ATTACHMENT 4

GEOTECHNICAL INVESTIGATION

GEOTECHNICAL INVESTIGATION
RESIDENTIAL DEVELOPMENT
(5th DRAFT FOR CLIENT REVIEW)

16179 E MOZART AVENUE
CAMPBELL, CALIFORNIA

DECEMBER 10, 2019
PROJECT PA18.1046.00

SUBMITTED TO:

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GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
16179 E. MOZART AVENUE
CAMPBELL, CALIFORNIA

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1 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed residential development on a 2.93-acre parcel on the north side of East Mozart Avenue in Campbell, California. The parcel is referenced as the "property," "site," or "project site" in this report. The Assessor Parcel Number (APN) of the property is 424-06-119 which includes the following addresses: 16151, 16157, 16163, 16179, and 16187 East Mozart Avenue. The approximate location of the project site is shown on the Vicinity Map included with Figures 1 and 2 of this report. Figure 1 shows a layout of the site's existing conditions. Figure 2 shows a layout of the site's proposed development.

This report presents our findings, conclusions, and geotechnical recommendations for design and construction of the project. These findings, conclusions, and recommendations are based on information collected and reviewed during this investigation. The conclusions and recommendations in this report should not be extrapolated to other areas or used for other projects without our review.

1.1 Project Description

The project site is currently occupied by an operation yard for West Valley Arborists as well as five single-family residences. The project will involve demolition of the existing structures and improvements on the property, followed by construction of single-family residences and associated improvements. The residential units will be two- or three-story high, wood frame structures, each with a garage. No swimming pools or basements are planned.

Associated improvements will include underground utilities, on-site roadways, landscaping, and an on-site stormwater management system. Site development will also require preservation of designated existing trees in nearby utility, roadway, and building locations to comply with the project arborist's report in the Tree Protection Zones (TPZ) and Critical Root Zones (CRZ). Retaining walls, if required on individual lots, are expected for landscaping purposes and up to about 3 feet in height.

Our review of the preliminary grading plan prepared by Civil Engineering Associates (CEA), dated November 14, 2019, indicates that fill between approximately 1 and 4 feet thick will be required for construction of the building pads.

An underground stormwater management system is proposed in the southwestern portion of the site and will consist of Storm Capture (SC) vaults with invert about 10 feet below ground surface based on preliminary information provided by CEA. This system will be constructed about 11 feet east of the property line with the neighboring 201 and 203 Beethoven Lane properties to the west, and just north of E. Mozart Avenue.

The above project descriptions are based on information provided to us. If the actual project differs from those described above, Geo-Logic Associates (GLA) should be contacted to review

our findings, conclusions, and recommendations and present any necessary modifications to address the different project development schemes.

1.2 Information Provided

For this investigation, Robson Homes provided us with the following.

1. Preliminary project development information and site development plans.

2. A set of 2 sheets of drawings titled ”ALTA/NSPS Title Survey, 16179 East Mozart Avenue, Campbell, California,” prepared by CEA, dated September 28, 2018.

3. A geotechnical investigation report titled “Classics at Mozart Avenue, 16239 Mozart Avenue, Los Gatos, California,” prepared by Lowney Associates, dated September 21, 2004.

4. A set of 17-sheet of civil design drawings, sheets C1 through C15, TM1, and TM2, prepared by CEA, dated November 14, 2019.

5. A report titled “Tree Inventory, Assessment, and Protection, E. Mozart, Campbell, CA 95080,” prepared by Monarch Consulting Arborists, LLC, dated November 24, 2019.

6. A set of architectural drawings prepared by Robert Hidey Architects (RHA), dated November 27, 2019.

1.3 Purpose and Scope of Services

The purpose of this geotechnical investigation was to explore subsurface conditions at the project site and to provide geotechnical recommendations for design and construction of the proposed improvements. The following work was performed.

1. Performed a site reconnaissance to observe site surface conditions and to mark locations of our exploration.

2. Reviewed available geologic and geotechnical information pertinent to the site.

3. Notified Underground Service Alert (USA) for underground utility clearance and coordination of our drilling with Robson Homes and the property owner representative.

4. Subcontracted with a private underground locator, Subdynamic Locating Services, to check the proposed exploration locations for presence of underground utilities.

5. Explored subsurface conditions by means of four exploratory drill holes to depths between approximately 11 and 49 feet below ground surface (bgs) and four Cone Penetration Test (CPT) probes to depths between approximately 7.4 and 35 feet bgs.

6. Drilled hydraulic conductivity test holes and performed hydraulic conductivity testing in each hole. Refer to Sections 2.1.2 and 3.4 for information on our testing.

7. Collected a bulk sample of the near-surface soil.

8. Performed laboratory tests on selected soil samples from the drill holes and on the bulk sample to measure pertinent engineering properties of the samples.

9. Performed engineering analysis on the field and laboratory data.

10. Coordinated with the project arborist regarding tree protection.

11. Prepared this geotechnical investigation report.

2 SITE INVESTIGATION

This investigation consists of a site reconnaissance and a subsurface exploration program. The site reconnaissance was to observe existing site surface conditions. The subsurface exploration program was to explore earth conditions at the project site. The observed surface and subsurface site conditions are discussed in Section 3 of this report.

2.1 Subsurface Exploration

Our geotechnical subsurface exploration program included four exploratory drill holes (DH-1 through DH-4) and four CPT probes (CPT-1 through CPT-4) advanced on October 19, 2018. Our three hydraulic conductivity testing programs included six test holes (P-1 through P-6) drilled on October 19, 2018, five test holes (P-7 through P-11) drilled on June 25, 2019, and ten test holes (P-12a, P-12b, P-14a, P-14b, P-15a, P-15b, P-16a, P-16b, P-17a, and P-17b) drilled on October 19, 2019. The exploratory drill holes, hydraulic conductivity test holes, and CPT probes were located in the field by referencing to existing site features and pacing; therefore, their locations are approximate. Their approximate locations are shown on Figures 1 and 2 of this report. The drill holes and CPTs were backfilled with cement grout after completion of drilling and testing.

2.1.1 Exploratory Drill Holes

The four exploratory drill holes were advanced using a truck-mounted Mobile B53 drill rig equipped with 8-inch diameter hollow-stem augers. The depth of exploration ranged between approximately 11 and 49 feet below ground surface (bgs). In the field, our personnel visually classified the materials encountered and maintained a log of each drill hole.

Soil samples were obtained using a 2-inch outside diameter (O.D.; 1.4-inch inside diameter, I.D.) split-barrel sampler (also called a Standard Penetration Test sampler) and a 3-inch O.D. (2½-inch I.D.) split-barrel sampler. Soil samples were obtained by driving the sampler up to 18 inches into the earth material using a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler was recorded for each 6-inch penetration interval. The number of blows required to drive the sampler the last 12 inches, or the penetration interval indicated on the log when harder material was encountered, is shown as blows per foot (blow count) on the drill hole logs. The samplers were driven with an auto hammer in DH-1 and a downhole safety hammer on a wire winch in DH-2, DH-3, and DH-4.

In the field, our personnel visually classified the materials encountered and maintained a log of each drill hole. Visual classification of soils encountered in our drill holes was made in general accordance with the Unified Soil Classification System (ASTM D 2487 and D 2488). The results of our laboratory tests were used to refine our field classifications. Two Keys to Soil Classification, one for fine grained soils and one for coarse grained soils, are included in Appendix A, together with the logs of these drill holes.

2.1.2 Hydraulic Conductivity Test Holes

The hydraulic conductivity test holes were drilled using a truck-mounted Mobile B53 or Mobile B40 drill rig equipped with 8-inch diameter hollow-stem augers. The holes were drilled in three separate occasions due to changes in the site development plan.

On **October 19, 2018**, six test holes (P-1 through P-6) were drilled to depths between approximately 8 and 8.8 feet bgs. On **June 25, 2019**, five test holes (P-7 through P-11) were drilled to depths between approximately 10.5 and 11 feet bgs. On **October 19, 2019**, ten test holes were drilled at five locations. Each location included a pair of test holes, one to a depth of about 10 feet bgs and another to a depth of about 6 feet bgs. The ±10-foot deep test holes were identified as P-12a, P-14a, P-15a, P-16a, and P-17a. The ±6-foot deep test holes were identified as P-12b, P-14b, P-15b, P-16b, and P-17b).

After each hole was drilled, a solid, 4-inch diameter, Schedule 40 PVC casing was installed in the hole. The annular space of each hole was filled with bentonite pellets in the bottom roughly 3 feet and soil above the bentonite. A slip cap at the top of each test hole keeps foreign material from falling into the hole.

2.1.3 Cone Penetration Test Probes

The four CPT probes were performed by Middle Earth Geo Testing to depths between approximately 7.4 and 35 feet bgs. These depths are shallower than the planned depths because of high resistance to advancement of the CPT probe.

CPT involves pushing a small diameter (15 cm^2 cross-sectional area) steel probe into the ground using a hydraulic jack attached to a truck-mounted rig. The tip of the probe is instrumented and takes almost continuous measurements (roughly every 1 inch) of tip resistance, side friction resistance, and pore pressure. Graphic presentations of the CPT data are included in Appendix A of this report.

2.2 Laboratory Testing

Geotechnical laboratory testing was conducted on selected soil samples collected from our drill holes. These tests included moisture content, dry density, sieve analysis, and percentage passing a No. 200 sieve. An R-value test was performed on the bulk sample collected from the site. The laboratory test results are presented on the drill hole logs at the corresponding sample depths. Graphic presentations of the results of the sieve analysis and R-value tests are presented on separate sheets in Appendix B

In addition to geotechnical testing, two selected soil samples were sent to CERCO Analytical for corrosivity analysis. A brief report from CERCO Analytical with the corrosivity test results is included in Appendix B. Refer to the CERCO report for their test results and findings.

3 FINDINGS

3.1 Surface Conditions

The project site is located in a residential neighborhood and on the north side of East Mozart Avenue, with South Bascom Avenue to the east, existing houses and Beethoven Lane to the west, and existing houses to the north. The south and southwestern portions of the site are occupied by single-family residences and the rest of the site is being used as an operation yard for West Valley Arborists. Existing structures on the site include single-story residences, carports, canopies, sheds, trailers, and containers. Vegetation consists of lawns, bushes, and isolated trees across the site. Other improvements include paved driveways for the residences and the operation yard, and overhead utility lines. Existing ground surface across the site is essentially flat, with a gentle down gradient from the south to north.

3.2 Subsurface Conditions

Subsurface soils encountered at the site consist generally of alluvium. The surficial soil consists mostly of silty sand with gravel. Materials encountered in the four CPT probes are similar in soil behavior type as soils encountered in the drill holes.

In hole DH-1, the surficial soil layer consists of medium dense silty sand with gravel to a depth of roughly 3 feet bgs. This sand is underlain by dense poorly graded gravel with sand to a depth of roughly 7 feet bgs, dense to very dense clayey sand with gravel to a depth of roughly 21.5 feet bgs, dense to very dense poorly graded gravel with sand and clay to a depth of roughly 36.5 feet bgs, very dense clayey gravel with sand to a depth of roughly 40 feet bgs, and very dense clayey sand with gravel to the maximum explored depth of 49 feet.

In hole DH-2, the surficial soil layer consist of medium dense to dense silty sand with gravel to a depth of roughly 4 feet bgs. This sand is underlain by medium dense to very dense clayey sand with gravel to the maximum explored depth of 15 feet.

In hole DH-3, the surficial soil layer consists of medium dense to very dense silty sand with gravel to a depth of roughly 11 feet bgs. This layer of sand is underlain by dense, poorly graded sand with gravel to the maximum explored depth of 15 feet.

In hole DH-4, the surficial soil layer consists of medium dense silty sand with gravel to a depth of roughly 3 feet bgs. This sand is underlain by medium dense poorly graded gravel with sand to a depth of roughly 6 feet bgs, and very dense clayey sand with gravel to the maximum explored depth of 11 feet.

In CPT-1, the interpreted soil behavior type is predominantly clean sand to silty sand to the maximum explored depth of approximately 7.4 feet bgs due to refusal.

In CPT-2, the interpreted soil behavior type is predominantly clean sand to silty sand to the

maximum explored depth of approximately 17.5 feet bgs due to refusal.

In CPT-3, the interpreted soil behavior type is predominantly clean sand to silty sand, with thin lenses of sand to silty sand to clayey sand, to the maximum explored depth of approximately 35 feet due to refusal.

In CPT-4, the interpreted soil behavior type is predominantly clean sand to silty sand to the maximum explored depth of approximately 11.5 feet due to refusal.

For a more detailed description of the subsurface soils encountered in our drill holes, refer to the drill hole logs in Appendix A. For a more detailed description of the subsurface soils encountered in our CPT probes, refer to the CPT plots in Appendix A.

3.3 Groundwater

Groundwater was not encountered in any of the drill holes, hydraulic conductivity test holes, and CPT probes for this investigation, the deepest of which extended to a depth of about 49 feet bgs.

Historical high groundwater at the project site was estimated to be about 25 feet based on our review of Plate 1.2, "Depth to historically highest ground water, historical liquefaction sites, and locations of boreholes used in this study, San Jose West 7.5-minute Quadrangle, California," Seismic Hazard Zone Report 058, prepared by California Geological Survey, Department of Conservation, 2002.

It should be noted that fluctuations in the groundwater level may occur due to seasonal variations in rainfall and temperature, pumping from wells, regional groundwater recharge program, irrigation, or other factors that were not evident at the time of our investigation.

3.4 Field Hydraulic Conductivity Testing

Three rounds of hydraulic conductivity testing were performed. Round 1 included six test holes (P-1 through P-6) drilled on October 19, 2018 and testing performed on October 22, 2018. Round 2 included five test holes (P-7 through P-11) drilled on June 25, 2019 and testing performed on June 27, 2019. Round 3 included ten test holes (P-12a, P-12b, P-14a, P-14b, P-15a, P-15b, P-16a, P-16b, P-17a, and P-17b) drilled on October 19, 2019 and testing performed on October 22, 2019. The approximate locations of the test holes are shown on Figures 1 and 2. The test holes were presoaked with water for at least two days prior to testing.

