Approach Delay (s)		46.4		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	53.1
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	159	765	0	817	187	0	135	119
Future Vol, veh/h	0	159	765	0	817	187	0	135	119
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	173	832	0	888	203	0	147	129
Number of Lanes	0	0	2	0	2	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	57.2	58.4	17.3
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	38%	0%	0%	0%	53%
Vol Thru, %	62%	100%	100%	59%	0%
Vol Right, %	0%	0%	0%	41%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	414	510	545	459	254
LT Vol	159	0	0	0	135
Through Vol	255	510	545	272	0
RT Vol	0	0	0	187	119
Lane Flow Rate	450	554	592	499	276
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.902	1	1	0.933	0.53
Departure Headway (Hd)	7.217	7.025	7.009	6.724	6.913
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	504	521	521	544	530
Service Time	4.936	4.743	4.722	4.437	4.848
HCM Lane V/C Ratio	0.893	1.063	1.136	0.917	0.521
HCM Control Delay	46.4	66	65.9	49.6	17.3
HCM Lane LOS	E	F	F	E	C
HCM 95th-tile Q	10.3	13.8	13.9	11.6	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	314	151	126	329	78	273	630	138	72	577	196
Future Volume (vph)	165	314	151	126	329	78	273	630	138	72	577	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3368			3491	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3368			3491	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	168	320	154	129	336	80	279	643	141	73	589	200
RTOR Reduction (vph)	0	31	0	0	0	65	0	0	92	0	0	154
Lane Group Flow (vph)	0	611	0	0	465	15	279	643	49	73	589	46
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		21.1			17.4	17.4	17.3	31.4	31.4	6.5	20.6	20.6
Effective Green, g (s)		21.1			17.4	17.4	17.3	31.4	31.4	6.5	20.6	20.6
Actuated g/C Ratio		0.23			0.19	0.19	0.19	0.35	0.35	0.07	0.23	0.23
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		786			671	304	338	1766	549	127	1158	360
v/s Ratio Prot		c0.18			c0.13		c0.16	0.13		0.04	c0.12	
v/s Ratio Perm						0.01			0.03			0.03
v/c Ratio		0.78			0.69	0.05	0.83	0.36	0.09	0.57	0.51	0.13
Uniform Delay, d1		32.5			34.0	29.8	35.1	22.0	19.9	40.6	30.5	27.7
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		4.5			2.5	0.0	14.4	0.2	0.1	3.9	0.5	0.2
Delay (s)		36.9			36.5	29.8	49.5	22.2	20.0	44.5	31.0	28.0
Level of Service		D			D	C	D	C	B	D	C	C
Approach Delay (s)		36.9			35.5			29.1			31.4	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	109	291	54	104	14	298	229	32	11	229	164
Future Volume (vph)	160	109	291	54	104	14	298	229	32	11	229	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1809	1583		3441		1770	1829		1770	1863	1583
Flt Permitted		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1809	1583		3441		1770	1829		1770	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	167	114	303	56	108	15	310	239	33	11	239	171
RTOR Reduction (vph)	0	0	187	0	7	0	0	3	0	0	0	115
Lane Group Flow (vph)	0	281	116	0	172	0	310	269	0	11	239	56
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		18.8	37.0		11.8		18.2	49.2		0.7	31.7	31.7
Effective Green, g (s)		18.8	37.0		11.8		18.2	49.2		0.7	31.7	31.7
Actuated g/C Ratio		0.19	0.38		0.12		0.19	0.51		0.01	0.33	0.33
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		352	606		420		333	932		12	611	520
v/s Ratio Prot		c0.16	0.04		c0.05		c0.18	0.15		0.01	c0.13	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.80	0.19		0.41		0.93	0.29		0.92	0.39	0.11
Uniform Delay, d1		37.0	19.8		39.1		38.5	13.6		47.9	25.0	22.6
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		11.9	0.2		0.7		34.5	0.8		212.2	1.9	0.4
Delay (s)		49.0	20.0		39.8		73.1	14.4		260.0	26.8	23.0
Level of Service		D	B		D		E	B		F	C	C
Approach Delay (s)		33.9			39.8			45.6			31.4	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	556	0	377	1012	0	0	0	0	461	1	282
Future Volume (vph)	0	556	0	377	1012	0	0	0	0	461	1	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.97	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1581	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1581	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	604	0	410	1100	0	0	0	0	501	1	307
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	604	0	410	1100	0	0	0	0	281	276	252
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.1		11.6	29.7					15.3	15.3	15.3
Effective Green, g (s)		15.1		11.6	29.7					15.3	15.3	15.3
Actuated g/C Ratio		0.28		0.22	0.56					0.29	0.29	0.29
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1004		748	1975					483	454	432
v/s Ratio Prot		0.17		0.12	c0.31					0.17	c0.17	0.17
v/s Ratio Perm												
v/c Ratio		0.60		0.55	0.56					0.58	0.61	0.58
Uniform Delay, d1		16.5		18.5	7.5					16.2	16.4	16.2
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.7		0.4	0.2					1.2	1.6	1.3
Delay (s)		17.2		18.9	7.7					17.4	17.9	17.5
Level of Service		B		B	A					B	B	B
Approach Delay (s)		17.2			10.8			0.0			17.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	11.2
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	710	0	170	658	64	569	62	333	65	118	140
Future Volume (vph)	182	710	0	170	658	64	569	62	333	65	118	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	196	763	0	183	708	69	612	67	358	70	127	151
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	267	0	0	128
Lane Group Flow (vph)	196	763	0	183	771	0	337	342	91	0	197	23
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	15.4	27.6		14.5	27.2		24.6	24.6	24.6		14.7	14.7
Effective Green, g (s)	15.4	27.6		14.5	27.2		24.6	24.6	24.6		14.7	14.7
Actuated g/C Ratio	0.16	0.28		0.15	0.28		0.25	0.25	0.25		0.15	0.15
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	281	1008		264	980		426	431	401		277	240
v/s Ratio Prot	c0.11	0.22		0.10	c0.22		0.20	c0.20	0.06		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.70	0.76		0.69	0.79		0.79	0.79	0.23		0.71	0.10
Uniform Delay, d1	38.5	31.6		39.1	32.2		33.8	33.8	28.6		39.1	35.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.0	2.9		6.2	3.9		9.0	9.1	0.1		7.0	0.1
Delay (s)	44.5	34.5		45.3	36.1		42.8	42.8	28.7		46.1	35.4
Level of Service	D	C		D	D		D	D	C		D	D
Approach Delay (s)		36.6			37.8			38.0			41.5	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	96.9	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	5	0	1	6	5	120	323	0	224	327	310
Future Volume (vph)	10	5	0	1	6	5	120	323	0	224	327	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91			0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3308			3514	1583	1770	3539		1770	3539	1583
Flt Permitted	0.95	0.98			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3308			3514	1583	1770	3539		1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	10	5	0	1	6	5	122	330	0	229	334	316
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	118
Lane Group Flow (vph)	5	10	0	0	7	5	122	330	0	229	334	198
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	0.9	0.9			0.9	69.8	8.2	38.5		13.5	43.8	43.8
Effective Green, g (s)	0.9	0.9			0.9	69.8	8.2	38.5		13.5	43.8	43.8
Actuated g/C Ratio	0.01	0.01			0.01	1.00	0.12	0.55		0.19	0.63	0.63
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	20	42			45	1583	207	1952		342	2220	993
v/s Ratio Prot	c0.00	0.00			c0.00		0.07	0.09		c0.13	0.09	
v/s Ratio Perm						0.00						c0.13
v/c Ratio	0.25	0.24			0.16	0.00	0.59	0.17		0.67	0.15	0.20
Uniform Delay, d1	34.1	34.1			34.1	0.0	29.2	7.7		26.1	5.3	5.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.5	2.9			1.6	0.0	4.2	0.2		4.9	0.1	0.5
Delay (s)	40.6	37.0			35.7	0.0	33.4	7.9		31.0	5.5	6.0
Level of Service	D	D			D	A	C	A		C	A	A
Approach Delay (s)		38.2			20.8			14.8			12.3	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	114	89	328	332	46
Future Volume (vph)	41	114	89	328	332	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3475	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	124	97	357	361	50
RTOR Reduction (vph)	0	113	0	0	8	0
Lane Group Flow (vph)	45	11	97	357	403	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	6.1	6.1	7.7	53.2	41.5	
Effective Green, g (s)	6.1	6.1	7.7	53.2	41.5	
Actuated g/C Ratio	0.09	0.09	0.11	0.79	0.62	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	160	143	202	2797	2142	
v/s Ratio Prot	c0.03		c0.05	0.10	c0.12	
v/s Ratio Perm		0.01				
v/c Ratio	0.28	0.08	0.48	0.13	0.19	
Uniform Delay, d1	28.6	28.0	27.9	1.6	5.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.2	1.8	0.1	0.2	
Delay (s)	29.5	28.3	29.7	1.7	5.8	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.6			7.7	5.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1620	690	0	840	989
Future Volume (vph)	0	1620	690	0	840	989
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1800	767	0	933	1099
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1800	767	0	933	1099
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		38.0	37.0		26.0	26.0
Effective Green, g (s)		38.0	37.0		26.0	26.0
Actuated g/C Ratio		0.53	0.52		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1886	1836		1251	1016
v/s Ratio Prot		c0.51	0.22		0.27	c0.39
v/s Ratio Perm						
v/c Ratio		0.95	0.42		0.75	1.08
Uniform Delay, d1		15.8	10.5		19.8	22.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		11.6	0.1		2.2	53.0
Delay (s)		27.4	10.6		21.9	75.7
Level of Service		C	B		C	E
Approach Delay (s)		27.4	10.6		51.0	
Approach LOS		C	B		D	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	8.3
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	695	1705	733	0	0	0
Future Volume (vph)	695	1705	733	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	799	1960	843	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	799	1960	843	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	12.8	36.0	15.6			
Effective Green, g (s)	12.8	36.0	15.6			
Actuated g/C Ratio	0.36	1.00	0.43			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1220	3539	1533			
v/s Ratio Prot	0.23	c0.55	0.24			
v/s Ratio Perm						
v/c Ratio	0.65	0.55	0.55			
Uniform Delay, d1	9.7	0.0	7.6			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	1.0	0.2	0.2			
Delay (s)	10.7	0.2	7.8			
Level of Service	B	A	A			
Approach Delay (s)		3.2	7.8		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	36.0	Sum of lost time (s)	7.6
Intersection Capacity Utilization	109.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	2	608	772	303	160	354	363	104	225	351	449	210
Future Volume (vph)	2	608	772	303	160	354	363	104	225	351	449	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.94	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3200	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3200	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	627	796	312	165	365	374	107	232	362	463	216
RTOR Reduction (vph)	0	0	0	219	0	0	56	0	0	0	0	123
Lane Group Flow (vph)	0	629	796	93	165	582	208	0	0	594	463	93
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		24.2	31.6	31.6	19.1	25.9	25.9			25.3	25.3	25.3
Effective Green, g (s)		24.2	31.6	31.6	19.1	25.9	25.9			25.3	25.3	25.3
Actuated g/C Ratio		0.21	0.28	0.28	0.17	0.23	0.23			0.22	0.22	0.22
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		726	977	437	295	724	326			759	782	350
v/s Ratio Prot		c0.18	c0.22		0.09	c0.18	0.14			c0.17	0.13	
v/s Ratio Perm				0.06								0.06
v/c Ratio		0.87	0.81	0.21	0.56	0.80	0.64			0.78	0.59	0.27
Uniform Delay, d1		43.5	38.7	31.8	43.8	41.8	40.0			42.0	39.9	36.9
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		10.3	5.0	0.1	1.3	6.1	3.0			4.9	0.8	0.1
Delay (s)		53.8	43.7	31.9	45.1	47.9	43.0			46.8	40.7	37.0
Level of Service		D	D	C	D	D	D			D	D	D
Approach Delay (s)			45.2			46.2					42.9	
Approach LOS			D			D					D	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	114.4	Sum of lost time (s)	16.2
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	180	397	159	0
Future Volume (vph)	180	397	159	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3387		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3387		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	186	409	164	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	186	573	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	22.8	22.8		
Effective Green, g (s)	22.8	22.8		
Actuated g/C Ratio	0.20	0.20		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	352	675		
v/s Ratio Prot	0.11	c0.17		
v/s Ratio Perm				
v/c Ratio	0.53	0.85		
Uniform Delay, d1	41.0	44.1		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.7	9.4		
Delay (s)	41.7	53.5		
Level of Service	D	D		
Approach Delay (s)		50.6		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	53.3
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	159	756	34	0	14	815	191	0	27	0	20
Future Vol, veh/h	0	159	756	34	0	14	815	191	0	27	0	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	173	822	37	0	15	886	208	0	29	0	22
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	58.1	59.5	12.4
HCM LOS	F	F	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	57%	30%	0%	3%	0%	53%
Vol Thru, %	0%	70%	92%	97%	68%	0%
Vol Right, %	43%	0%	8%	0%	32%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	537	412	422	599	254
LT Vol	27	159	0	14	0	135
Through Vol	0	378	378	408	408	0
RT Vol	20	0	34	0	191	119
Lane Flow Rate	51	584	448	458	651	276
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.118	1	0.896	0.923	1	0.544
Departure Headway (Hd)	8.298	7.405	7.199	7.251	7.01	7.088
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	496	506	504	520	508
Service Time	6.298	5.122	4.916	4.975	4.734	5.155
HCM Lane V/C Ratio	0.117	1.177	0.885	0.909	1.252	0.543
HCM Control Delay	12.4	67.9	45.3	50.3	66	18.4
HCM Lane LOS	B	F	E	F	F	C
HCM 95th-tile Q	0.4	13.5	10.1	10.9	13.9	3.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	135	0	119
Future Vol, veh/h	0	135	0	119
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	147	0	129
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	18.4
HCM LOS	C

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	298	158	124	317	76	287	630	136	70	577	196
Future Volume (vph)	165	298	158	124	317	76	287	630	136	70	577	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3360			3490	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3360			3490	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	168	304	161	127	323	78	293	643	139	71	589	200
RTOR Reduction (vph)	0	34	0	0	0	63	0	0	90	0	0	155
Lane Group Flow (vph)	0	599	0	0	450	15	293	643	49	71	589	45
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		21.0			17.2	17.2	17.9	32.0	32.0	6.5	20.6	20.6
Effective Green, g (s)		21.0			17.2	17.2	17.9	32.0	32.0	6.5	20.6	20.6
Actuated g/C Ratio		0.23			0.19	0.19	0.20	0.35	0.35	0.07	0.23	0.23
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		777			661	300	349	1794	558	126	1154	359
v/s Ratio Prot		c0.18			c0.13		c0.17	0.13		0.04	c0.12	
v/s Ratio Perm						0.01			0.03			0.03
v/c Ratio		0.77			0.68	0.05	0.84	0.36	0.09	0.56	0.51	0.13
Uniform Delay, d1		32.6			34.2	30.1	35.0	21.7	19.6	40.7	30.6	27.9
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		4.3			2.3	0.0	15.4	0.2	0.1	3.4	0.5	0.2
Delay (s)		36.9			36.5	30.1	50.4	21.9	19.7	44.1	31.2	28.1
Level of Service		D			D	C	D	C	B	D	C	C
Approach Delay (s)		36.9			35.6			29.4			31.5	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	109	289	56	104	17	302	229	32	11	229	166
Future Volume (vph)	159	109	289	56	104	17	302	229	32	11	229	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1809	1583		3433		1770	1829		1770	1863	1583
Flt Permitted		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1809	1583		3433		1770	1829		1770	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	166	114	301	58	108	18	315	239	33	11	239	173
RTOR Reduction (vph)	0	0	186	0	9	0	0	3	0	0	0	116
Lane Group Flow (vph)	0	280	115	0	175	0	315	269	0	11	239	57
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		18.7	36.9		11.9		18.2	49.2		0.7	31.7	31.7
Effective Green, g (s)		18.7	36.9		11.9		18.2	49.2		0.7	31.7	31.7
Actuated g/C Ratio		0.19	0.38		0.12		0.19	0.51		0.01	0.33	0.33
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		350	605		423		333	932		12	611	520