The tests were performed following the procedures of ASTM Test D6391, Method B, Field Measurement of Hydraulic Conductivity Using Borehole Infiltration. First, water was added to the top of the PVC casing and the standpipe apparatus was attached onto the top of the PVC casing. Water was then added through the standpipe of the test apparatus. The drop of water

level in the standpipe was recorded with time. When the water level in the standpipe became low, water was added. The new initial water level was recorded, and subsequent water level readings in the standpipe were taken over time. The tests were terminated when an apparent stability between subsequent readings was achieved.

In holes P-5 and P-6, the water level in the PVC casings was dropping relatively fast after we filled the casings for preparation of the hydraulic conductivity testing. Therefore, the tests in holes P-5 and P-6 were conducted without the standpipe apparatus. The drop in water level inside the casing was recorded with time and two runs were conducted in each P-5 and P-6.

Based on our analysis, the estimated vertical hydraulic conductivity values are tabulated below. Please note that hydraulic conductivity of soils will vary with gradation, fines content, and density. The estimated hydraulic conductivity values should be considered to an order of magnitude.

Test Hole	Location	Depth of Hole Below Ground Surface (feet)	Field Measured Infiltration Rate (in/hr)
P-1 & P-2	Center of site	8.7 & 8.3	0.04 to 0.06
P-3 & P-4	Northeast area of site	8.8 & 8.5	0.15 to 0.032
P-5 & P-6	Front of 16187 E. Mozart Ave.	8 & 8.8	2.4 to 6
P-7	Behind 16151 E. Mozart Ave.	11	1.15
P-8	Behind 16151 E. Mozart Ave.	10.7	0.003
P-9	Inside West Valley yard	10.8	0.8
P-10	Inside West Valley yard	10.5	1.0
P-11	Behind 16179 E. Mozart Ave.	11	0.27
P-12a	Driveway at 16179 E Mozart Ave.	9.9	0.5
P-12b	Driveway at 16179 E Mozart Ave.	6.6	0.9
P-14a	Backyard of 16179 E Mozart Ave.	10.2	0.6
P-14b	Backyard of 16179 E Mozart Ave.	6.2	0.3
P-15a	Inside West Valley yard	10.4	0.18
P-15b	Inside West Valley yard	5.8	1.0
P-16a	Inside West Valley yard	10.6	0.5
P-16b	Inside West Valley yard	6.4	1.5
P-17a	Inside West Valley yard	9.8	0.8
P-17b	Inside West Valley yard	6.1	1.1

Test holes P-5, P-6, and P-12 were located near the stormwater management system in the southwestern portion of the site. An averaged field measured infiltration rate of 3 inch per

hour may be considered for this area. This rate does not include a factor of safety for the actual design.

3.5 Variations in Subsurface Conditions

Our interpretations of soil and groundwater conditions, as described in this report, are based on information obtained from drill holes and laboratory testing for this study. Our conclusions and recommendations are based on these interpretations. Please realize the site has undergone different phases of development and grading. Therefore, it is likely that undisclosed variations in subsurface conditions exist at the site, particularly old foundations, abandoned utilities and localized areas of deep and loose fill.

Careful observations should be made during construction to verify our interpretations. Should variations from our interpretations be found, we should be notified to evaluate whether any revisions should be made to our recommendations.

4 SEISMIC CONSIDERATIONS

4.1 Earthquake Faulting

The Greater San Francisco Bay Area is seismically dominated by the active San Andreas Fault system, the tectonic boundary between the northward moving Pacific Plate (west of the fault) and the North American Plate (east of the fault). This movement is distributed across a complex system of generally strike-slip, right-lateral, and subparallel faults.

Potential sources of significant earthquake ground shaking at the site include several active and potentially active faults in the San Francisco Bay area, as well as faults farther afield. The faults were first compiled on the State's Fault Activity Map (Jennings, 1974; Jennings and Bryant, 2010). This map has now been integrated into the US Geological Survey's Quaternary Fault and Fold Database and made available as a .kmz "drape" over Google Earth terrain files.

The distance to a seismic source (fault) is defined by the NGA relationships as the closest distance to the seismogenic zone, be it in the subsurface or at the surface; distances may therefore differ from distances measured on the ground surface. The distances shown on the table below are for reference only, as they are horizontal distances from the site to the surface trace of the seismic source, and not necessarily the closest distance to a (dipping) seismogenic zone. These distances were measured using the US Geological Survey's Quaternary Fault and Fold Database, with major faults listed in approximate order of distance from the site; not all sources are listed in the summary table below.

Fault Name	Approximate Distance	Orientation from Site
Monte Vista-Shannon	1 km	Southwest
San Andreas	9 km	Southwest
Sargent	13½ km	South/Southeast
Hayward (southeast extension)	17 km	Northeast
Calaveras (central section)	22 km	Northeast
San Gregorio	34 km	Southwest

4.2 Ground Accelerations

According to the 2016 and 2019 California Building Codes (CBC) and American Society of Civil Engineers (ASCE) Standards 7-10 and 7-16, the spectral response acceleration at any period can be taken as the lesser of the spectral response accelerations from the probabilistic and deterministic ground motion approaches. The Seismic Design Map tool available at the Structural Engineers Association of California (SEAOC) was used for this purpose to retrieve seismic design parameter values for design of buildings at the subject site. Two levels of ground motions are considered: Risk-targeted Maximum Considered Earthquake (MCE_R) and Design Earthquake (DE), with both probabilistic and deterministic values defined in terms of maximum-direction rather than geometric-mean, horizontal spectral acceleration. The probabilistic MCE_R

spectral response accelerations are represented by a 5 percent damped acceleration response spectrum having a 1 percent probability of collapse within a 50-year period and in the direction of the maximum horizontal response. The probabilistic Design Earthquake (DE) Sa value at any period can be taken as two-thirds of the MCER Sa value at the same period.

The site modified peak ground acceleration (PGA_M) was calculated using the Seismic Design Map tool with a site Class C and the latitude and longitude of the site (latitude 37.256833º N, longitude -121.952075º W). The calculated PGA_M is 0.832g based on ASCE 7-10 and 1.079g based on ASCE 7-16.

4.3 Seismicity

The Working Group on California Earthquake Probabilities' (WGCEP) estimates of the probabilities of major earthquakes are now in their sixth iteration, with the greatest changes in approach being the inclusion of multifold rupture scenarios, in the progressive consideration of more potential seismic sources, the possibility of earthquakes on unrecognized faults, and the inclusion of the notion of fault "readiness". Current estimates (WGCEP, 2014) for the San Francisco region indicate a 72% probability of a large (magnitude 6.7 or greater) earthquake in the San Francisco Bay area as a whole over the 30-year period beginning in 2014; this overall probability is greater than the previous (WGCEP, 2007) probability of 63%, due mainly to the inclusion of multi-fault rupture scenarios. The estimate for the Calaveras fault alone is 14.4% (revised up from the 7% presented by WGCEP, 2007); for the (northern) San Andreas fault alone, 27.4% (revised upward from the WGCEP (2007) value of 21%); and for the Hayward fault, 45.3% (revised upward from the WGCEP (2007) value of 31%).

4.4 Liquefaction

Soil liquefaction is a phenomenon in which saturated granular soils, and certain fine-grained soils, lose their strength due to the build-up of excess pore water pressure during cyclic loading, such as that induced by earthquakes. Soils most susceptible to liquefaction are saturated, clean, loose, fine-grained sands and non-plastic silts. Certain gravels, plastic silts, and clays are also susceptible to liquefaction. The primary factors affecting soil liquefaction include: 1) intensity and duration of seismic shaking; 2) soil type; 3) relative density of granular soils; 4) moisture content and plasticity of fine-grained soils; 5) overburden pressure; and 6) depth to ground water.

The project area is located in a Santa Clara County Liquefaction Hazard Zone (County of Santa Clara, October 26, 2012).

Geotechnical information from DH-1 and CPT-3 of this investigation was used for a site-specific liquefaction assessment. Our liquefaction assessment was based on a PGA value of 0.832g, earthquake moment magnitude of 7.9, and a groundwater depth of 25 feet bgs. The results of our analysis suggest the potential for liquefaction is generally low, although some of the

granular soils may be susceptible to liquefaction. The potential liquefaction-induced ground settlement was estimated to be on the order of ½ inch.

4.5 Seismic Design Parameters

The following site coefficients and seismic ground motion parameters are developed using the USGS Seismic Design Maps Application, the latitude and longitude of the site, and a Site Class C based on regional USGS information of the site location and subsurface materials encountered in our subsurface exploration.

Parameter	2016 CBC/ASCE 7-10 Value	2019 CBC/ASCE 7-16 Value
Site Class	C	C
Site Coefficient Fa	1.0	1.2
Site Coefficient Fv	1.3	1.4
S_S	2.228g	2.178
S_1	0.782g	0.781
S_{MS}	2.228g	2.613
S_{M1}	1.016g	1.094
S_{DS}	1.485g	1.742
S_{D1}	0.678g	0.729
PGA_M	0.832g	1.079g

5 CONCLUSIONS AND DISCUSSION

Based on our geotechnical evaluation, it is our opinion the project site may be developed as discussed in this report, provided our geotechnical recommendations are incorporated in the design and construction of the project. Our opinions, conclusions, and recommendations are based on our understanding of the proposed development, data review, properties of soils encountered in subsurface exploration, laboratory test results, and engineering analyses. Geotechnical considerations for this project are discussed below.

5.1 Ground Rupture

The project site is not located in an Alquist-Priolo Earthquake Fault Zone. Because no active or potentially active faults are known to cross the site, the risk of fault rupture through the project site is low.

5.2 Seismic Shaking

The project site is located in an area of high seismicity. Based on general knowledge of the site seismicity, it should be anticipated that, during their useful life, the proposed structures will be subject to at least one severe earthquake (magnitude 7 to 8+) that could cause considerable ground shaking at the site. It is also anticipated that the site will periodically experience small to moderate magnitude earthquakes.

5.3 Disked Soils

The surficial soils in the eastern and northern portions of the site have been disked and are loose. The disturbed soils should be over-excavated and re-compacted as recommended in this report (see Section 6.1.3).

5.4 Expansion Potential of Surficial Soils

The surface and near-surface soils encountered in our drill holes consist generally of silty sand with gravel. These granular soils have a low expansion potential; therefore, soil expansion should not be a concern at this site.

5.5 Existing Improvements

Existing improvements at the site include miscellaneous structures, sheds, trailers, containers, underground utilities, isolated trees, and possibly septic tanks and leach fields. We understand there is no existing water well on the site. Prior to construction, the existing structures and improvements should be removed and the resulting excavations should be properly backfilled with engineered fill under the observation and testing of the project Geotechnical Engineer.

5.6 Foundations for Structures Near Stormwater Management Systems

Structures that are located within the influence zone of the underground stormwater infiltration systems will require special foundation considerations. For planning purposes, structures located between the infiltration vaults and an imaginary plane projected up at an inclination of 1.5:1 (horizontal:vertical) from the outer bottom corner of the vaults should be evaluated for special foundations. Special foundations may include drilled piers, deepened footing foundations, or other appropriate means as determined by the project geotechnical engineer based on final project design.

5.7 Potential Impact of Stormwater Management System on Neighboring Properties

The proposed stormwater management system in the southwestern portion of the site will consist of Storm Capture (SC) vaults located near E. Mozart Avenue to the south and at least 11 feet from the two residential properties to the west (201 and 203 Beethoven Lane). Based on project information provided by the project civil engineer, an excavation of about 10 feet bgs will be required for construction of the system. Temporary construction slopes along the perimeter of the excavation should be constructed per OSHA guidelines (see report Section 6.1.2). Where sloping excavation sidewalls are not possible due to site constraints, such as along the south side of the excavation (E. Mozart Avenue), west side (two neighboring properties), and east side (large oak trees), shoring system will be required during construction of the SC system.

Project planning may consider soldier pile and lagging shoring systems designed to resist lateral soil pressures and surcharge loads acting on the shoring systems. Lateral soil pressures are presented in the “Recommendations” section of this report. Surcharge loads will depend on the magnitude and location of the external forces acting behind the shoring systems, and should be evaluated based on final project design specifics.

Based on civil Sheet C5 provided to us, the proposed stormwater management system in the southwestern portion of the site would be constructed at least 30 feet from the houses on the neighboring properties to the west. At such distance, these neighboring houses are outside of the influence zone of the proposed stormwater system.

We understand future structures which may be constructed on each of the neighboring 201 and 203 Beethoven Lane properties include an accessory dwelling unit (ADU) no closer than 4 feet west of their respective rear property line or a swimming pool no closer than 5 feet from the rear property line. These possible future structures, at 15 feet or more from the SC units, would be outside of the 1.5H:1V influence zone projected from the 10-foot deep SC units at 11 feet east of the property line.

5.8 Potential Migration of Collected Stormwater to Neighboring Properties

To evaluate the potential for stormwater in the SC vaults migrating to the neighboring properties to the west, we have performed a seepage analysis using the computer program SEEP/W. SEEP/W is a finite element software for modeling groundwater flow in porous media. Our analysis was based on the following assumptions.

- A Storm Capture system with its bottom at 10 feet below ground surface
- 7 feet of water inside the Storm Capture vaults, applied instantaneously at time zero instead of a gradual increase in actual storm events
- Subsurface soil profile consisting of granular sand and gravel from ground surface to 50 feet below ground surface (based on our borings and CPTs performed at the site)
- Permeability of $3.5x10^{-4}$ cm/sec (½ inch per hour) for the sand and gravel soils

The results of our seepage analysis are graphically shown in the attached Figures 4A through 4G. The graphics show the water pressure head contours with depth and as a function of elapsed time from 3,600 to 259,200 seconds (1 to 72 hours). Figure 4A shows the water pressure head contours at one-hour elapsed time. Figures 4B through 4G shows the water pressure head contours developing with time, indicating a downward water flow. Because of a water head inside the vaults, the water pressure head contours bulge slightly outside of the SC vaults. The 0-0.5 foot water pressure head zone is about 4 to 6 feet outside of the limits of the vaults at depths of 15 to 20 feet bgs. Based on our analysis, it is our opinion the potential is low for water inside the SC vaults, at 11 feet from the property line, to significantly affect the neighboring properties to the west (201 and 203 Beethoven Lane).