v/s Ratio Prot		c0.15	0.04		c0.05		c0.18	0.15		0.01	c0.13	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.80	0.19		0.41		0.95	0.29		0.92	0.39	0.11
Uniform Delay, d1		37.1	19.8		39.1		38.7	13.6		47.9	25.0	22.6
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		12.3	0.2		0.7		37.3	0.8		212.2	1.9	0.4
Delay (s)		49.4	20.0		39.7		76.0	14.4		260.0	26.8	23.0
Level of Service		D	C		D		E	B		F	C	C
Approach Delay (s)		34.2			39.7			47.4			31.3	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	556	0	370	1037	0	0	0	0	461	1	282
Future Volume (vph)	0	556	0	370	1037	0	0	0	0	461	1	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.97	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1581	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1581	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	604	0	402	1127	0	0	0	0	501	1	307
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	604	0	402	1127	0	0	0	0	281	276	252
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.1		11.4	29.5					15.2	15.2	15.2
Effective Green, g (s)		15.1		11.4	29.5					15.2	15.2	15.2
Actuated g/C Ratio		0.29		0.22	0.56					0.29	0.29	0.29
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1010		739	1973					483	454	432
v/s Ratio Prot		0.17		0.12	c0.32					0.17	c0.17	0.17
v/s Ratio Perm												
v/c Ratio		0.60		0.54	0.57					0.58	0.61	0.58
Uniform Delay, d1		16.3		18.4	7.6					16.1	16.3	16.1
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6		0.4	0.3					1.2	1.6	1.3
Delay (s)		16.9		18.9	7.8					17.3	17.9	17.4
Level of Service		B		B	A					B	B	B
Approach Delay (s)		16.9			10.7			0.0			17.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	11.2
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	710	0	170	651	64	594	62	326	65	118	140
Future Volume (vph)	182	710	0	170	651	64	594	62	326	65	118	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	196	763	0	183	700	69	639	67	351	70	127	151
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	259	0	0	128
Lane Group Flow (vph)	196	763	0	183	762	0	351	355	92	0	197	23
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	15.4	27.4		14.5	27.0		25.5	25.5	25.5		14.7	14.7
Effective Green, g (s)	15.4	27.4		14.5	27.0		25.5	25.5	25.5		14.7	14.7
Actuated g/C Ratio	0.16	0.28		0.15	0.28		0.26	0.26	0.26		0.15	0.15
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	279	993		262	966		439	444	413		275	238
v/s Ratio Prot	c0.11	0.22		0.10	c0.22		c0.21	0.21	0.06		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.70	0.77		0.70	0.79		0.80	0.80	0.22		0.72	0.10
Uniform Delay, d1	38.9	32.2		39.5	32.7		33.7	33.7	28.3		39.5	35.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.4	3.3		6.4	4.0		9.2	9.1	0.1		7.2	0.1
Delay (s)	45.3	35.5		45.9	36.7		42.9	42.8	28.4		46.7	35.8
Level of Service	D	D		D	D		D	D	C		D	D
Approach Delay (s)		37.5			38.5			38.0			41.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	15.5
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	46	0	1	6	5	120	401	0	241	360	303
Future Volume (vph)	3	46	0	1	6	5	120	401	0	241	360	303
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91			0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3390			3514	1583	1770	3539		1770	3539	1583
Flt Permitted	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3390			3514	1583	1770	3539		1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	3	47	0	1	6	5	122	409	0	246	367	309
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	120
Lane Group Flow (vph)	3	47	0	0	7	5	122	409	0	246	367	189
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	3.7	3.7			0.9	75.1	8.5	39.4		15.1	46.0	46.0
Effective Green, g (s)	3.7	3.7			0.9	75.1	8.5	39.4		15.1	46.0	46.0
Actuated g/C Ratio	0.05	0.05			0.01	1.00	0.11	0.52		0.20	0.61	0.61
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	79	167			42	1583	200	1856		355	2167	969
v/s Ratio Prot	0.00	c0.01			c0.00		0.07	c0.12		c0.14	0.10	
v/s Ratio Perm						0.00						0.12
v/c Ratio	0.04	0.28			0.17	0.00	0.61	0.22		0.69	0.17	0.20
Uniform Delay, d1	34.0	34.4			36.7	0.0	31.7	9.6		27.8	6.3	6.4
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.9			1.9	0.0	5.2	0.3		5.8	0.2	0.5
Delay (s)	34.2	35.3			38.6	0.0	36.9	9.9		33.6	6.5	6.9
Level of Service	C	D			D	A	D	A		C	A	A
Approach Delay (s)		35.3			22.5			16.1			13.8	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	114	89	332	333	46
Future Volume (vph)	41	114	89	332	333	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3475	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	124	97	361	362	50
RTOR Reduction (vph)	0	113	0	0	8	0
Lane Group Flow (vph)	45	11	97	361	404	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	6.1	6.1	7.7	53.2	41.5	
Effective Green, g (s)	6.1	6.1	7.7	53.2	41.5	
Actuated g/C Ratio	0.09	0.09	0.11	0.79	0.62	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	160	143	202	2797	2142	
v/s Ratio Prot	c0.03		c0.05	0.10	c0.12	
v/s Ratio Perm		0.01				
v/c Ratio	0.28	0.08	0.48	0.13	0.19	
Uniform Delay, d1	28.6	28.0	27.9	1.6	5.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.2	1.8	0.1	0.2	
Delay (s)	29.5	28.3	29.7	1.7	5.8	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.6			7.7	5.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1621	691	0	852	989
Future Volume (vph)	0	1621	691	0	852	989
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1801	768	0	947	1099
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1801	768	0	947	1099
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		38.0	37.0		26.0	26.0
Effective Green, g (s)		38.0	37.0		26.0	26.0
Actuated g/C Ratio		0.53	0.52		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1886	1836		1251	1016
v/s Ratio Prot		c0.51	0.22		0.28	c0.39
v/s Ratio Perm						
v/c Ratio		0.95	0.42		0.76	1.08
Uniform Delay, d1		15.8	10.5		19.9	22.6
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		11.7	0.1		2.4	53.0
Delay (s)		27.5	10.6		22.2	75.7
Level of Service		C	B		C	E
Approach Delay (s)		27.5	10.6		50.9	
Approach LOS		C	B		D	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	8.3
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	695	1718	734	0	0	0
Future Volume (vph)	695	1718	734	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	799	1975	844	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	799	1975	844	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	12.8	36.2	15.8			
Effective Green, g (s)	12.8	36.2	15.8			
Actuated g/C Ratio	0.35	1.00	0.44			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1213	3539	1544			
v/s Ratio Prot	0.23	c0.56	0.24			
v/s Ratio Perm						
v/c Ratio	0.66	0.56	0.55			
Uniform Delay, d1	9.9	0.0	7.5			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	1.0	0.2	0.2			
Delay (s)	10.9	0.2	7.8			
Level of Service	B	A	A			
Approach Delay (s)		3.3	7.8		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	36.2	Sum of lost time (s)	7.6
Intersection Capacity Utilization	109.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	2	608	785	303	168	355	375	104	225	351	449	218
Future Volume (vph)	2	608	785	303	168	355	375	104	225	351	449	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.94	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3197	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3197	1441			3433	3539	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	2	627	809	312	173	366	387	107	232	362	463	225
RTOR Reduction (vph)	0	0	0	214	0	0	56	0	0	0	0	129
Lane Group Flow (vph)	0	629	809	98	173	590	214	0	0	594	463	96
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		24.3	32.0	32.0	19.2	26.3	26.3			25.3	25.3	25.3
Effective Green, g (s)		24.3	32.0	32.0	19.2	26.3	26.3			25.3	25.3	25.3
Actuated g/C Ratio		0.21	0.28	0.28	0.17	0.23	0.23			0.22	0.22	0.22
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		725	984	440	295	731	329			755	778	348
v/s Ratio Prot		c0.18	c0.23		0.10	c0.18	0.15			c0.17	0.13	
v/s Ratio Perm				0.06								0.06
v/c Ratio		0.87	0.82	0.22	0.59	0.81	0.65			0.79	0.60	0.28
Uniform Delay, d1		43.8	38.8	31.9	44.2	42.0	40.2			42.3	40.3	37.3