5.9 Tree Roots in Proposed Driveway

The main entrance driveway to the project will be constructed between four large oak trees (#501, #502, #503, and #504 in the arborist report and on the project civil plans) in the southwestern portion of the site. The project civil design will include minimizing cuts and lower compaction on the subgrade soil in the tree root areas to reduce impact on the tree roots. We have provided full-depth asphalt concrete pavement sections (with no aggregate base) in Section 6.5 of this report where thinner pavement sections are desired. Based on our discussion with the project arborist, 90 percent relative compaction on the pavement subgrade should not significantly impact the tree roots. A geogrid should be placed on the pavement subgrade in the tree root areas as discussed in the arborist report where lower compaction is desired (also see Section 6.5 of this report).

6 GEOTECHNICAL RECOMMENDATIONS

6.1 Earthwork

6.1.1 Site Preparation, Clearing and Stripping

Prior to grading, construction areas should be cleared of all structures and foundations, obstructions, deleterious materials, abandoned or designated utility lines, designated trees, and other below grade obstacles encountered during the clearing operation. Tree stumps should be grubbed. Roots with diameter of about 1 inch or larger or length of about 3 feet or longer should be removed. Any existing septic tanks and leach fields should be removed. Depressions, excavations, and holes that extend below the planned finish grades should be cleaned and backfilled with engineered fill compacted to the requirements given under the section of "Engineered Fill Placement and Compaction."

After clearing, the site should be stripped to sufficient depth to remove vegetation and organic-laden topsoil. Stripped material may be stockpiled for use in landscape areas if approved by the project landscape architect; otherwise, it should be removed from the site. For planning purposes, an estimated stripping depth of 3 to 6 inches may be assumed. The actual stripping depth should be determined in the field by the Geotechnical Engineer at the time of construction.

6.1.2 Excavation, Temporary Construction Slopes, and Shoring

Excavations are expected for site demolition, removal of loose and disturbed soils, cuts to achieve design grades, and construction of underground utilities, stormwater management systems, shoring, and foundations. The site soils are generally granular with little or no cohesion and excavations will require more extensive bracing or laying back because the granular soils are prone to sudden collapse. Excavations and temporary construction slopes should be constructed in accordance with the current CAL-OSHA safety standards and local jurisdiction. The stability and safety of excavations, braced or unbraced, is the responsibility of the contractor. Care should be exercised when excavating in the proximity of existing structures and improvements. For excavations with no groundwater or seepage, the on-site granular soils may be considered as Type C soil in OSHA 29 CFR Part 1926, Appendix A to Subpart P.

Contractors are responsible for the design, installation, maintenance, and removal of temporary shoring and bracing systems. The presence of existing structures, pavements, and underground utilities must be incorporated in the design of the shoring and bracing systems.

Based on project information provided by the project civil engineer, an excavation of about 10 feet bgs will be required for construction of the SC system. Temporary construction slopes along the perimeter of the excavation should be constructed per OSHA guidelines. Where sloping excavation sidewalls are not possible due to site constraints, such as along the south

side of the excavation (E. Mozart Avenue), west side (two neighboring properties), and east side (large oak trees), shoring system will be required during construction of the SC system. The shoring systems may remain in-place or be removed after backfill of the SC excavation. The shoring systems may be designed using the parameters given in report Section 6.4.

Trench excavations adjacent to existing or proposed foundations should be above an imaginary plane having an inclination of 1½:1 (horizontal to vertical) extending down from the bottom edge of the foundations.

6.1.3 Over-excavation and Re-compaction of Disturbed Soils

Soils in the eastern and northern portions of the site have been disked and are loose. After site clearing and stripping, the disturbed soils should be over-excavated to firm ground, estimated to be about 2 to 3 feet below existing ground surface. The soil surface exposed by the over-excavation should be properly prepared as recommended below under "Subgrade Preparation." After the subgrade has been prepared, the excavation may be raised to design grade with engineered fill.

6.1.4 Subgrade Preparation

In areas to receive engineered fills, foundations, concrete slabs-on-grade, and pavements, the subgrade soils should be scarified to a depth of 12 inches, moisture-conditioned, and compacted in accordance with the recommendations given in the "Engineered Fill Placement and Compaction" section below. In building and concrete slab-on-grade areas, subgrade preparation should extend a minimum of 5 feet horizontally beyond the limits of the proposed structures and any adjoining flatwork, unless it is restricted by existing improvements. Subgrade preparation should stay outside of the Tree Protection Zones (TPZ) and Critical Root Zones (CRZ) recommended by the project arborist. Where buildings will encroach into the TPZ/CRZ (such as for tree #511, #527, #548), refer to Figure 3A of this report for special foundations to span over the underlying soil in the RPZ/CRZ. In pavement areas, subgrade preparation should extend a minimum of 3 feet beyond the back of the curbs or pavements.

Prepared soil subgrades should be non-yielding when proof-rolled by a fully loaded water truck or similar weight equipment. Moisture conditioning of subgrade soils should consist of adding water if the soils are too dry and allowing the soils to dry if the soils are too wet. After the subgrades are properly prepared, the areas may be raised to design grades by placement of engineered fill.

Wet soils should be anticipated during and after rainy months. Where encountered, unstable, wet or soft soil will require processing before compaction can be achieved. If construction schedule does not allow for air-drying, other means such as lime or cement treatment of the soil or excavation and replacement with suitable material may be considered. Geotextile fabrics may also be used to help stabilize the subgrade. The method to be used should be determined at the time of construction based on the actual site conditions. We recommend

obtaining unit prices for subgrade stabilization during the construction bid process.

6.1.5 Materials for Fill

In general, on-site soils with an organic content of less than 3 percent by weight, free of deleterious materials or hazardous substances, and meeting the gradation requirements below may be used as engineered fill except where special material (such as capillary break material) is recommended.

Engineered fill material should not contain rocks or lumps larger than 3 inches in greatest dimension, should not contain more than 15 percent of the material larger than 1½ inches, and should contain at least 20 percent passing the No. 200 sieve. In addition to these requirements, import fill should have a low expansion potential as indicated by Plasticity Index of 15 or less (per ASTM D4318), or Expansion Index of less than 20 (per ASTM D4829).

All fills should be approved by the project Geotechnical Engineer prior to delivery to the site. At least 5 working days prior to importing to the site, a representative sample of the proposed import fill should be delivered to our laboratory for evaluation. Import fills should be tested and approved for residential use per the California Department of Toxic Substances Control (DTSC) guidelines.

6.1.6 Engineered Fill Placement and Compaction

Engineered fill should be placed in horizontal lifts each not exceeding 8 inches in thickness, moisture conditioned to the required moisture content, and mechanically compacted to the recommendations below. Relative compaction or compaction is defined as the in-place dry density of the compacted soil divided by the laboratory maximum dry density as determined by ASTM Test Method D1557, latest edition, expressed as a percentage. Moisture conditioning of soils should consist of adding water to the soils if they are too dry and allowing the soils to dry if they are too wet.

Engineered fills consisting of on-site or imported soils should be compacted to at least 90 percent relative compaction with moisture content between about 1 and 3 percent above the laboratory optimum value. In pavement areas, the upper 8 inches of subgrade soil should be compacted to a minimum of 95 percent relative compaction. Aggregate base in vehicle pavement areas should be compacted at slightly above the optimum moisture content to a minimum of 95 percent relative compaction.

In TPZ/CRZ designated by the project arborist, the relative compaction of the pavement subgrade may be reduced to 90 percent. In these lower compaction areas, a geogrid consisting of Tensar BX1200, or equivalent, should be placed on the compacted subgrade prior to placement of the aggregate base. The geogrids should extend at least 5 feet beyond the TPZ/CRZ as recommended by the project arborist.

6.1.7 Trench Backfill

Utility trenches should be backfilled in accordance with the City of Campbell Standard Detail 7 (Method A) or Detail 8 (Method B) unless a different procedure is specified by the utility company. Method A calls for 2-sack sand-cement slurry backfill over the pipe bedding material. Method B calls for approved select native or structural backfill over the pipe bedding material. Native backfill is natural soil from the project area. Approval of native soil for use as backfill should be made by the project geotechnical engineer. Bedding material from the bottom of the trench to 12 inches above the top of pipe should be compacted to at least 90 percent relative compaction. Backfill material above the bedding should be compacted to at least 90 percent relative compaction with at least 95 percent relative compaction for the top 30 inches of backfill below the bottom of the pavement section. Evaluation of relative compaction should be based on ASTM D1557, latest edition.

The bedding and backfill materials should be placed in lifts each not exceeding 6 inches in uncompacted thickness. Thicker lifts may be allowed if the contractor can demonstrate that the recommended level of compaction can be achieved with the compaction equipment and procedures used. Compaction should be performed by mechanical means only. Water jetting or flooding to attain compaction of backfill should not be permitted.

6.1.8 Considerations for Soil Moisture and Seepage Control

Subgrade soil and engineered fill should be compacted at moisture content meeting our recommendations. Consideration should be given to reducing the potential for water infiltration from the exterior to under the buildings through utility lines crossing the building perimeter. In utility lines crossing beneath perimeter foundations, permeable backfill should be terminated at least 1 foot outside of the perimeter foundation. Impermeable material, such as concrete or clay soil, should be used for the entire trench depth to act as a seepage cutoff.

Where concrete slabs or pavements abut against landscaped areas, the base rock layer and subgrade soil should be protected against saturation. Water if allowed to seep into the subgrade soil or pavement section could reduce the service life of the improvements. Methods that may be considered to reduce infiltration of water include: 1) subdrains installed behind curbs and slabs in landscape areas; 2) vertical cut-offs, such as a deepened curb section, or equivalent, extending at least 2 inches into the subgrade soil; and 3) use of a drip or controlled irrigation system for landscape watering.

6.1.9 Wet Weather Construction

If site grading and construction is to be performed during the winter rainy months, the owner and contractors should be fully aware of the potential impact of wet weather. Rainstorms can cause delay to construction and damage to previously completed work by saturating compacted pads or subgrades, or flooding excavations.

Earthwork during rainy months will require extra effort and caution by the contractors. The contractors are responsible for protecting their work to avoid damage by rainwater. Standing pools of water should be pumped out immediately. Construction during wet weather conditions should be addressed in the project construction bid documents and/or specifications. We recommend the contractors submit a wet weather construction plan outlining procedures they will employ to protect their work and to minimize damage to their work by rainstorms.

6.2 Foundations

6.2.1 General

The proposed residential structures may be supported on conventional continuous and/or isolated spread footing foundations or post-tensioned slab foundations. General recommendations for design of these foundations are presented below. The Geotechnical Engineer should review the foundation plans and details before construction and observe the foundation excavations during construction to determine if the foundation excavations extend into suitable bearing material. Prior to placement of concrete, foundation excavations should be cleaned of loose soils. If unsuitable soils are encountered in the foundation excavations, the soils should be removed as recommended by our Geotechnical Engineer and replaced with approved material such as compacted engineered fill or lean concrete.

Where portions of buildings occur within the TRZ/CRZ defined by the project arborist, special foundations are required such that the building loads are spanned over the TRZ/CRZ without any support from the underlying soil. Refer to Figure 3A of this report for a schematic showing the foundation concept.

6.2.2 Conventional Continuous and/or Isolated Spread Footing Foundations

Footings, continuous and isolated, may be used to support the proposed residential structures and site retaining walls. Footings should bear on undisturbed native soil and/or properly compacted engineered fill. Preparation of soil subgrade, moisture conditioning, and compaction of soil and engineered fill should be as recommended in the “Earthwork” section of this report.

Footings may be designed for a net allowable bearing pressure of 3,000 pounds per square foot due to dead plus live loads, with a one-third increase when including transient loads such as wind or seismic. The footing bottom should extend at least 18 inches below pad grade or lowest adjacent finish grade, whichever provides a deeper embedment. Footings should be at least 12 inches wide. Footings should be reinforced as determined by the project Structural Engineer.

Resistance to lateral loads may be developed from a combination of friction between the bottom of foundations and the supporting subgrade, and by passive resistance acting against

the vertical sides of the foundations. Footings bearing on native soil or engineered fill may be designed using an ultimate friction coefficient of 0.35 between the foundations and supporting subgrade, and an ultimate passive resistance of 300 pounds per cubic foot (pcf, equivalent fluid weight) acting against the embedded sides of the foundations. The passive pressure can be assumed to act starting at the top of the lowest adjacent grade in paved areas. In unpaved areas, the passive pressure can be assumed to act starting at a depth of 1 foot below grade. It should be noted that the passive resistance value discussed above is only applicable where the concrete is placed directly against undisturbed soil or engineered fills. Voids created by the use of forms should be backfilled with property compacted engineered fill or with concrete.

Total post-construction settlement of the foundations is anticipated to be up to about 1 inch, with up to about ½ inch of differential settlement over a distance of about 30 feet.

To maintain the desired support, the bottom of footings adjacent to utility trenches or buried structures should be below an imaginary plane having an inclination of 1.5 horizontal to 1 vertical, extending upward from the bottom edge of the adjacent utility trenches or structures. If the footings are closer than the recommended distance, the project Geotechnical Engineer should be consulted for recommendations.

6.2.3 Post-tensioned Slabs

In lieu of footings, the proposed residential structures may be constructed on post-tensioned (PT) slab foundations bearing on properly moisture-conditioned and compacted soil subgrades. Preparation of soil subgrade, moisture conditioning, and compaction of soil and engineered fill should be as recommended in the "Earthwork" section of this report.

The following parameters may be used with the 2004 PTI "Design of Post-Tensioned Slabs-on-Ground, Third Edition" manual for design of the PT slabs.

Parameters	PT Slabs Constructed on Properly Prepared Subgrade Soil
e_m (center lift)	9 feet
e_m (edge lift)	5.2 feet
y_m (center lift)	0.25 inch
y_m (edge lift)	0.5 inch

Allowable soil bearing pressure = 2,000 psf for dead plus live loads, with a one-third increase when including transient loads, such as wind or seismic

A deepened edge, minimum 6 inches wide, should be constructed along the perimeter of the PT slabs. The deepened edge should extend to at least 18 inches below the bottom of the PT slabs. The deepened edge can help reduce moisture infiltration to under the PT slabs.

Where interior building grades are higher than the exterior grades, the perimeter foundation elements should be designed to resist the lateral soil pressure and surcharge loads acting on the foundations. The bottom of the perimeter foundations should extend at least 18 inches below the lowest finish grades, excluding landscaping soils which are typically not compacted and should not be considered for structural support.

We understand the PT slabs will be constructed on 1 to 2 inches of sand over a 15-mil visqueen vapor barrier over compacted subgrade soil. Sand has been used for protection of the vapor barrier during construction and to allow dissipation of concrete mix water during curing. The use of sand, or equivalent material, should be determined by the project structural engineer or architect. A lower water-cement ratio (0.45 to 0.50) will help reduce the permeability of the concrete and, hence, vapor transmission through the slabs.