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		10.4	5.4	0.1	1.9	6.2	3.5			5.0	0.8	0.2
Delay (s)		54.2	44.2	32.0	46.2	48.1	43.7			47.3	41.1	37.4
Level of Service		D	D	C	D	D	D			D	D	D
Approach Delay (s)			45.6			46.6					43.3	
Approach LOS			D			D					D	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.2
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	180	397	159	0
Future Volume (vph)	180	397	159	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3387		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3387		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97
Adj. Flow (vph)	186	409	164	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	186	573	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	22.9	22.9		
Effective Green, g (s)	22.9	22.9		
Actuated g/C Ratio	0.20	0.20		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	352	674		
v/s Ratio Prot	0.11	c0.17		
v/s Ratio Perm				
v/c Ratio	0.53	0.85		
Uniform Delay, d1	41.2	44.4		
Progression Factor	1.00	1.00		
Incremental Delay, d2	0.7	9.7		
Delay (s)	41.9	54.1		
Level of Service	D	D		
Approach Delay (s)		51.1		
Approach LOS		D		

Intersection Summary

Intersection	
Intersection Delay, s/veh	55.2
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	159	777	34	0	14	836	191	0	27	0	20
Future Vol, veh/h	0	159	777	34	0	14	836	191	0	27	0	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	173	845	37	0	15	909	208	0	29	0	22
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	60	61.6	12.4
HCM LOS	F	F	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	57%	29%	0%	3%	0%	53%
Vol Thru, %	0%	71%	92%	97%	69%	0%
Vol Right, %	43%	0%	8%	0%	31%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	47	548	423	432	609	254
LT Vol	27	159	0	14	0	135
Through Vol	0	389	389	418	418	0
RT Vol	20	0	34	0	191	119
Lane Flow Rate	51	595	459	470	662	276
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.118	1	0.921	0.948	1	0.544
Departure Headway (Hd)	8.298	7.42	7.219	7.267	7.031	7.095
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	494	505	502	523	508
Service Time	6.298	5.134	4.932	4.989	4.753	5.155
HCM Lane V/C Ratio	0.117	1.204	0.909	0.936	1.266	0.543
HCM Control Delay	12.4	68	49.7	55.3	66.1	18.4
HCM Lane LOS	B	F	E	F	F	C
HCM 95th-tile Q	0.4	13.5	10.9	11.7	13.8	3.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	135	0	119
Future Vol, veh/h	0	135	0	119
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	147	0	129
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	18.4
HCM LOS	C

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	319	158	126	338	78	287	630	138	72	577	196
Future Volume (vph)	165	319	158	126	338	78	287	630	138	72	577	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3366			3492	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.99			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3366			3492	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	168	326	161	129	345	80	293	643	141	73	589	200
RTOR Reduction (vph)	0	31	0	0	0	65	0	0	92	0	0	155
Lane Group Flow (vph)	0	624	0	0	474	15	293	643	49	73	589	45
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		21.4			17.5	17.5	17.9	32.1	32.1	6.6	20.8	20.8
Effective Green, g (s)		21.4			17.5	17.5	17.9	32.1	32.1	6.6	20.8	20.8
Actuated g/C Ratio		0.23			0.19	0.19	0.20	0.35	0.35	0.07	0.23	0.23
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		786			667	302	345	1781	554	127	1154	359
v/s Ratio Prot		c0.19			c0.14		c0.17	0.13		0.04	c0.12	
v/s Ratio Perm						0.01			0.03			0.03
v/c Ratio		0.79			0.71	0.05	0.85	0.36	0.09	0.57	0.51	0.13
Uniform Delay, d1		33.0			34.7	30.3	35.5	22.1	19.9	41.1	30.9	28.2
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		5.2			3.0	0.0	16.8	0.2	0.1	3.9	0.5	0.2
Delay (s)		38.2			37.7	30.3	52.3	22.3	20.0	45.0	31.5	28.4
Level of Service		D			D	C	D	C	C	D	C	C
Approach Delay (s)		38.2			36.6			30.2			31.9	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	109	291	56	104	17	304	229	32	11	229	167
Future Volume (vph)	160	109	291	56	104	17	304	229	32	11	229	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1809	1583		3433		1770	1829		1770	1863	1583
Flt Permitted		0.97	1.00		0.98		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1809	1583		3433		1770	1829		1770	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	167	114	303	58	108	18	317	239	33	11	239	174
RTOR Reduction (vph)	0	0	187	0	9	0	0	3	0	0	0	117
Lane Group Flow (vph)	0	281	116	0	175	0	317	269	0	11	239	57
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		18.8	37.0		11.9		18.2	49.1		0.7	31.6	31.6
Effective Green, g (s)		18.8	37.0		11.9		18.2	49.1		0.7	31.6	31.6
Actuated g/C Ratio		0.19	0.38		0.12		0.19	0.51		0.01	0.33	0.33
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		352	606		423		333	930		12	610	518
v/s Ratio Prot		c0.16	0.04		c0.05		c0.18	0.15		0.01	c0.13	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.80	0.19		0.41		0.95	0.29		0.92	0.39	0.11
Uniform Delay, d1		37.0	19.8		39.1		38.7	13.6		47.9	25.0	22.6
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		11.9	0.2		0.7		38.5	0.8		212.2	1.9	0.4
Delay (s)		49.0	20.0		39.7		77.2	14.4		260.0	26.9	23.1
Level of Service		D	B		D		E	B		F	C	C
Approach Delay (s)		33.9			39.7			48.2			31.4	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	96.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	556	0	377	1037	0	0	0	0	461	1	282
Future Volume (vph)	0	556	0	377	1037	0	0	0	0	461	1	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.97	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1581	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1581	1504
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	604	0	410	1127	0	0	0	0	501	1	307
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	604	0	410	1127	0	0	0	0	281	276	252
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.1		11.6	29.7					15.3	15.3	15.3
Effective Green, g (s)		15.1		11.6	29.7					15.3	15.3	15.3
Actuated g/C Ratio		0.28		0.22	0.56					0.29	0.29	0.29
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1004		748	1975					483	454	432
v/s Ratio Prot		0.17		0.12	c0.32					0.17	c0.17	0.17
v/s Ratio Perm												
v/c Ratio		0.60		0.55	0.57					0.58	0.61	0.58
Uniform Delay, d1		16.5		18.5	7.6					16.2	16.4	16.2
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.7		0.4	0.2					1.2	1.6	1.3
Delay (s)		17.2		18.9	7.9					17.4	17.9	17.5
Level of Service		B		B	A					B	B	B
Approach Delay (s)		17.2			10.8			0.0			17.6	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	11.2
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	710	0	170	658	64	594	62	333	65	118	140
Future Volume (vph)	182	710	0	170	658	64	594	62	333	65	118	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3492		1681	1701	1583		1830	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	196	763	0	183	708	69	639	67	358	70	127	151
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	265	0	0	128
Lane Group Flow (vph)	196	763	0	183	771	0	351	355	93	0	197	23
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	15.4	27.7		14.5	27.3		25.5	25.5	25.5		14.7	14.7
Effective Green, g (s)	15.4	27.7		14.5	27.3		25.5	25.5	25.5		14.7	14.7
Actuated g/C Ratio	0.16	0.28		0.15	0.28		0.26	0.26	0.26		0.15	0.15
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	278	1001		262	973		437	443	412		274	237
v/s Ratio Prot	c0.11	0.22		0.10	c0.22		c0.21	0.21	0.06		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.71	0.76		0.70	0.79		0.80	0.80	0.23		0.72	0.10
Uniform Delay, d1	39.1	32.1		39.6	32.7		33.9	33.8	28.4		39.6	35.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.5	3.1		6.4	4.2		9.7	9.5	0.1		7.3	0.1
Delay (s)	45.6	35.2		46.0	36.8		43.6	43.3	28.6		46.9	35.9
Level of Service	D	D		D	D		D	D	C		D	D
Approach Delay (s)		37.3			38.6			38.4			42.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	97.9	Sum of lost time (s)	15.5
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	46	0	1	6	5	120	402	0	241	361	310
Future Volume (vph)	10	46	0	1	6	5	120	402	0	241	361	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91			0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3387			3514	1583	1770	3539		1770	3539	1583
Flt Permitted	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3387			3514	1583	1770	3539		1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	10	47	0	1	6	5	122	410	0	246	368	316
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	123
Lane Group Flow (vph)	9	48	0	0	7	5	122	410	0	246	368	193
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	3.8	3.8			0.9	75.2	8.5	39.4		15.1	46.0	46.0
Effective Green, g (s)	3.8	3.8			0.9	75.2	8.5	39.4		15.1	46.0	46.0
Actuated g/C Ratio	0.05	0.05			0.01	1.00	0.11	0.52		0.20	0.61	0.61
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	81	171			42	1583	200	1854		355	2164	968
v/s Ratio Prot	0.01	c0.01			c0.00		0.07	c0.12		c0.14	0.10	
v/s Ratio Perm						0.00						0.12
v/c Ratio	0.11	0.28			0.17	0.00	0.61	0.22		0.69	0.17	0.20
Uniform Delay, d1	34.1	34.4			36.8	0.0	31.8	9.6		27.9	6.3	6.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.9			1.9	0.0	5.2	0.3		5.8	0.2	0.5
Delay (s)	34.7	35.3			38.7	0.0	37.0	9.9		33.7	6.5	6.9
Level of Service	C	D			D	A	D	A		C	A	A
Approach Delay (s)		35.2			22.6			16.1			13.8	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	75.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	114	89	334	335	46
Future Volume (vph)	41	114	89	334	335	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3475	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3475	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	124	97	363	364	50
RTOR Reduction (vph)	0	113	0	0	8	0
Lane Group Flow (vph)	45	11	97	363	406	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	6.1	6.1	7.7	53.2	41.5	
Effective Green, g (s)	6.1	6.1	7.7	53.2	41.5	
Actuated g/C Ratio	0.09	0.09	0.11	0.79	0.62	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	160	143	202	2797	2142	
v/s Ratio Prot	c0.03		c0.05	0.10	c0.12	
v/s Ratio Perm		0.01				
v/c Ratio	0.28	0.08	0.48	0.13	0.19	
Uniform Delay, d1	28.6	28.0	27.9	1.6	5.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.2	1.8	0.1	0.2	
Delay (s)	29.5	28.3	29.7	1.7	5.8	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.6			7.6	5.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1808	1068	0	946	965
Future Volume (vph)	0	1808	1068	0	946	965
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1965	1161	0	1028	1049
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1965	1161	0	1028	1049
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		38.1	37.1		26.0	26.0
Effective Green, g (s)		38.1	37.1		26.0	26.0
Actuated g/C Ratio		0.53	0.52		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1888	1838		1250	1014
v/s Ratio Prot		c0.56	0.33		0.30	c0.38
v/s Ratio Perm						
v/c Ratio		1.04	0.63		0.82	1.03
Uniform Delay, d1		16.7	12.3		20.6	22.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		32.2	0.5		4.3	37.5
Delay (s)		48.9	12.8		24.9	60.2
Level of Service		D	B		C	E
Approach Delay (s)		48.9	12.8		42.7	
Approach LOS		D	B		D	

Intersection Summary			
HCM 2000 Control Delay	38.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	8.3
Intersection Capacity Utilization	125.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	734	1958	1133	0	0	0
Future Volume (vph)	734	1958	1133	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	765	2040	1180	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	765	2040	1180	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	14.2	43.3	21.5			
Effective Green, g (s)	14.2	43.3	21.5			
Actuated g/C Ratio	0.33	1.00	0.50			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1125	3539	1757			
v/s Ratio Prot	0.22	c0.58	0.33			
v/s Ratio Perm						
v/c Ratio	0.68	0.58	0.67			
Uniform Delay, d1	12.6	0.0	8.2			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	1.4	0.2	0.8			
Delay (s)	13.9	0.2	9.0			
Level of Service	B	A	A			
Approach Delay (s)		4.0	9.0		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	7.6
Intersection Capacity Utilization	125.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	2	612	1033	299	368	727	444	166	302	505	449	607
Future Volume (vph)	2	612	1033	299	368	727	444	166	302	505	449	607
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.97	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3282	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3282	1441			3433	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	624	1054	305	376	742	453	169	308	515	458	619
RTOR Reduction (vph)	0	0	0	155	0	0	53	0	0	0	0	217
Lane Group Flow (vph)	0	626	1054	150	376	946	365	0	0	823	458	402
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		24.9	39.9	39.9	20.0	34.4	34.4			30.0	30.0	30.0
Effective Green, g (s)		24.9	39.9	39.9	20.0	34.4	34.4			30.0	30.0	30.0
Actuated g/C Ratio		0.19	0.31	0.31	0.15	0.26	0.26			0.23	0.23	0.23
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		655	1082	483	271	865	379			789	813	363
v/s Ratio Prot		0.18	c0.30		c0.21	c0.29	0.25			0.24	0.13	
v/s Ratio Perm				0.09								c0.25
v/c Ratio		0.96	0.97	0.31	1.39	1.09	0.96			1.04	0.56	1.11
Uniform Delay, d1		52.3	44.8	34.8	55.2	48.0	47.4			50.2	44.5	50.2
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		24.3	21.1	0.1	195.6	59.4	36.2			43.8	0.5	79.3
Delay (s)		76.6	65.9	34.9	250.8	107.4	83.6			94.1	45.0	129.5
Level of Service		E	E	C	F	F	F			F	D	F
Approach Delay (s)			64.5			132.7					93.8	
Approach LOS			E			F					F	

Intersection Summary			
HCM 2000 Control Delay	94.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.5	Sum of lost time (s)	16.2
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	350	426	157	0
Future Volume (vph)	350	426	157	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3396		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3396		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98
Adj. Flow (vph)	357	435	160	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	357	595	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	25.0	25.0		
Effective Green, g (s)	25.0	25.0		
Actuated g/C Ratio	0.19	0.19		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	339	650		
v/s Ratio Prot	c0.20	0.18		
v/s Ratio Perm				
v/c Ratio	1.05	0.92		
Uniform Delay, d1	52.8	51.7		
Progression Factor	1.00	1.00		
Incremental Delay, d2	63.5	17.3		
Delay (s)	116.3	69.0		
Level of Service	F	E		
Approach Delay (s)		86.7		
Approach LOS		F		

Intersection Summary

Intersection	
Intersection Delay, s/veh	66.6
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	581	1072	124	0	25	1445	339	0	44	0	28
Future Vol, veh/h	0	581	1072	124	0	25	1445	339	0	44	0	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	632	1165	135	0	27	1571	368	0	48	0	30
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	71.1	70	14.4
HCM LOS	F	F	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	61%	52%	0%	3%	0%	49%
Vol Thru, %	0%	48%	81%	97%	68%	0%
Vol Right, %	39%	0%	19%	0%	32%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	1117	660	748	1062	387
LT Vol	44	581	0	25	0	191
Through Vol	0	536	536	723	723	0
RT Vol	28	0	124	0	339	196
Lane Flow Rate	78	1214	717	812	1154	421
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.197	1	1	1	1	0.85
Departure Headway (Hd)	9.047	8.231	7.839	7.987	7.747	7.271
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	395	461	473	463	485	496
Service Time	7.131	5.931	5.539	5.687	5.447	5.338
HCM Lane V/C Ratio	0.197	2.633	1.516	1.754	2.379	0.849
HCM Control Delay	14.4	71.8	69.9	70.6	69.5	39.4
HCM Lane LOS	B	F	F	F	F	E
HCM 95th-tile Q	0.7	12.8	13.1	13	13.2	8.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	191	0	196
Future Vol, veh/h	0	191	0	196
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	208	0	213
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	39.4
HCM LOS	E

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	530	297	173	124	384	106	351	912	136	109	994	854
Future Volume (vph)	530	297	173	124	384	106	351	912	136	109	994	854