Settlements are expected to be primarily elastic. Post construction total and differential settlements of the PT slabs are anticipated to be less than 1 and ½ inch, respectively.

6.2.4 Drilled Pier Foundations

Drilled, cast-in-place, reinforced concrete piers should be designed to derive their vertical supporting capacity from "skin friction" between the pier shafts and the surrounding earth materials. Piers should have a diameter of 12 inches or greater. Center to center spacing of the piers should be a minimum of 3 pier diameters. Reinforcement in the piers should be determined by the structural engineer.

For dead plus live vertical loads, a net allowable adhesion value of 500 pounds per square foot may be assumed along the pier shafts. This value may be increased by one-third when including transient loads, such as wind or seismic. The upper 1 foot of soil should be ignored in the calculation of vertical load capacity. End bearing capacity should be ignored.

Resistance to lateral loads may be calculated based on passive soil pressure acting against the piers. For dead plus live loads, the ultimate passive resistance in soil or engineered fill may be calculated using an equivalent fluid weight of 300 pounds per cubic foot acting on 1.5 times the pier diameter, for level ground surface in front of the piers in the direction of load application. The upper 1 foot of soil should be ignored in the calculation of passive pressure. For calculating allowable lateral soil resistance, a factor of safety of 1.5 may be assumed under static loading, with 1.15 when including transient seismic or wind loading. It should be noted that passive resistance is only applicable where the concrete is placed directly against undisturbed soil or engineered fill.

The presence of granular soils should be considered in the design and construction of the foundation piers because granular soils are prone to caving if the holes are not cased. Steel casing should be provided to keep the pier holes open. If piers extend below groundwater level, concrete should be placed by the "tremie" method to replace the water in the pier holes.

6.3 Concrete Slabs-on-Grade

6.3.1 Interior Building Slabs-on-grade

If the buildings are supported on conventional footings, the interior building floors are anticipated to be concrete slabs-on-grade. Refer to Figure 3A for special foundation design for buildings within the TRZ/CRZ.

Interior building concrete slabs-on-grade should be constructed on properly prepared subgrade soil as recommended in the "Earthwork" section of this report. Once the slab subgrade soil has been moisture conditioned and compacted, the soil should not be allowed to dry prior to concrete placement. If the subgrade soil is too dry, the moisture content of the soil should be restored to the recommended value prior to placement of concrete. The project structural engineer should design the slab thickness, reinforcing, and control joint spacing.

Slabs that will be covered with moisture sensitive floor coverings or where vapor transmission through the slab is undesirable should be underlain by at least 4 inches of capillary break material such as free draining, ¾-inch by No. 4 clean crushed rock. A visqueen layer should be placed over the capillary break material. The visqueen should be a high-quality polymer at least 15 mils thick that is resistant to puncture during slab construction. Laps between sheets and openings should be taped. Typically, the membrane and the slab are separated by 2 inches of sand but this should be determined by the structural engineer and architect.

A lower water-cement ratio (0.45 to 0.50) will also help reduce the permeability of the floor slab. It should be understood that the recommended plastic membrane is not intended to waterproof the concrete slab floor. If waterproofing is desired, the project designers and/or a flooring expert should be contacted.

6.3.2 Exterior Slabs-on-grade

Exterior concrete slabs-on-grade for this project will be limited to driveways and exterior flatwork. These slabs should be constructed on properly moisture conditioned and compacted subgrade soil as recommended in the "Earthwork" section of this report. Soil subgrades should be moistened prior to placement of concrete for the concrete slabs. Design of reinforcement, joint spacing, etc. is the responsibility of the design engineer.

If desired, exterior concrete slabs-on-grade may be cast free from other adjacent structural elements by using a strip of 1/2-inch asphalt-impregnated felt divider material between the slab edges and the adjacent structural elements. Frequent construction or control joints should be provided in all concrete slabs where cracking is objectionable. Continuous reinforcing or dowels at the construction and control joints will also aid in reducing uneven slab movements.

6.4 Retaining Structures

Retaining structures will include the shoring systems for construction of the stormwater management systems, walls of the Storm Capture vaults, and short retaining walls (exposed height up to about 3 feet) on individual lots. Retaining structures should be designed to resist lateral earth pressure and surcharge forces acting on the walls. Lateral pressures will depend on the degree of movement the walls are allowed (or desired), the type of backfill, the magnitude of external loads, and subsurface drainage provisions.

6.4.1 Lateral Soil Pressures

For static loading conditions, retaining structures may be designed using at-rest or active soil pressure. At-rest soil pressure should be used where movement at the top of structure is restrained or undesirable. Such movements could cause settlement of backfill and improvements supported on the backfill. Active soil pressure may be used if the top of structure is free to deflect and resulting movement of the backfill is accepted. For seismic design, retaining structures may be designed using active soil pressure plus seismic surcharge. The at-rest and active soil pressures given below are for level backfill, drained backfill conditions, and backfill consisting of compacted on-site soil.

Condition	Lateral Soil Pressure (Equivalent Fluid Weight) for Level Backfill
Active	45 pcf
At-rest	55 pcf
Seismic Surcharge	25 pcf (inverted triangle for active or at-rest conditions)

Note: To develop active soil pressures, wall movements of about 0.005H to 0.01H may be necessary for cohesive soils, with up to 0.005H for cohesionless soils.

Pressures due to static external loads should be added to the soil pressures recommended above in the design of retaining structures. For uniform vertical load at the ground surface, the additional lateral pressure on the structures should be calculated as a uniform pressure equal to the magnitude of the vertical load multiplied by a factor. For level backfill slope, the factor is 0.38 for active soil condition and 0.5 for at-rest soil condition. For other slope inclinations and other types of surcharge loads, such as vehicle loads, point loads, strip loads, consult our office for specific recommendations.

6.4.2 Soldier Pile and Lagging Shoring Systems

The soldier pile and lagging shoring systems should be designed using at-rest lateral soil pressure plus any applicable surcharge loads per Section 6.4.1 above if movement at the top of structure is undesirable. Soldier piles for the shoring systems may be designed using parameters given in report Section 6.2.4 except as noted below.

- The piers should have a diameter of at least 15 inches.

- The upper portion of the piers above an imaginary plane projecting up at a 45-degree inclination from the outside bottom corner of the SC units should be ignored in the calculation of vertical and lateral pier capacity.

6.4.3 Below-ground Walls of the Storm Capture Vaults

The below-ground walls of the Storm Capture vaults may be designed using the parameters given in Section 6.4.1 above. The lateral soil pressures in Section 6.4.1 are based on backfill consisting of compacted native soil. The net allowable soil bearing pressure given in Section 6.2.2 above may be used for design of the walls.

6.4.4 Retaining Walls on Individual Lots

Retaining walls on individual lots are expected to have exposed height no higher than about 3 feet. These walls may be designed using the parameters given in Section 6.4.1 above. The walls may be supported on conventional footing or drilled pier foundations, designed using the parameters given in Section 6.2.2 or 6.2.4 above.

6.4.5 Drainage for Retaining Structures

To achieve a drained backfill condition, a subsurface drain should be installed behind each retaining structure extending from its bottom to about 1 foot below finished grade. The drain should consist of a 12-inch minimum wide blanket of drainage material consisting of either Class 2 Permeable material (Caltrans Standard Specifications, Section 68) or clean, 1/2 to 3/4-inch maximum size crushed rock or gravel. If crushed rock or gravel is used, it should be encapsulated in a geotextile filter fabric, such as Mirafi 140N or equivalent. Filter fabric is optional if Class 2 Permeable material is used. The top 1 foot below finish grade should be backfilled with compacted clayey soil to reduce infiltration of surface water.

A 4-inch minimum diameter, perforated, schedule 40 PVC (or equivalent) pipe should be installed (with perforations facing down) along the base of each wall on a 2-inch thick bed of drain rock, regardless whether drain rock or pre-fabricated drainage panel is used. The pipes should be sloped to drain by gravity to a proper collection system and be discharged at a proper outlet as designed by the project Civil Engineer.

Backfill against retaining structures should be compacted as discussed in the “Earthwork” Section of this report. Over-compaction should be avoided because increased compaction effort can result in lateral pressures significantly higher than those recommended above. Backfill placed within 3 feet of the walls should be compacted with hand-operated equipment.

6.5 Vehicle Pavements

Vehicle pavements for this project will be an interior street, primarily serving automobiles and light pickup trucks, with occasional heavy vehicles, such as delivery and garbage trucks. If the

pavements are constructed prior to completion of construction, the pavements will be subject to construction traffic including heavy delivery and concrete trucks.

An R-value of 62 was measured on a bulk sample of soil collected from the site. For design purposes, an R-value of 40 was used to calculate the pavement sections tabulated below using the Caltrans pavement section design procedures.

DESIGN TRAFFIC INDEX	HOT MIX ASPHALT (inches)	CLASS 2 AGGREGATE BASE (inches)	TOTAL (inches)
Regular Pavement Section			
5.0	3.0	4.0	7.0
5.5*	3.0	5.0	8.0
6.0	3.5	5.5	9.0
6.5	3.5	7.0	10.5
7.0	4.0	7.0	11.0
Full-depth Asphalt Concrete Pavement Sections			
5.0	5.0	0.0	5.0
5.5*	6.0	0.0	6.0
6.0	6.5	0.0	6.5
6.5	7.0	0.0	7.0
7.0	8.0	0.0	8.0
* A design traffic index of 5.5 is required by the City of Campbell for on-site roadways for this project.			

Pavement sections should be constructed on soil subgrades that have been prepared as outlined in the "Earthwork" section of this report. The upper 8 inches of soil subgrade in pavement areas should be compacted to a minimum of 95 percent relative compaction. The full section of aggregate base and aggregate subbase should be compacted to a minimum of 95 percent relative compaction. Evaluation of relative compaction should be based on ASTM D1557, latest edition. The Class 2 Aggregate Base material should conform to Section 26 of the Caltrans Standard Specifications and the Class 2 Aggregate Subbase material should conform to Section 25 of the Caltrans Standard Specifications.

Where designated by the project arborist, the relative compaction of the pavement subgrade in tree root areas may be reduced to 90 percent. In these lower compaction areas, a geogrid consisting of Tensar BX1200, or equivalent, should be placed on the compacted subgrade prior to placement of the aggregate base. The geogrids should extend at least 5 feet beyond the tree root areas as determined by the project arborist.

6.6 Surface and Subsurface Drainage

Engineering design of grading and drainage at the site is the responsibility of the project Civil Engineer. We suggest the following for consideration by the project Civil Engineer, as appropriate.

Sufficient surface drainage should be provided to direct water away from buildings, foundations, concrete slabs-on-grade and pavements, and towards suitable collection and discharge facilities. Ponding of surface water should be avoided by establishing positive drainage away from all improvements.

7 PLAN REVIEW, EARTHWORK AND FOUNDATION OBSERVATION

Post-report geotechnical services by Geo-Logic Associates (GLA), typically consisting of pre-construction design consultations and reviews and construction observation and testing services, are necessary for GLA to confirm the recommendations contained in this report. This report is based on limited sampling and investigation, and by those constraints may not have discovered local anomalies or other varying conditions that may exist on the project site. Therefore, this report is only preliminary until GLA can confirm that actual conditions in the ground conform to those anticipated in the report. Accordingly, as an integral part of this report, GLA recommends post-report, construction related geotechnical services to assist the project team during design and construction of the project. GLA requires that it perform these services if it is to remain as the project Geotechnical Engineer-of-record.

During design, GLA can provide consultation and supplemental recommendations to assist the project team in design and value engineering, especially if the project design has been modified after completion of our report. It is impossible for us to anticipate every design scenario and use of construction materials during preparation of our report. Therefore, retaining GLA to provide post-report consultation will help address design changes, answer questions and evaluate alternatives proposed by the project designers and contractors.

Prior to issuing project plans and specifications for construction bidding purposes, GLA should review the grading, drainage and foundation plans and the project specifications to determine if the intent of our recommendations has been incorporated in these documents. We have found that such a review process will help reduce the likelihood of misinterpretation of our recommendations which may cause construction delay and additional cost.

Construction phase services can include, among other things, the observation and testing during site clearing, stripping, excavation, mass grading, subgrade preparation, fill placement and compaction, backfill compaction, foundation construction and pavement construction activities.

Geo-Logic Associates would be pleased to provide cost proposals for follow-up geotechnical services. Post-report geotechnical services may include additional field and laboratory services.

8 LIMITATIONS

In preparing the findings and professional opinions presented in this report, Geo-Logic Associates (GLA) has endeavored to follow generally accepted principles and practices of the engineering geologic and geotechnical engineering professions in the area and at the time our services were performed. No warranty, express or implied, is provided.

The conclusions and recommendations contained in this report are based, in part, on information that has been provided to us. In the event that the general development concept or general location and type of structures are modified, our conclusions and recommendations shall not be considered valid unless we are retained to review such changes and to make any necessary additions or changes to our recommendations. To remain as the project Geotechnical Engineer-of-record, GLA must be retained to provide geotechnical services as discussed under the Post-report Geotechnical Services section of this report.

Subsurface exploration is necessarily confined to selected locations and conditions may, and often do, vary between these locations. Should conditions different from those described in this report be encountered during project development, GLA should be consulted to review the conditions and determine whether our recommendations are still valid. Additional exploration, testing, and analysis may be required for such evaluation.

Should persons concerned with this project observe geotechnical features or conditions at the site or surrounding areas which are different from those described in this report, those observations should be reported immediately to GLA for evaluation.

It is important that the information in this report be made known to the design professionals involved with the project, that our recommendations be incorporated into project drawings and documents, and that the recommendations be carried out during construction by the contractor and subcontractors. It is not the responsibility of GLA to notify the design professionals and the project contractors and subcontractors.

The findings, conclusions, and recommendations in this report are applicable only to the specific project development on this specific site. These data should not be used for other projects, sites, or purposes unless they are reviewed by GLA or a qualified geotechnical professional.

Report prepared by,

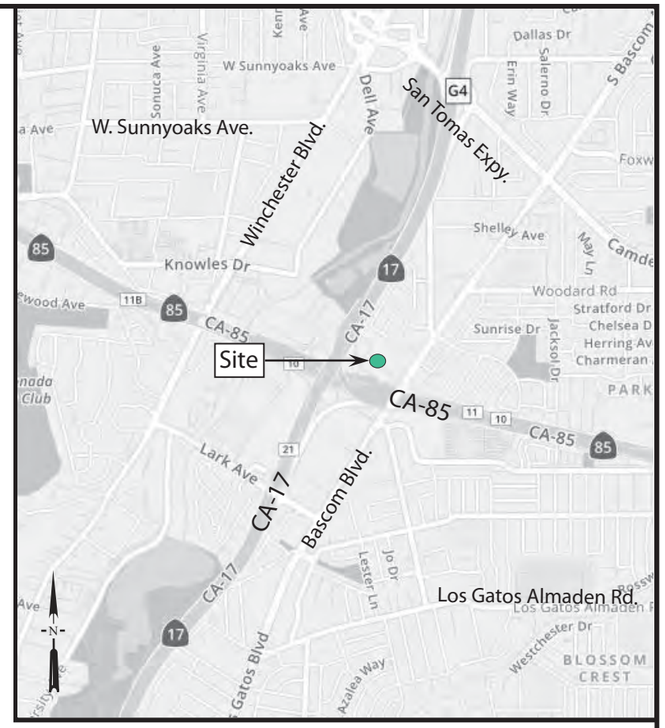
Geo-Logic Associates

DRAFT FOR CLIENT REVIEW

Chalerm (Beeson) Liang
GE 2031

Fs/csl

Copies: Robson Homes, Richard Yee (6)



Vicinity Map (no scale)

EXPLANATION

DH-4 — Exploratory drill hole

CPT-4 — Cone penetrometer test

P-17 — Field hydraulic conductivity test hole (P-13 was eliminated)

B-1 — Bulck sample

0 50 ft

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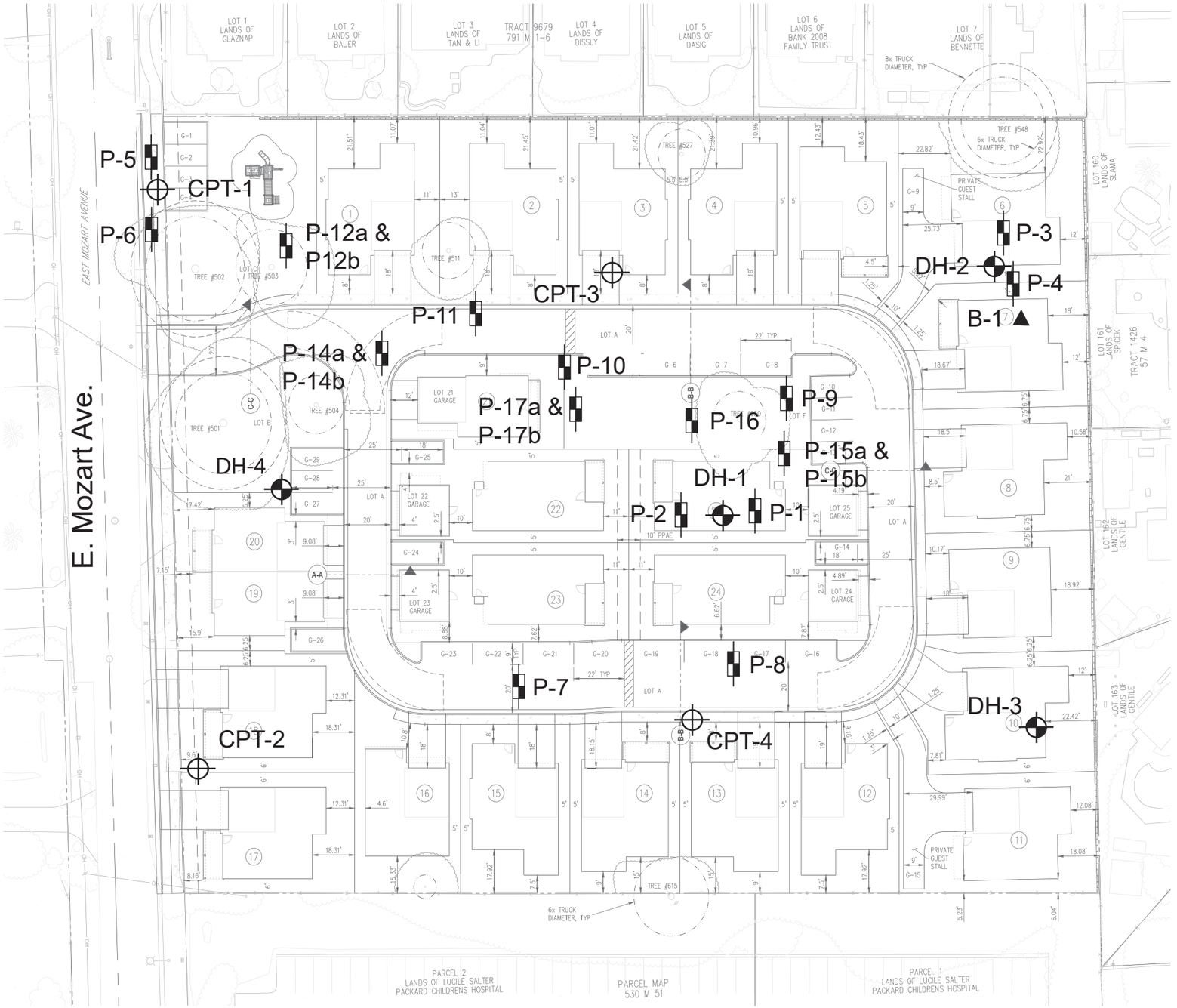
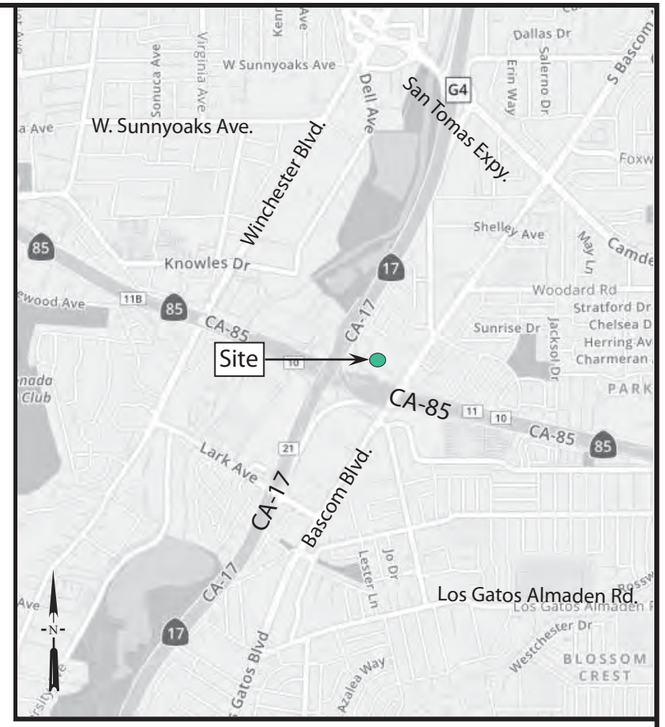
Revision: November 2019

SITE PLAN (Existing Conditions)
16179 E. Mozart Avenue
Campbell, California

FIGURE 1
PROJECT PA18.1046





Vicinity Map (no scale)

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0 50 ft

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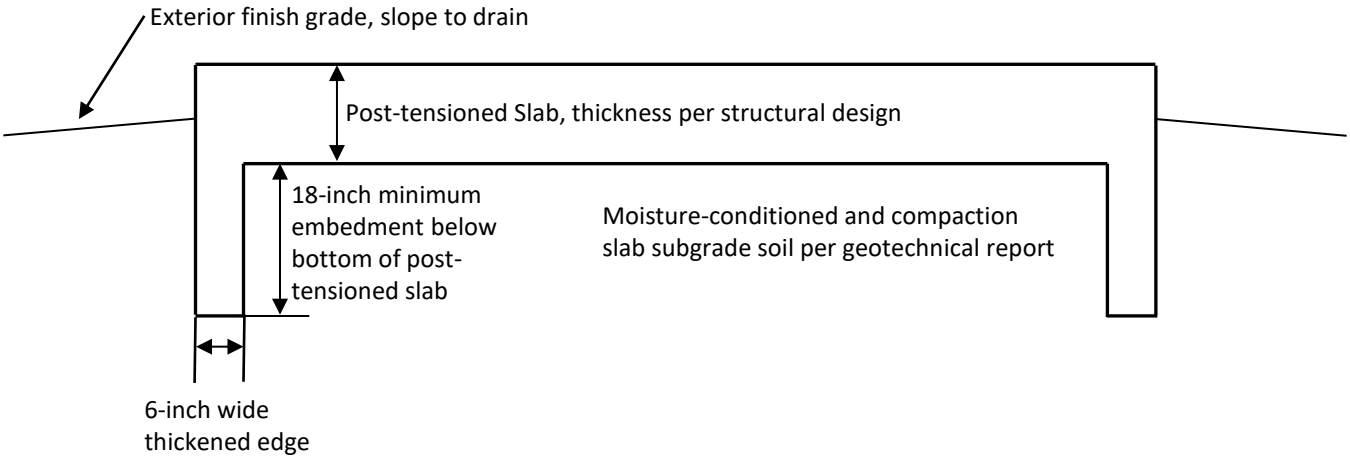
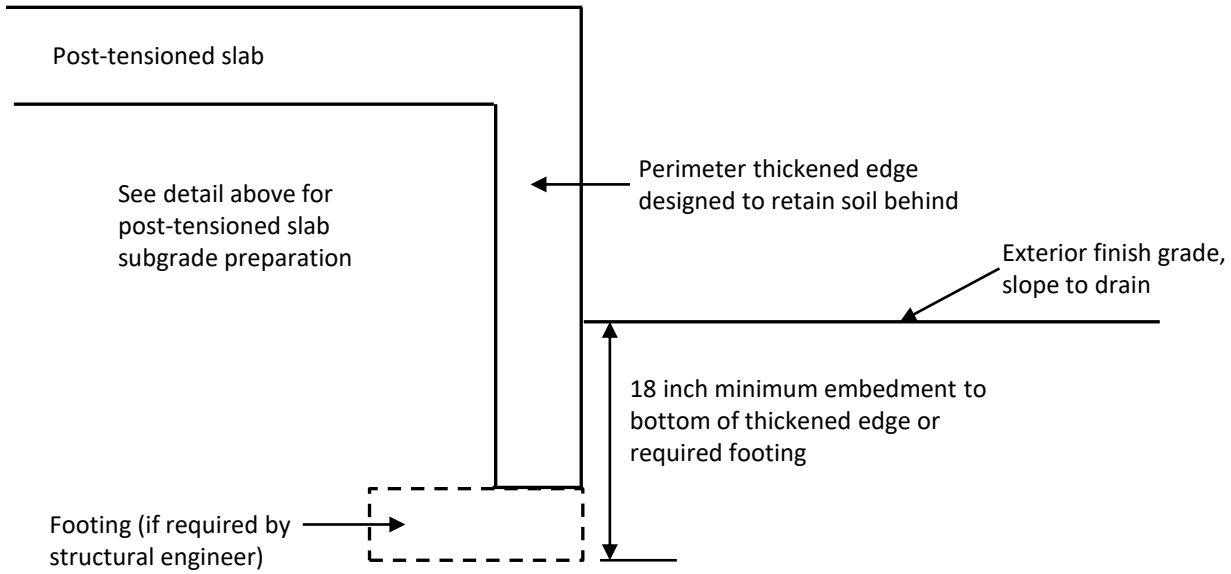
Drafted By: Francesca Senes
Date: November 2019
Checked By: Beeson Liang
Revision: November 2019

SITE PLAN (Proposed Development)
16179 E. Mozart Avenue
Campbell, California

FIGURE 2
PROJECT PA18.1046



Subgrade Preparation and Thickened Edge for Post-tensioned Slab Foundations



Foundation Embedment for Post-tensioned Slabs with Differential Grades

Note:
1. Refer to geotechnical report for detailed recommendations.

Schematic Only – Not to Scale

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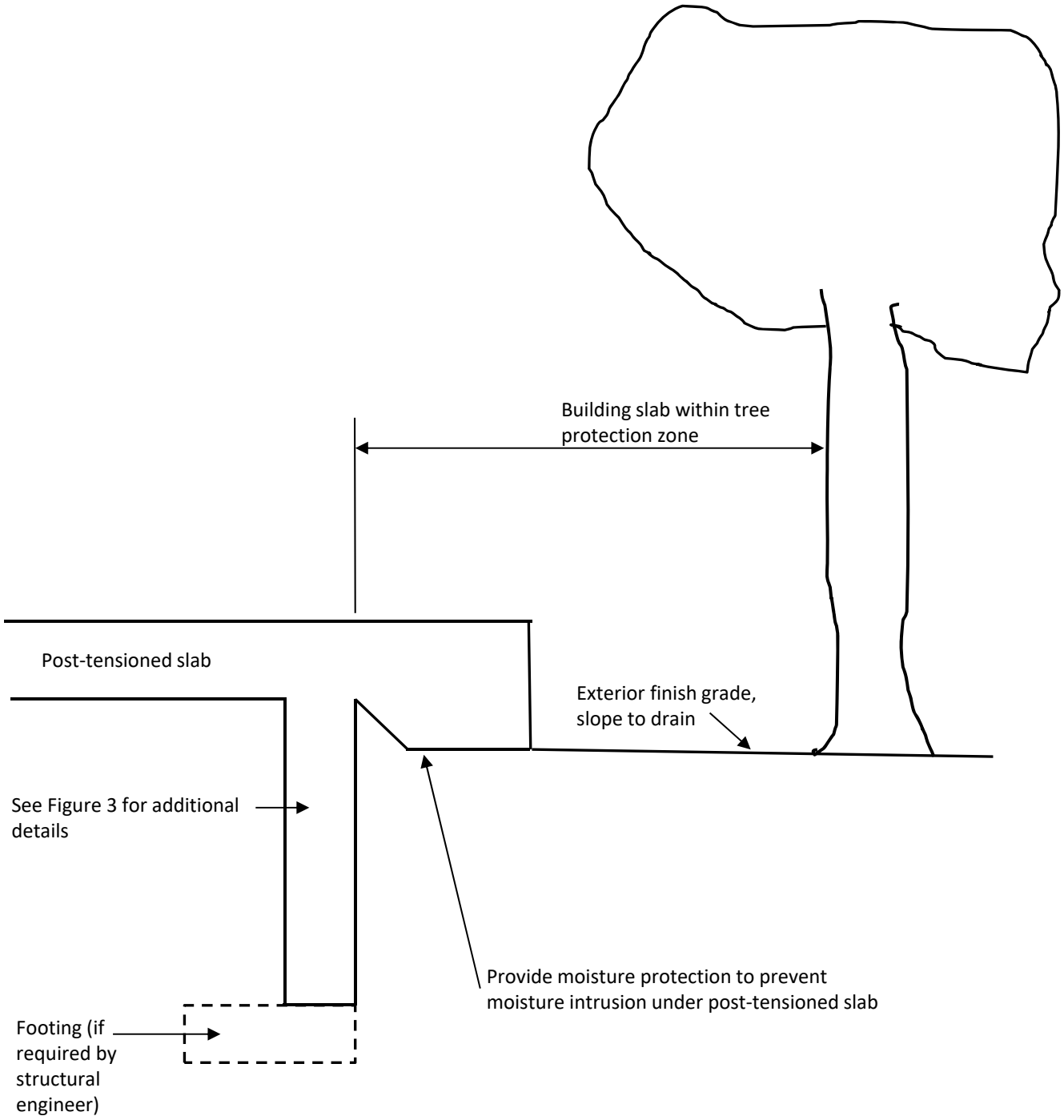
Compiled by:	Date:
Reviewed by:	Revision:

POST-TENSIONED SLAB TYPICAL SECTION
16179 E MOZART AVENUE
CAMPBELL, CALIFORNIA

FIGURE 3

PROJECT PA18.1046



Note:

1. The above is a schematic of foundation in tree protection zone. Portion of foundation in tree protection zone to be designed with no bearing on foundation soil. Final details to be reviewed, designed, and approved by project arborist and structural engineer. Provide moisture protection to prevent moisture intrusion under post-tensioned slab.