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3358			3497	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3358			3497	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	552	309	180	129	400	110	366	950	142	114	1035	890
RTOR Reduction (vph)	0	18	0	0	0	90	0	0	91	0	0	352
Lane Group Flow (vph)	0	1023	0	0	529	20	366	950	51	114	1035	538
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		23.7			19.0	19.0	21.2	37.1	37.1	9.5	25.4	25.4
Effective Green, g (s)		23.7			19.0	19.0	21.2	37.1	37.1	9.5	25.4	25.4
Actuated g/C Ratio		0.23			0.18	0.18	0.21	0.36	0.36	0.09	0.25	0.25
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		770			643	291	363	1826	568	162	1250	389
v/s Ratio Prot		c0.30			c0.15		c0.21	0.19		0.06	0.20	
v/s Ratio Perm						0.01			0.03			c0.34
v/c Ratio		1.33			0.82	0.07	1.01	0.52	0.09	0.70	0.83	1.38
Uniform Delay, d1		39.8			40.5	34.8	41.0	26.1	21.9	45.5	36.9	39.0
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		156.9			8.0	0.0	49.3	0.4	0.1	10.7	4.9	187.5
Delay (s)		196.7			48.5	34.9	90.4	26.4	22.0	56.3	41.8	226.5
Level of Service		F			D	C	F	C	C	E	D	F
Approach Delay (s)		196.7			46.2			42.1			123.2	
Approach LOS		F			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	105.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	117	309	56	122	17	353	229	32	11	229	194
Future Volume (vph)	170	117	309	56	122	17	353	229	32	11	229	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected		0.97	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1809	1583		3443		1770	1829		1770	1863	1583
Flt Permitted		0.97	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1809	1583		3443		1770	1829		1770	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	177	122	322	58	127	18	368	239	33	11	239	202
RTOR Reduction (vph)	0	0	197	0	7	0	0	3	0	0	0	137
Lane Group Flow (vph)	0	299	125	0	196	0	368	269	0	11	239	65
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		19.9	38.1		12.4		18.2	49.1		0.7	31.6	31.6
Effective Green, g (s)		19.9	38.1		12.4		18.2	49.1		0.7	31.6	31.6
Actuated g/C Ratio		0.20	0.39		0.13		0.19	0.50		0.01	0.32	0.32
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		366	614		435		328	915		12	600	509
v/s Ratio Prot		c0.17	0.04		c0.06		c0.21	0.15		0.01	c0.13	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.82	0.20		0.45		1.12	0.29		0.92	0.40	0.13
Uniform Delay, d1		37.4	19.9		39.7		39.9	14.3		48.7	25.9	23.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		13.2	0.2		0.7		86.8	0.8		212.2	2.0	0.5
Delay (s)		50.5	20.1		40.4		126.7	15.2		260.8	27.8	24.0
Level of Service		D	C		D		F	B		F	C	C
Approach Delay (s)		34.7			40.4			79.3			31.8	
Approach LOS		C			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	98.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	605	0	413	1147	0	0	0	0	503	0	326
Future Volume (vph)	0	605	0	413	1147	0	0	0	0	503	0	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.97	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1575	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1575	1504
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	617	0	421	1170	0	0	0	0	513	0	333
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	617	0	421	1170	0	0	0	0	292	288	266
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.5		12.0	30.5					15.9	15.9	15.9
Effective Green, g (s)		15.5		12.0	30.5					15.9	15.9	15.9
Actuated g/C Ratio		0.28		0.22	0.56					0.29	0.29	0.29
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1004		754	1976					489	458	437
v/s Ratio Prot		0.17		0.12	c0.33					0.17	c0.18	0.18
v/s Ratio Perm												
v/c Ratio		0.61		0.56	0.59					0.60	0.63	0.61
Uniform Delay, d1		17.0		18.9	7.9					16.6	16.8	16.7
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8		0.5	0.3					1.3	1.9	1.7
Delay (s)		17.7		19.5	8.3					17.9	18.7	18.3
Level of Service		B		B	A					B	B	B
Approach Delay (s)		17.7			11.2			0.0			18.3	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	54.6	Sum of lost time (s)	11.2
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	827	0	170	671	64	751	62	406	65	118	146
Future Volume (vph)	185	827	0	170	671	64	751	62	406	65	118	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3493		1681	1698	1583		1830	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3493		1681	1698	1583		1830	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	197	880	0	181	714	68	799	66	432	69	126	155
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	301	0	0	133
Lane Group Flow (vph)	197	880	0	181	776	0	431	434	131	0	195	22
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	15.9	30.8		14.8	30.2		28.6	28.6	28.6		14.8	14.8
Effective Green, g (s)	15.9	30.8		14.8	30.2		28.6	28.6	28.6		14.8	14.8
Actuated g/C Ratio	0.15	0.29		0.14	0.29		0.27	0.27	0.27		0.14	0.14
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	269	1043		250	1009		460	464	433		259	224
v/s Ratio Prot	c0.11	c0.25		0.10	0.22		c0.26	0.26	0.08		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.73	0.84		0.72	0.77		0.94	0.94	0.30		0.75	0.10
Uniform Delay, d1	42.3	34.6		42.9	34.0		37.1	37.0	30.0		43.1	39.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.5	6.1		8.5	3.2		26.4	25.9	0.1		10.5	0.1
Delay (s)	50.8	40.7		51.4	37.2		63.4	63.0	30.2		53.5	39.1
Level of Service	D	D		D	D		E	E	C		D	D
Approach Delay (s)		42.5			39.8			52.2			47.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	104.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	232	0	1	6	13	128	1009	0	331	495	315
Future Volume (vph)	15	232	0	1	6	13	128	1009	0	331	495	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91			0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3389			3514	1583	1770	3539		1770	3539	1583
Flt Permitted	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3389			3514	1583	1770	3539		1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	15	237	0	1	6	13	131	1030	0	338	505	321
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	151
Lane Group Flow (vph)	13	239	0	0	7	13	131	1030	0	338	505	170
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	11.2	11.2			1.0	84.2	11.5	36.0		20.0	44.5	44.5
Effective Green, g (s)	11.2	11.2			1.0	84.2	11.5	36.0		20.0	44.5	44.5
Actuated g/C Ratio	0.13	0.13			0.01	1.00	0.14	0.43		0.24	0.53	0.53
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	214	450			41	1583	241	1513		420	1870	836
v/s Ratio Prot	0.01	c0.07			c0.00		0.07	c0.29		c0.19	0.14	
v/s Ratio Perm						0.01						0.11
v/c Ratio	0.06	0.53			0.17	0.01	0.54	0.68		0.80	0.27	0.20
Uniform Delay, d1	31.9	34.1			41.2	0.0	33.9	19.5		30.3	10.9	10.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	1.2			2.0	0.0	2.5	2.5		10.7	0.4	0.5
Delay (s)	32.0	35.3			43.2	0.0	36.4	22.0		41.0	11.3	11.0
Level of Service	C	D			D	A	D	C		D	B	B
Approach Delay (s)		35.1			15.1			23.6			19.8	
Approach LOS		D			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	114	89	383	353	46
Future Volume (vph)	41	114	89	383	353	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3478	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	124	97	416	384	50
RTOR Reduction (vph)	0	113	0	0	8	0
Lane Group Flow (vph)	45	11	97	416	426	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	6.1	6.1	7.7	53.2	41.5	
Effective Green, g (s)	6.1	6.1	7.7	53.2	41.5	
Actuated g/C Ratio	0.09	0.09	0.11	0.79	0.62	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	160	143	202	2797	2144	
v/s Ratio Prot	c0.03		c0.05	0.12	c0.12	
v/s Ratio Perm		0.01				
v/c Ratio	0.28	0.08	0.48	0.15	0.20	
Uniform Delay, d1	28.6	28.0	27.9	1.7	5.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.2	1.8	0.1	0.2	
Delay (s)	29.5	28.3	29.7	1.8	5.8	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.6			7.1	5.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1809	1069	0	958	965
Future Volume (vph)	0	1809	1069	0	958	965
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.6	4.6		3.7	3.7
Lane Util. Factor		0.95	0.95		0.97	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3539	3539		3433	2787
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3539	3539		3433	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1966	1162	0	1041	1049