Schematic Only – Not to Scale

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Compiled by:	Date:
Reviewed by:	Revision:

SCHEMATIC OF FOUNDATION IN TREE PROTECTION ZONE
16179 E MOZART AVENUE
CAMPBELL, CALIFORNIA

FIGURE
3A
PROJECT
PA18.1046

Mozart GW Model

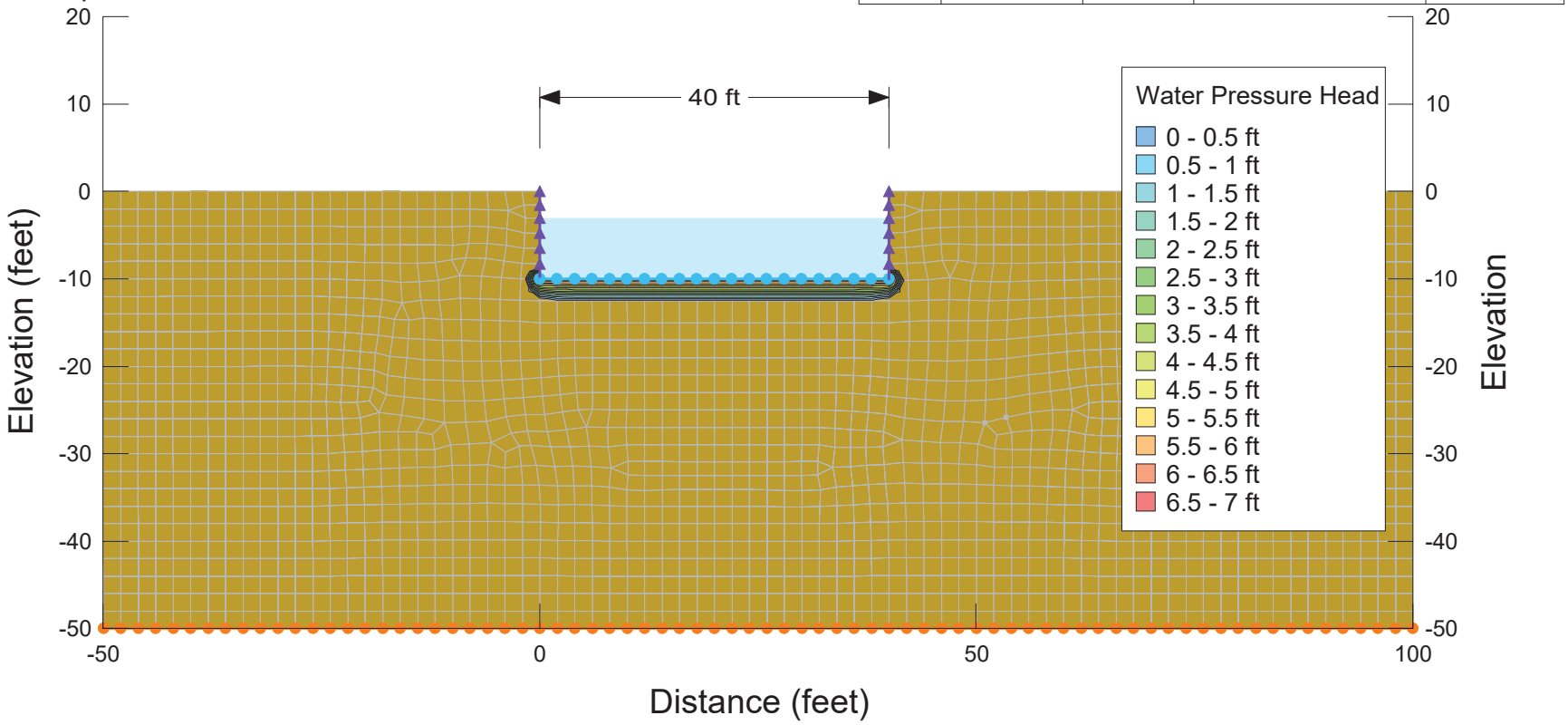
Mozart GW Model_01.gsz
Date: 11/05/2019
Time: 04:10:27 PM
Method: Transient

Color	Name	Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Activation PWP (psf)
	Sand and Gravel	Saturated / Unsaturated	Sand/Gravel w Fines	Sand/Gravel w Fines	1	-200

Color	Name	Category	Kind	Parameters
	Lower Boundary	Hydraulic	Water Pressure Head	0 ft
	No Flow	Hydraulic	Water Rate	0 ft³/sec
	Stormwater Storage Box	Hydraulic	Water Total Head	7ft Water in Box for 72 Hrs

L = 40 ft
K = 3.5e-04 cm/s

Elapsed Time: 3,600 sec (1 hour)



Project PA181046.00
November 11, 2019
Figure 4A

Geo-Logic ASSOCIATES

Mozart GW Model

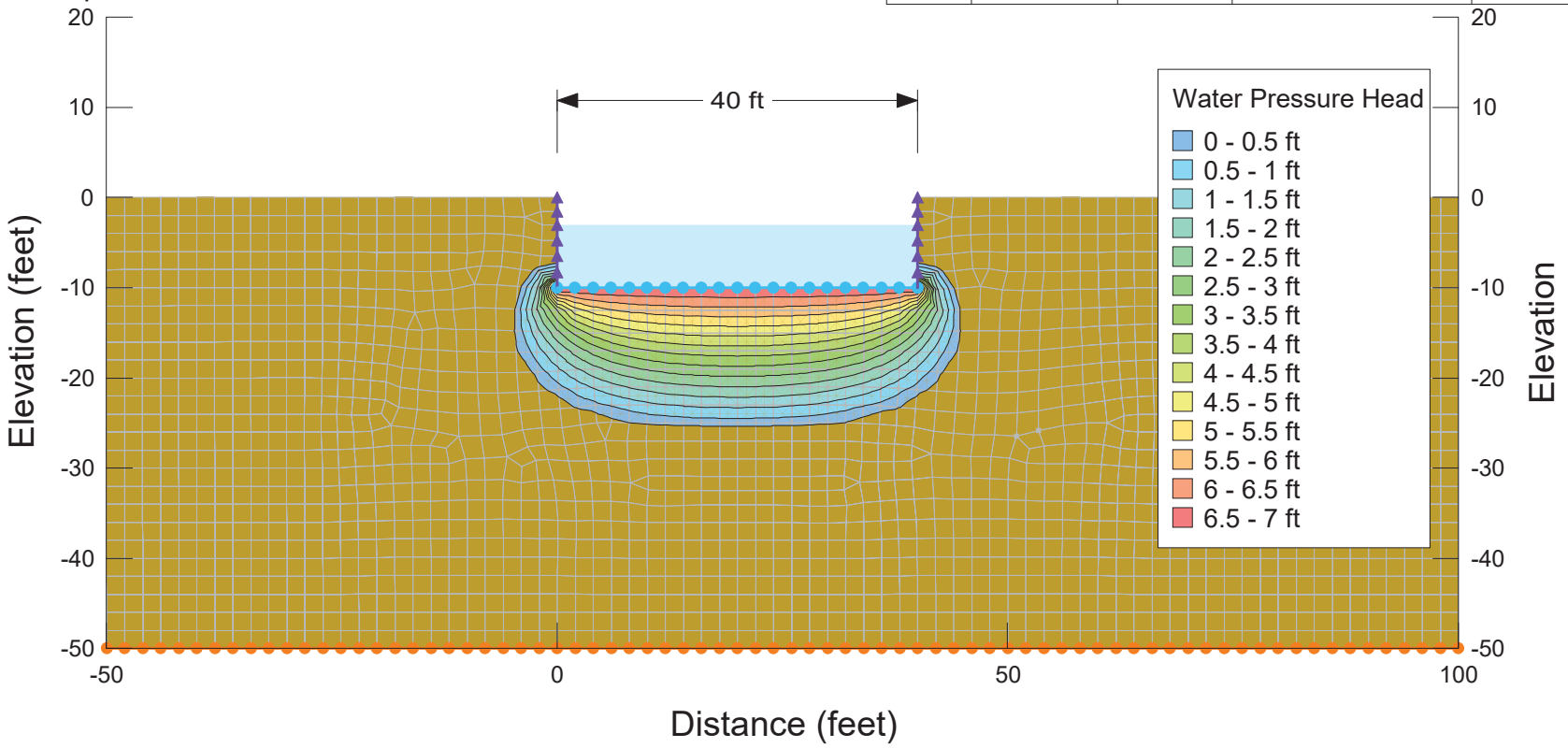
Mozart GW Model_01.gsz
Date: 11/05/2019
Time: 04:10:27 PM
Method: Transient

Color	Name	Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Activation PWP (psf)
	Sand and Gravel	Saturated / Unsaturated	Sand/Gravel w Fines	Sand/Gravel w Fines	1	-200

Color	Name	Category	Kind	Parameters
	Lower Boundary	Hydraulic	Water Pressure Head	0 ft
	No Flow	Hydraulic	Water Rate	0 ft³/sec
	Stormwater Storage Box	Hydraulic	Water Total Head	7ft Water in Box for 72 Hrs

L = 40 ft
K = 3.5e-04 cm/s

Elapsed Time: 43,200 sec (12 hours)



Project PA181046.00
November 11, 2019
Figure 4B

Geo-Logic ASSOCIATES

Mozart GW Model

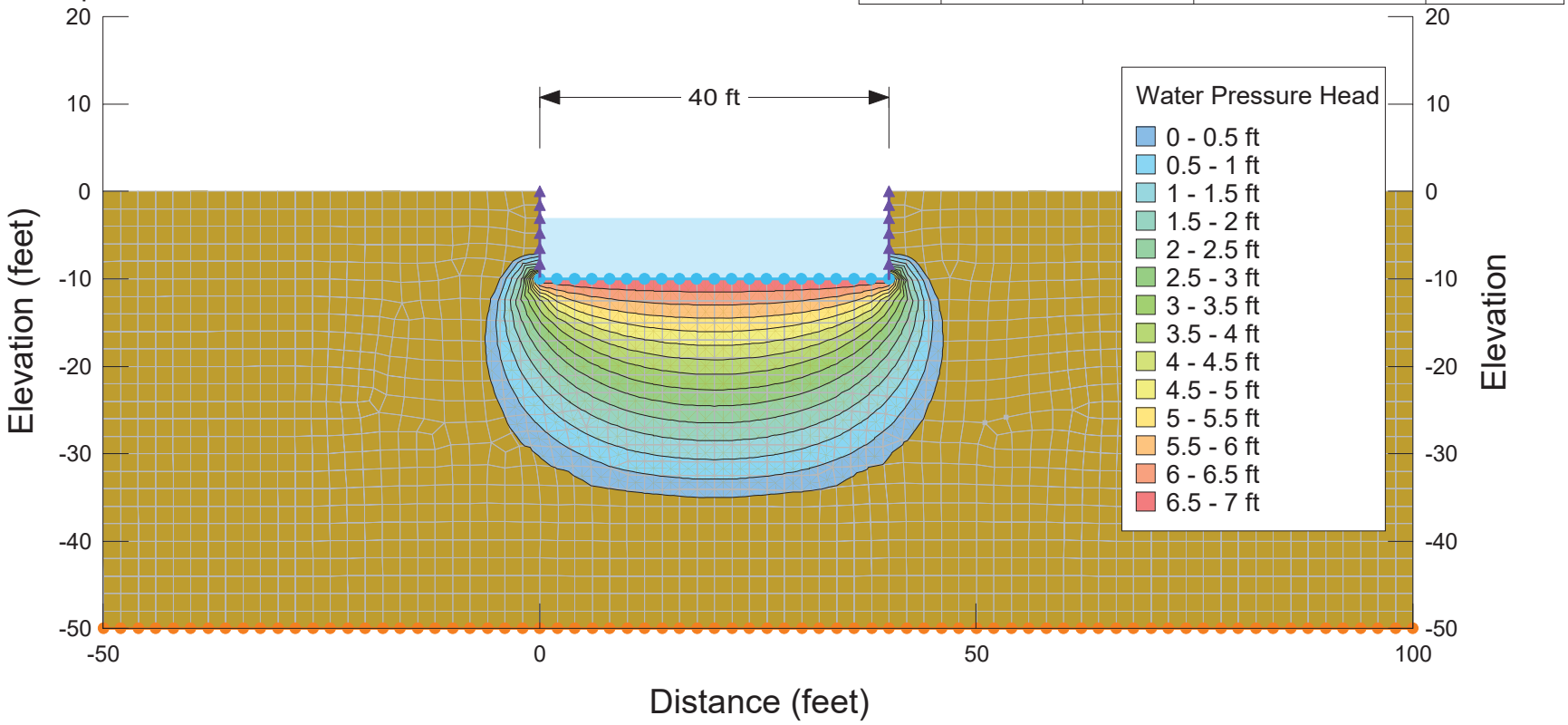
Mozart GW Model_01.gsz
Date: 11/05/2019
Time: 04:10:27 PM
Method: Transient