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1966	1162	0	1041	1049
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		38.1	37.1		26.0	26.0
Effective Green, g (s)		38.1	37.1		26.0	26.0
Actuated g/C Ratio		0.53	0.52		0.36	0.36
Clearance Time (s)		3.6	4.6		3.7	3.7
Vehicle Extension (s)		2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1888	1838		1250	1014
v/s Ratio Prot		c0.56	0.33		0.30	c0.38
v/s Ratio Perm						
v/c Ratio		1.04	0.63		0.83	1.03
Uniform Delay, d1		16.7	12.3		20.7	22.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		32.4	0.5		4.7	37.5
Delay (s)		49.0	12.8		25.4	60.2
Level of Service		D	B		C	E
Approach Delay (s)		49.0	12.8		42.9	
Approach LOS		D	B		D	

Intersection Summary			
HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	8.3
Intersection Capacity Utilization	125.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	734	1971	1134	0	0	0
Future Volume (vph)	734	1971	1134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.9	4.1			
Lane Util. Factor	0.97	0.95	0.95			
Frt	1.00	1.00	1.00			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	3433	3539	3539			
Flt Permitted	0.95	1.00	1.00			
Satd. Flow (perm)	3433	3539	3539			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	765	2053	1181	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	765	2053	1181	0	0	0
Turn Type	Prot	NA	NA			
Protected Phases	5	2	6			
Permitted Phases						
Actuated Green, G (s)	14.2	43.3	21.5			
Effective Green, g (s)	14.2	43.3	21.5			
Actuated g/C Ratio	0.33	1.00	0.50			
Clearance Time (s)	3.5	3.9	4.1			
Vehicle Extension (s)	2.0	3.0	2.0			
Lane Grp Cap (vph)	1125	3539	1757			
v/s Ratio Prot	0.22	c0.58	0.33			
v/s Ratio Perm						
v/c Ratio	0.68	0.58	0.67			
Uniform Delay, d1	12.6	0.0	8.2			
Progression Factor	1.00	1.00	1.00			
Incremental Delay, d2	1.4	0.2	0.8			
Delay (s)	13.9	0.2	9.0			
Level of Service	B	A	A			
Approach Delay (s)		4.0	9.0		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	7.6
Intersection Capacity Utilization	125.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	2	612	1046	299	376	728	456	166	302	505	449	615
Future Volume (vph)	2	612	1046	299	376	728	456	166	302	505	449	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Lane Util. Factor		0.97	0.95	1.00	1.00	0.91	0.91			0.97	0.95	1.00
Frt		1.00	1.00	0.85	1.00	0.97	0.85			1.00	1.00	0.85
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (prot)		3433	3539	1583	1770	3282	1441			3433	3539	1583
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00			0.95	1.00	1.00
Satd. Flow (perm)		3433	3539	1583	1770	3282	1441			3433	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	2	624	1067	305	384	743	465	169	308	515	458	628
RTOR Reduction (vph)	0	0	0	153	0	0	53	0	0	0	0	217
Lane Group Flow (vph)	0	626	1067	152	384	957	367	0	0	823	458	411
Turn Type	Prot	Prot	NA	Perm	Prot	NA	Prot		Split	Split	NA	Perm
Protected Phases	5	5	2		1	6	6		3	3	3	
Permitted Phases				2								3
Actuated Green, G (s)		24.9	40.0	40.0	20.0	34.5	34.5			30.0	30.0	30.0
Effective Green, g (s)		24.9	40.0	40.0	20.0	34.5	34.5			30.0	30.0	30.0
Actuated g/C Ratio		0.19	0.31	0.31	0.15	0.26	0.26			0.23	0.23	0.23
Clearance Time (s)		3.0	4.0	4.0	3.0	4.6	4.6			4.0	4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)		654	1083	484	271	866	380			788	812	363
v/s Ratio Prot		0.18	c0.30		c0.22	c0.29	0.25			0.24	0.13	
v/s Ratio Perm				0.10								c0.26
v/c Ratio		0.96	0.99	0.31	1.42	1.11	0.97			1.04	0.56	1.13
Uniform Delay, d1		52.3	45.0	34.8	55.3	48.0	47.5			50.3	44.5	50.3
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Incremental Delay, d2		24.6	23.5	0.1	208.0	63.6	36.7			44.2	0.5	87.9
Delay (s)		76.9	68.5	34.9	263.3	111.6	84.2			94.5	45.1	138.2
Level of Service		E	E	C	F	F	F			F	D	F
Approach Delay (s)			66.0			138.1					97.0	
Approach LOS			E			F					F	

Intersection Summary			
HCM 2000 Control Delay	97.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	130.6	Sum of lost time (s)	16.2
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	350	426	157	0
Future Volume (vph)	350	426	157	0
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.6	4.6		
Lane Util. Factor	1.00	0.95		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3396		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3396		
Peak-hour factor, PHF	0.98	0.98	0.98	0.98
Adj. Flow (vph)	357	435	160	0
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	357	595	0	0
Turn Type	Split	NA		Free
Protected Phases	4	4		
Permitted Phases				Free
Actuated Green, G (s)	25.0	25.0		
Effective Green, g (s)	25.0	25.0		
Actuated g/C Ratio	0.19	0.19		
Clearance Time (s)	4.6	4.6		
Vehicle Extension (s)	2.0	2.0		
Lane Grp Cap (vph)	338	650		
v/s Ratio Prot	c0.20	0.18		
v/s Ratio Perm				
v/c Ratio	1.06	0.92		
Uniform Delay, d1	52.8	51.8		
Progression Factor	1.00	1.00		
Incremental Delay, d2	64.5	17.3		
Delay (s)	117.3	69.0		
Level of Service	F	E		
Approach Delay (s)		87.1		
Approach LOS		F		

Intersection Summary

Intersection	
Intersection Delay, s/veh	66.6
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	581	1093	124	0	25	1466	339	0	44	0	28
Future Vol, veh/h	0	581	1093	124	0	25	1466	339	0	44	0	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	632	1188	135	0	27	1593	368	0	48	0	30
Number of Lanes	0	0	2	0	0	0	2	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	2	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	2
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	2
HCM Control Delay	71.1	70	14.4
HCM LOS	F	F	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	61%	52%	0%	3%	0%	49%
Vol Thru, %	0%	48%	82%	97%	68%	0%
Vol Right, %	39%	0%	18%	0%	32%	51%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	1128	671	758	1072	387
LT Vol	44	581	0	25	0	191
Through Vol	0	547	547	733	733	0
RT Vol	28	0	124	0	339	196
Lane Flow Rate	78	1226	729	824	1165	421
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.197	1	1	1	1	0.85
Departure Headway (Hd)	9.047	8.229	7.841	7.987	7.749	7.271
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	395	453	466	461	478	496
Service Time	7.131	5.929	5.541	5.687	5.449	5.338
HCM Lane V/C Ratio	0.197	2.706	1.564	1.787	2.437	0.849
HCM Control Delay	14.4	71.8	69.9	70.6	69.5	39.4
HCM Lane LOS	B	F	F	F	F	E
HCM 95th-tile Q	0.7	12.8	13.1	13	13.2	8.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	191	0	196
Future Vol, veh/h	0	191	0	196
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	208	0	213
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	2
HCM Control Delay	39.4
HCM LOS	E

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	530	318	173	126	405	108	351	912	138	111	994	854
Future Volume (vph)	530	318	173	126	405	108	351	912	138	111	994	854
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Lane Util. Factor		0.95			0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		3362			3498	1583	1770	5085	1583	1770	5085	1583
Flt Permitted		0.97			0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		3362			3498	1583	1770	5085	1583	1770	5085	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	552	331	180	131	422	112	366	950	144	116	1035	890
RTOR Reduction (vph)	0	17	0	0	0	92	0	0	93	0	0	351
Lane Group Flow (vph)	0	1046	0	0	553	21	366	950	51	116	1035	539
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	8	8		7	7		1	6		5	2	
Permitted Phases						7			6			2
Actuated Green, G (s)		23.7			19.1	19.1	21.2	36.9	36.9	9.6	25.3	25.3
Effective Green, g (s)		23.7			19.1	19.1	21.2	36.9	36.9	9.6	25.3	25.3
Actuated g/C Ratio		0.23			0.18	0.18	0.21	0.36	0.36	0.09	0.24	0.24
Clearance Time (s)		3.5			3.5	3.5	3.0	4.0	4.0	3.0	4.0	4.0
Vehicle Extension (s)		2.0			2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)		771			646	292	363	1816	565	164	1245	387
v/s Ratio Prot		c0.31			c0.16		c0.21	0.19		0.07	0.20	
v/s Ratio Perm						0.01			0.03			c0.34
v/c Ratio		1.36			0.86	0.07	1.01	0.52	0.09	0.71	0.83	1.39
Uniform Delay, d1		39.8			40.8	34.8	41.0	26.2	22.1	45.5	37.0	39.0