Color	Name	Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Activation PWP (psf)
	Sand and Gravel	Saturated / Unsaturated	Sand/Gravel w Fines	Sand/Gravel w Fines	1	-200

Color	Name	Category	Kind	Parameters
	Lower Boundary	Hydraulic	Water Pressure Head	0 ft
	No Flow	Hydraulic	Water Rate	0 ft³/sec
	Stormwater Storage Box	Hydraulic	Water Total Head	7ft Water in Box for 72 Hrs

L = 40 ft
K = 3.5e-04 cm/s

Elapsed Time: 86,400 sec (24 hours)



Project PA181046.00
November 11, 2019
Figure 4C

Geo-Logic ASSOCIATES

Mozart GW Model

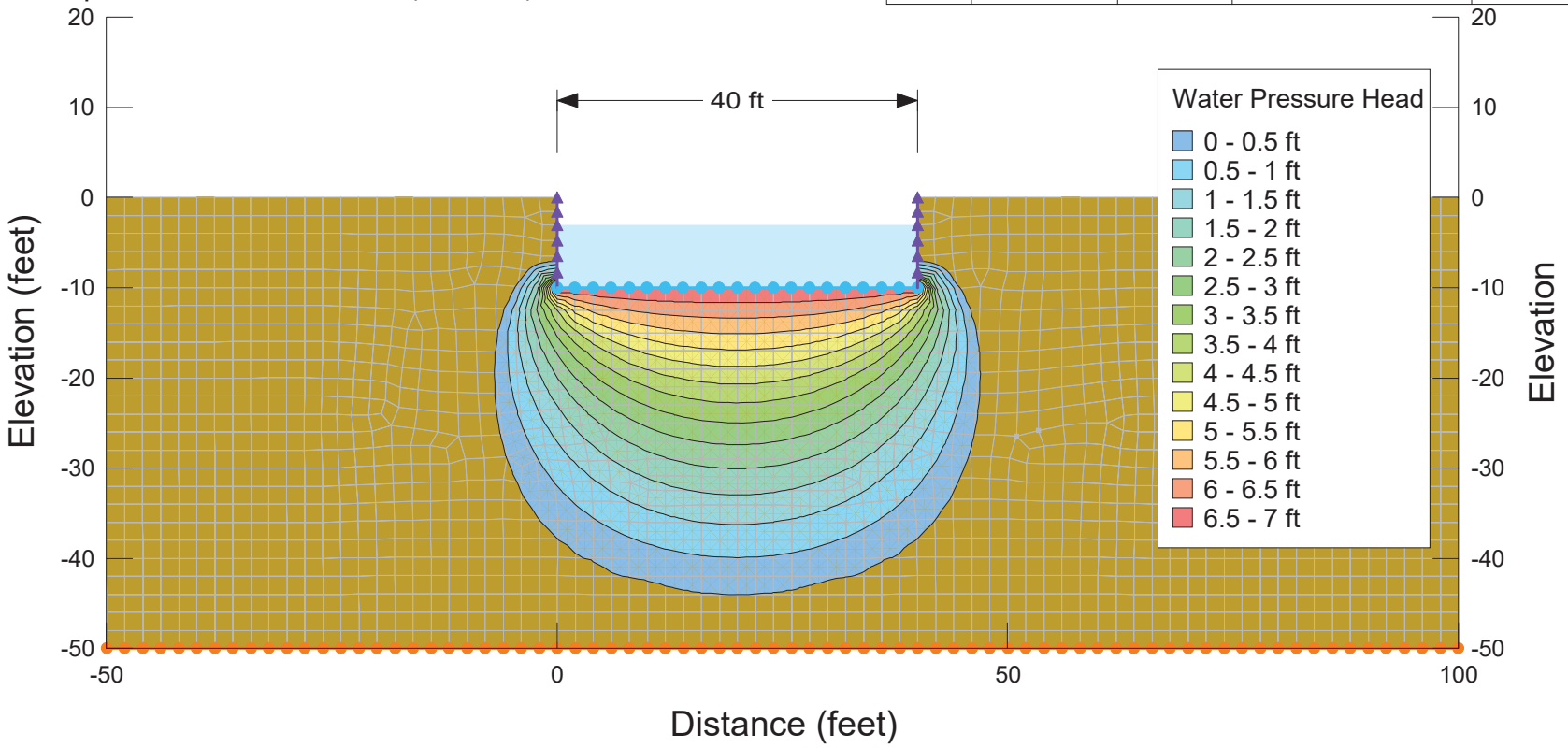
Mozart GW Model_01.gsz
Date: 11/05/2019
Time: 04:10:27 PM
Method: Transient

Color	Name	Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Activation PWP (psf)
	Sand and Gravel	Saturated / Unsaturated	Sand/Gravel w Fines	Sand/Gravel w Fines	1	-200

Color	Name	Category	Kind	Parameters
	Lower Boundary	Hydraulic	Water Pressure Head	0 ft
	No Flow	Hydraulic	Water Rate	0 ft³/sec
	Stormwater Storage Box	Hydraulic	Water Total Head	7ft Water in Box for 72 Hrs

L = 40 ft
K = 3.5e-04 cm/s

Elapsed Time: 129,600 sec (36 hours)



Project PA181046.00
November 11, 2019
Figure 4D

Geo-Logic ASSOCIATES

Mozart GW Model

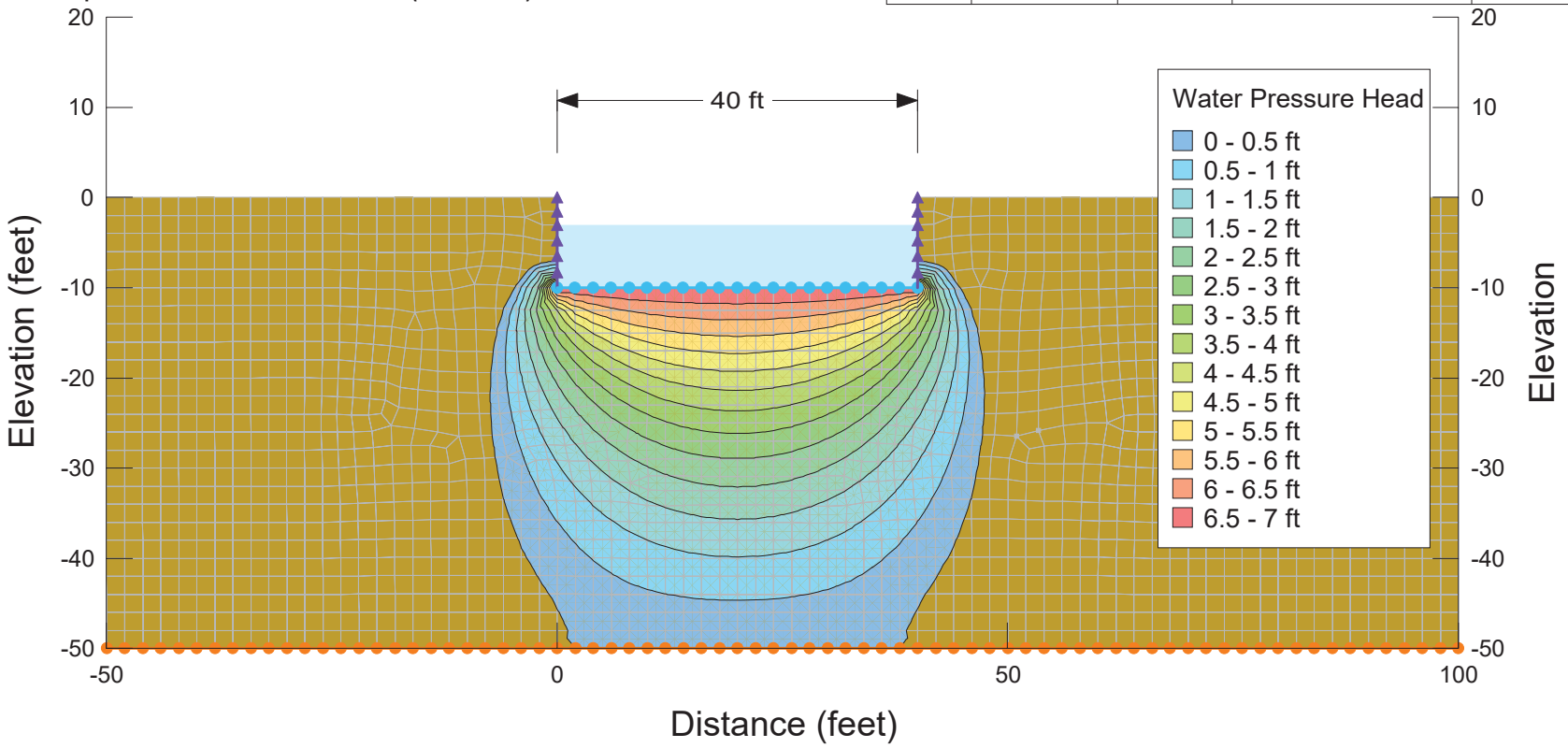
Mozart GW Model_01.gsz
Date: 11/05/2019
Time: 04:10:27 PM
Method: Transient

Color	Name	Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Activation PWP (psf)
	Sand and Gravel	Saturated / Unsaturated	Sand/Gravel w Fines	Sand/Gravel w Fines	1	-200

Color	Name	Category	Kind	Parameters
	Lower Boundary	Hydraulic	Water Pressure Head	0 ft
	No Flow	Hydraulic	Water Rate	0 ft³/sec
	Stormwater Storage Box	Hydraulic	Water Total Head	7ft Water in Box for 72 Hrs

L = 40 ft
K = 3.5e-04 cm/s

Elapsed Time: 172,800 sec (48 hours)



Project PA181046.00
November 11, 2019
Figure 4E

Geo-Logic ASSOCIATES

Mozart GW Model

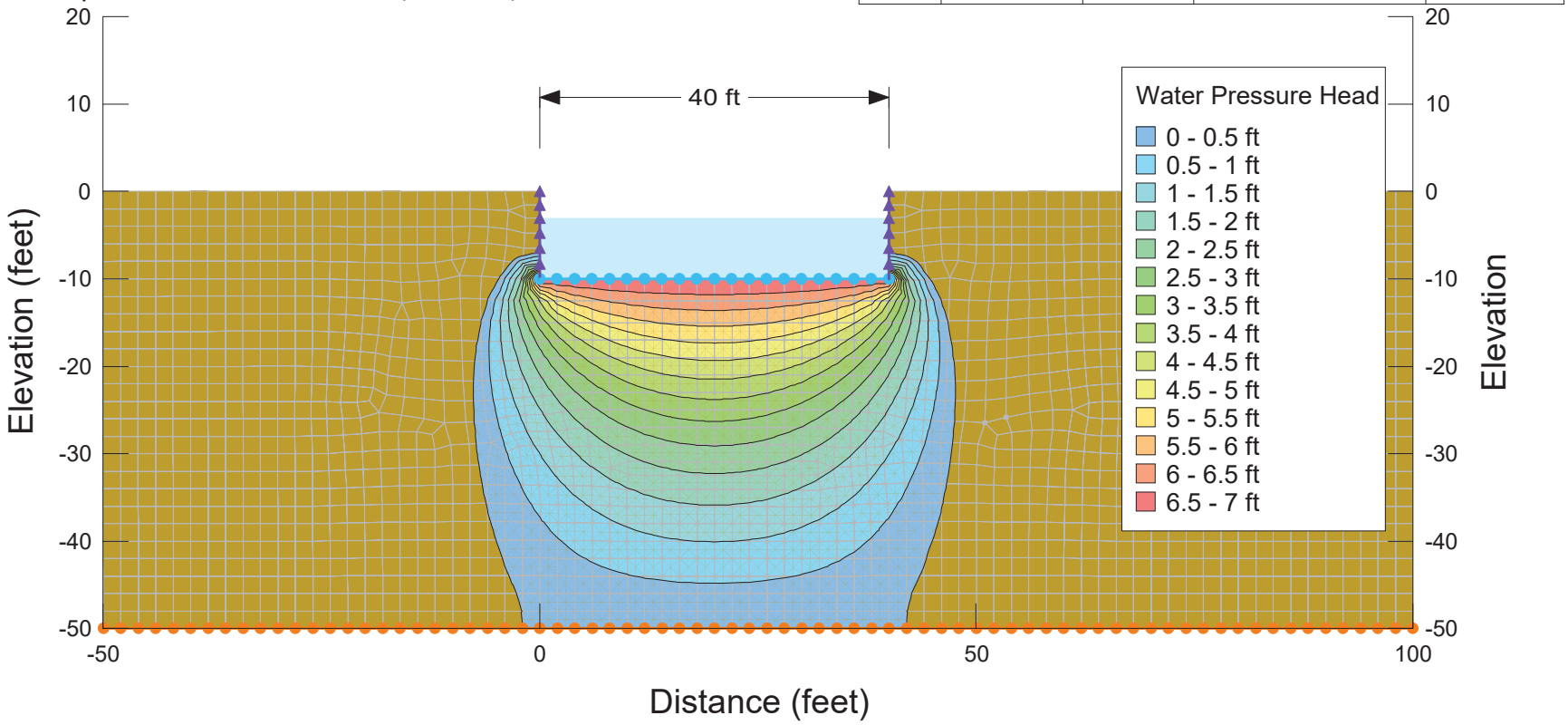
Mozart GW Model_01.gsz
Date: 11/05/2019
Time: 04:10:27 PM
Method: Transient

Color	Name	Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Activation PWP (psf)
	Sand and Gravel	Saturated / Unsaturated	Sand/Gravel w Fines	Sand/Gravel w Fines	1	-200

Color	Name	Category	Kind	Parameters
	Lower Boundary	Hydraulic	Water Pressure Head	0 ft
	No Flow	Hydraulic	Water Rate	0 ft³/sec
	Stormwater Storage Box	Hydraulic	Water Total Head	7ft Water in Box for 72 Hrs