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		169.0			10.4	0.0	49.3	0.4	0.1	10.8	5.1	191.8
Delay (s)		208.8			51.2	34.8	90.4	26.6	22.2	56.3	42.1	230.8
Level of Service		F			D	C	F	C	C	E	D	F
Approach Delay (s)		208.8			48.4			42.2			125.2	
Approach LOS		F			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	109.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	14.0
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	117	311	56	122	17	355	229	32	11	229	195
Future Volume (vph)	171	117	311	56	122	17	355	229	32	11	229	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		0.95		1.00	1.00		1.00	1.00	1.00
Frt		1.00	0.85		0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected		0.97	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1809	1583		3443		1770	1829		1770	1863	1583
Flt Permitted		0.97	1.00		0.99		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		1809	1583		3443		1770	1829		1770	1863	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	178	122	324	58	127	18	370	239	33	11	239	203
RTOR Reduction (vph)	0	0	198	0	7	0	0	3	0	0	0	138
Lane Group Flow (vph)	0	300	126	0	196	0	370	269	0	11	239	65
Turn Type	Split	NA	pm+ov	Split	NA		Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8		5	2		1	6	
Permitted Phases			4									6
Actuated Green, G (s)		19.9	38.1		12.4		18.2	49.1		0.7	31.6	31.6
Effective Green, g (s)		19.9	38.1		12.4		18.2	49.1		0.7	31.6	31.6
Actuated g/C Ratio		0.20	0.39		0.13		0.19	0.50		0.01	0.32	0.32
Clearance Time (s)		4.0	4.0		4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		366	614		435		328	915		12	600	509
v/s Ratio Prot		c0.17	0.04		c0.06		c0.21	0.15		0.01	c0.13	
v/s Ratio Perm			0.04									0.04
v/c Ratio		0.82	0.20		0.45		1.13	0.29		0.92	0.40	0.13
Uniform Delay, d1		37.4	19.9		39.7		39.9	14.3		48.7	25.9	23.5
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		13.4	0.2		0.7		88.9	0.8		212.2	2.0	0.5
Delay (s)		50.7	20.1		40.4		128.9	15.2		260.8	27.8	24.0
Level of Service		D	C		D		F	B		F	C	C
Approach Delay (s)		34.8			40.4			80.7			31.8	
Approach LOS		C			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	50.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	98.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	605	0	420	1147	0	0	0	0	503	0	326
Future Volume (vph)	0	605	0	420	1147	0	0	0	0	503	0	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Lane Util. Factor		0.95		0.97	0.95					0.95	0.91	0.95
Frt		1.00		1.00	1.00					1.00	0.97	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (prot)		3539		3433	3539					1681	1575	1504
Flt Permitted		1.00		0.95	1.00					0.95	0.96	1.00
Satd. Flow (perm)		3539		3433	3539					1681	1575	1504
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	617	0	429	1170	0	0	0	0	513	0	333
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	617	0	429	1170	0	0	0	0	292	288	266
Turn Type		NA	Free	Prot	NA					Split	NA	Prot
Protected Phases		2		1	6					4	4	4
Permitted Phases			Free									
Actuated Green, G (s)		15.6		12.1	30.7					15.9	15.9	15.9
Effective Green, g (s)		15.6		12.1	30.7					15.9	15.9	15.9
Actuated g/C Ratio		0.28		0.22	0.56					0.29	0.29	0.29
Clearance Time (s)		4.0		3.0	4.0					4.2	4.2	4.2
Vehicle Extension (s)		2.0		2.0	2.0					2.0	2.0	2.0
Lane Grp Cap (vph)		1007		758	1982					487	456	436
v/s Ratio Prot		0.17		0.12	c0.33					0.17	c0.18	0.18
v/s Ratio Perm												
v/c Ratio		0.61		0.57	0.59					0.60	0.63	0.61
Uniform Delay, d1		17.0		19.0	7.9					16.7	16.9	16.8
Progression Factor		1.00		1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.8		0.6	0.3					1.3	2.1	1.8
Delay (s)		17.8		19.6	8.2					18.0	19.0	18.6
Level of Service		B		B	A					B	B	B
Approach Delay (s)		17.8			11.3			0.0			18.5	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	11.2
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	827	0	170	678	64	751	62	413	65	118	146
Future Volume (vph)	185	827	0	170	678	64	751	62	413	65	118	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (prot)	1770	3539		1770	3493		1681	1698	1583		1830	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00		0.98	1.00
Satd. Flow (perm)	1770	3539		1770	3493		1681	1698	1583		1830	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	197	880	0	181	721	68	799	66	439	69	126	155
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	307	0	0	133
Lane Group Flow (vph)	197	880	0	181	783	0	431	434	132	0	195	22
Turn Type	Prot	NA	Free	Prot	NA		Split	NA	Prot	Split	NA	Prot
Protected Phases	5	2		1	6		8	8	8	7	7	7
Permitted Phases			Free									
Actuated Green, G (s)	15.9	30.9		14.8	30.3		28.6	28.6	28.6		14.8	14.8
Effective Green, g (s)	15.9	30.9		14.8	30.3		28.6	28.6	28.6		14.8	14.8
Actuated g/C Ratio	0.15	0.30		0.14	0.29		0.27	0.27	0.27		0.14	0.14
Clearance Time (s)	3.0	4.5		3.0	4.0		4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	269	1045		250	1011		459	464	432		258	223
v/s Ratio Prot	c0.11	c0.25		0.10	0.22		c0.26	0.26	0.08		c0.11	0.01
v/s Ratio Perm												
v/c Ratio	0.73	0.84		0.72	0.77		0.94	0.94	0.31		0.76	0.10
Uniform Delay, d1	42.3	34.6		42.9	34.0		37.1	37.1	30.1		43.2	39.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.5	6.0		8.5	3.4		26.7	25.9	0.1		10.6	0.1
Delay (s)	50.9	40.6		51.4	37.5		63.9	63.0	30.3		53.8	39.2
Level of Service	D	D		D	D		E	E	C		D	D
Approach Delay (s)		42.5			40.1			52.3			47.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	45.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	104.6	Sum of lost time (s)	15.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	232	0	1	6	13	128	1010	0	331	496	322
Future Volume (vph)	22	232	0	1	6	13	128	1010	0	331	496	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91			0.95	1.00	1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00			1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1610	3389			3514	1583	1770	3539		1770	3539	1583
Flt Permitted	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1610	3389			3514	1583	1770	3539		1770	3539	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	22	237	0	1	6	13	131	1031	0	338	506	329
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	155
Lane Group Flow (vph)	20	239	0	0	7	13	131	1031	0	338	506	174
Turn Type	Split	NA	Perm	Split	NA	Free	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			Free			2			6
Actuated Green, G (s)	11.2	11.2			1.0	84.2	11.5	36.0		20.0	44.5	44.5
Effective Green, g (s)	11.2	11.2			1.0	84.2	11.5	36.0		20.0	44.5	44.5
Actuated g/C Ratio	0.13	0.13			0.01	1.00	0.14	0.43		0.24	0.53	0.53
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	214	450			41	1583	241	1513		420	1870	836
v/s Ratio Prot	0.01	c0.07			c0.00		0.07	c0.29		c0.19	0.14	
v/s Ratio Perm						0.01						0.11
v/c Ratio	0.09	0.53			0.17	0.01	0.54	0.68		0.80	0.27	0.21
Uniform Delay, d1	32.0	34.1			41.2	0.0	33.9	19.5		30.3	10.9	10.5
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	1.2			2.0	0.0	2.5	2.5		10.7	0.4	0.6
Delay (s)	32.2	35.3			43.2	0.0	36.4	22.0		41.0	11.3	11.1
Level of Service	C	D			D	A	D	C		D	B	B
Approach Delay (s)		35.0			15.1			23.6			19.8	
Approach LOS		D			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	41	114	89	385	355	46
Future Volume (vph)	41	114	89	385	355	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	3539	3478	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	3539	3478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	124	97	418	386	50
RTOR Reduction (vph)	0	113	0	0	8	0
Lane Group Flow (vph)	45	11	97	418	428	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	6.1	6.1	7.7	53.2	41.5	
Effective Green, g (s)	6.1	6.1	7.7	53.2	41.5	
Actuated g/C Ratio	0.09	0.09	0.11	0.79	0.62	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	160	143	202	2797	2144	
v/s Ratio Prot	c0.03		c0.05	0.12	c0.12	
v/s Ratio Perm		0.01				
v/c Ratio	0.28	0.08	0.48	0.15	0.20	
Uniform Delay, d1	28.6	28.0	27.9	1.7	5.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.2	1.8	0.1	0.2	
Delay (s)	29.5	28.3	29.7	1.8	5.8	
Level of Service	C	C	C	A	A	
Approach Delay (s)	28.6			7.0	5.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group