L = 40 ft
K = 3.5e-04 cm/s

Elapsed Time: 216,000 sec (60 hours)



Project PA181046.00
November 11, 2019
Figure 4F

Geo-Logic ASSOCIATES

Mozart GW Model

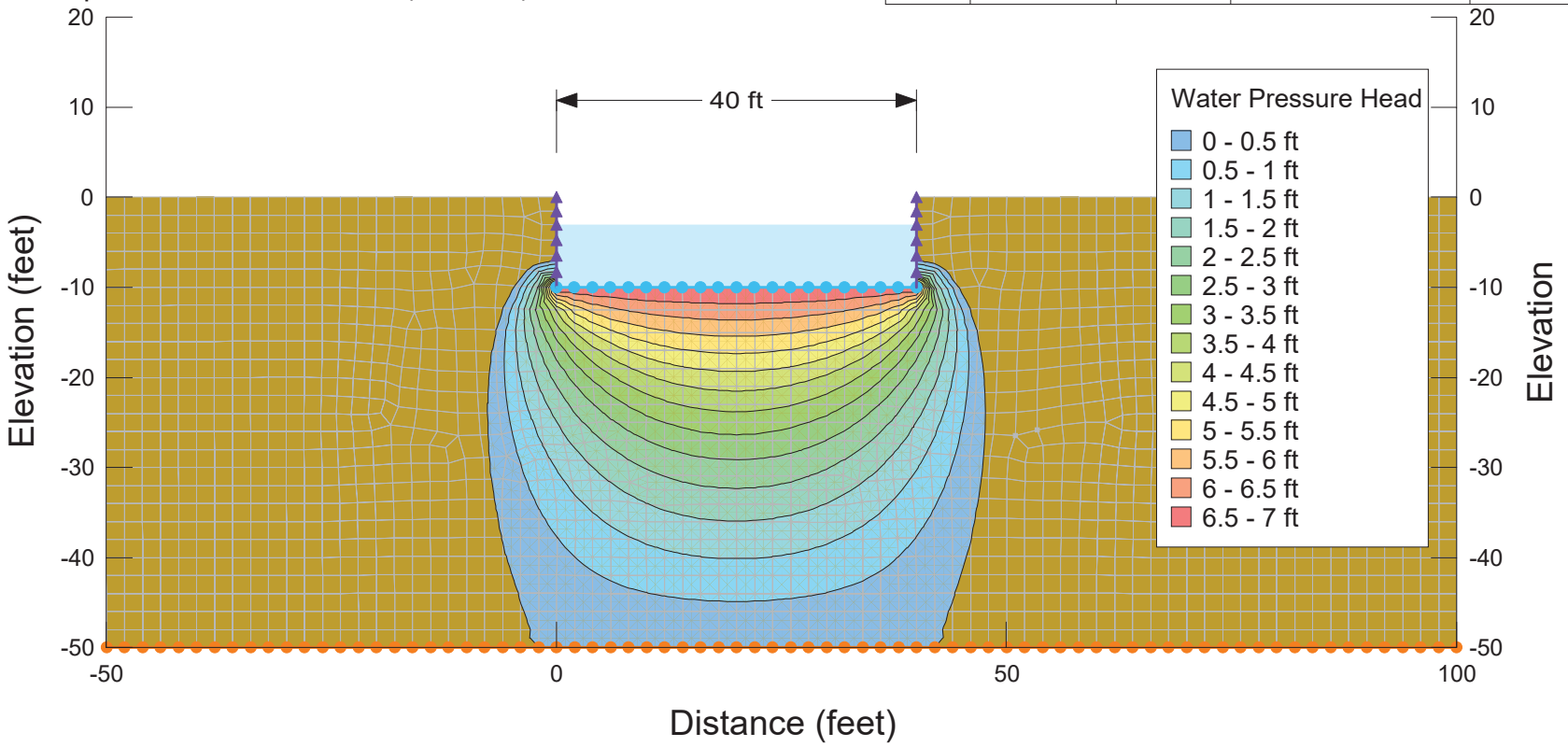
Mozart GW Model_01.gsz
Date: 11/05/2019
Time: 04:10:27 PM
Method: Transient

Color	Name	Model	Vol. WC. Function	K-Function	Ky'/Kx' Ratio	Activation PWP (psf)
	Sand and Gravel	Saturated / Unsaturated	Sand/Gravel w Fines	Sand/Gravel w Fines	1	-200

Color	Name	Category	Kind	Parameters
	Lower Boundary	Hydraulic	Water Pressure Head	0 ft
	No Flow	Hydraulic	Water Rate	0 ft³/sec
	Stormwater Storage Box	Hydraulic	Water Total Head	7ft Water in Box for 72 Hrs

L = 40 ft
K = 3.5e-04 cm/s

Elapsed Time: 259,200 sec (72 hours)



Project PA181046.00
November 11, 2019
Figure 4G

Geo-Logic ASSOCIATES

APPENDIX A

KEYS TO SOIL CLASSIFICATION,

DRILL HOLE LOGS, AND

CONE PENETRATION TEST PLOTS

KEY TO SOIL CLASSIFICATION - FINE GRAINED SOILS

(50% OR MORE IS SMALLER THAN NO. 200 SIEVE SIZE)

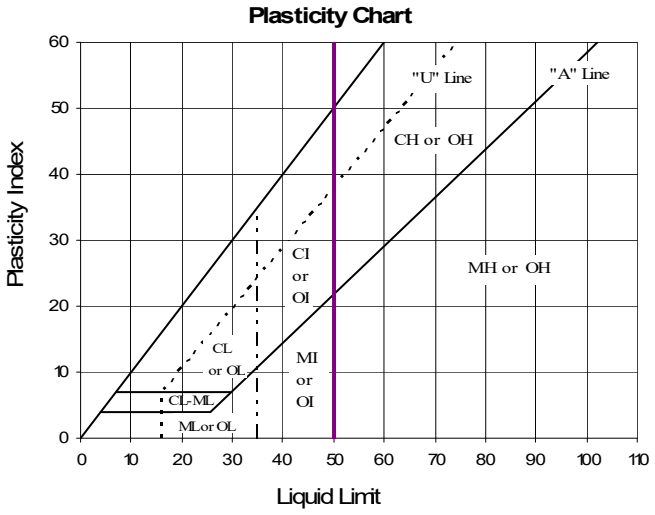
(modified from ASTM D2487 to include fine grained soils with intermediate plasticity)

MAJOR DIVISIONS			GROUP SYMBOLS	GROUP NAMES
SILTS AND CLAYS (Liquid Limit less than 35) Low Plasticity	Inorganic	PI < 4 or plots below "A" line	ML	Silt, Silt with Sand or Gravel, Sandy or Gravelly Silt, Sandy or Gravelly Silt with Sand or Gravel
	Inorganic	PI > 7 or plots on or above "A" line	CL	Lean Clay, Lean Clay with Sand or Gravel, Sandy or Gravelly Lean Clay, Sandy or Gravelly Lean Clay with Sand or Gravel
	Inorganic	PI between 4 and 7	CL-ML	Silty Clay, Silty Clay with Sand or Gravel, Sandy or Gravelly Silty Clay, Sandy or Gravelly Silty Clay with Sand or Gravel
	Organic	See footnote 3	OL	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) (1,2)
SILTS AND CLAYS (35 ≤ Liquid Limit < 50) Intermediate Plasticity	Inorganic	PI < 4 or plots below "A" line	MI	Silt, Silt with Sand or Gravel, Sandy or Gravelly Silt, Sandy or Gravelly Silt with Sand or Gravel
	Inorganic	PI > 7 or plots on or above "A" line	CI	Clay, Clay with Sand or Gravel, Sandy or Gravelly Clay, Sandy or Gravelly Clay with Sand or Gravel
	Organic	See footnote 3	OI	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) (1,2)
SILTS AND CLAYS (Liquid Limit 50 or greater) High Plasticity	Inorganic	PI plots below "A" line	MH	Elastic Silt, Elastic Silt with Sand or Gravel, Sandy or Gravelly Elastic Silt, Sandy or Gravelly Elastic Silt with Sand or Gravel
	Inorganic	PI plots on or above "A" line	CH	Fat Clay, Fat Clay with Sand or Gravel, Sandy or Gravelly Fat Clay, Sandy or Gravelly Fat Clay with Sand or Gravel
	Organic	See note 3 below	OH	Organic Silt (below "A" Line) or Organic Clay (on or above "A" Line) (1,2)

1. If soil contains 15% to 29% plus No. 200 material, include "with sand" or "with gravel" to group name, whichever is predominant.
2. If soil contains ≥30% plus No. 200 material, include "sandy" or "gravelly" to group name, whichever is predominant. If soil contains ≥15% of sand or gravel sized material, add "with sand" or "with gravel" to group name.
3. Ratio of liquid limit of oven dried sample to liquid limit of not dried sample is less than 0.75.

CONSISTENCY	UNCONFINED SHEAR STRENGTH (KSF)	STANDARD PENETRATION (BLOWS/FOOT)
VERY SOFT	< 0.25	< 2
SOFT	0.25 – 0.5	2 – 4
FIRM	0.5 – 1.0	5 – 8
STIFF	1.0 – 2.0	9 – 15
VERY STIFF	2.0 – 4.0	16 – 30
HARD	> 4.0	> 30

MOISTURE	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soil is below the water table



GEO-LOGIC ASSOCIATES

KEY TO SOIL CLASSIFICATION – COARSE GRAINED SOILS

(MORE THAN 50% IS LARGER THAN NO. 200 SIEVE SIZE)

(modified from ASTM D2487 to include fines with intermediate plasticity)

MAJOR DIVISIONS			GROUP SYMBOLS	GROUP NAMES[1]
GRAVELS (more than 50% of coarse fraction is larger than No. 4 sieve size)	Gravels with less than 5% fines	Cu ≥ 4 and 1 ≤ Cc ≤ 3	GW	Well Graded Gravel, Well Graded Gravel with Sand
		Cu < 4 and/or 1 > Cc > 3	GP	Poorly Graded Gravel, Poorly Graded Gravel with Sand
	Gravels with 5% to 12% fines	ML, MI or MH fines	GW-GM	Well Graded Gravel with Silt, Well Graded Gravel with Silt and Sand
			GP-GM	Poorly Graded Gravel with Silt, Poorly Graded Gravel with Silt and Sand
		CL, CI or CH fines	GW-GC	Well Graded Gravel with Clay, Well Graded Gravel with Clay and Sand
			GP-GC	Poorly Graded Gravel with Clay, Poorly Graded Gravel with Clay and Sand
	Gravels with more than 12% fines	ML, MI or MH fines	GM	Silty Gravel, Silty Gravel with Sand
		CL, CI or CH fines	GC	Clayey Gravel, Clayey Gravel with Sand
		CL-ML fines	GC-GM	Silty Clayey Gravel; Silty, Clayey Gravel with Sand
SANDS (50% or more of coarse fraction is smaller than No. 4 sieve size)	Sands with less than 5% fines	Cu ≥ 6 and 1 ≤ Cc ≤ 3	SW	Well Graded Sand, Well Graded Sand with Gravel
		Cu < 6 and/or 1 > Cc > 3	SP	Poorly Graded Sand, Poorly Graded Sand with Gravel
	Sands with 5% to 12% fines	ML, MI or MH fines	SW-SM	Well Graded Sand with Silt, Well Graded Sand with Silt and Gravel
			SP-SM	Poorly Graded Sand with Silt, Poorly Graded Sand with Silt and Gravel
		CL, CI or CH fines	SW-SC	Well Graded Sand with Clay, Well Graded Sand with Clay and Gravel
			SP-SC	Poorly Graded Sand with Clay, Poorly Graded Sand with Clay and Gravel
	Sands with more than 12% fines	ML, MI or MH fines	SM	Silty Sand, Silty Sand with Gravel
		CL, CI or CH fines	SC	Clayey Sand, Clayey Sand with Gravel
		CL-ML fines	SC-SM	Silty, Clayey Sand; Silty, Clayey Sand with Gravel

US STANDARD SIEVES	3 Inch	¾ Inch	No. 4	No. 10	No. 40	No. 200	
	COARSE	FINE	COARSE	MEDIUM	FINE		
COBBLES & BOULDERS	GRAVELS		SANDS				SILTS AND CLAYS

RELATIVE DENSITY (SANDS AND GRAVELS)	STANDARD PENETRATION (BLOWS/FOOT)
Very Loose	0 - 4
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 - 50
Very Dense	50+

1. Add “with sand” to group name if material contains 15% or greater of sand-sized particle. Add “with gravel” to group name if material contains 15% or greater of gravel-sized particle.

MOISTURE	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp, but no visible water
Wet	Visible free water, usually soi is below the water table

GEO-LOGIC ASSOCIATES

DATE: 10/19/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 1
PROJECT NAME: 16179 E. Mozart Avenue	PROJECT NUMBER:	PA18.1046
DRILL RIG: Mobile B53, autohammer	LOGGED BY:	FS/BL
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DRAFT FOR CLIENT REVIEW ONLY

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
SILTY SAND with GRAVEL: Brown (10YR 5/3), moist, medium dense, fine to coarse sand; with mostly fine gravel	SM	1	S									
		2	D	24		28		5				
		3	D									
POORLY GRADED GRAVEL with SAND: Brown (10YR 5/3), moist, dense, fine to coarse gravel; wih fine to coarse sand	GP	4	S									
		5	D	35		8		2				
		6	D									
		7										
CLAYEY SAND with GRAVEL: Brown (10YR 5/3), moist, very dense; fine to coarse sand, with fine to coarse gravel	SC	8										
		9	S									
		10	D	79		15		5				
		11	D									
		12										
		13										
		14	S									
		15	I	51								
		16	I									
		17										
		18										
		19	S									
pale brown (10YR 6/3), moist, dense, gravels are sandstone fragments		20	I	29		13		8				

DATE: 10/19/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 1
PROJECT NAME: 16179 E. Mozart Avenue	PROJECT NUMBER:	PA18.1046
DRILL RIG: Mobile B53, autohammer	LOGGED BY:	FS/BL
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DRAFT FOR CLIENT REVIEW ONLY

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
CLAYEY SAND with GRAVEL (continued)	SC	21										
POORLY GRADED GRAVEL with SAND and CLAY: Dark gray (10YR 4/1), moist, dense to very dense; fine to coasre gravel, with fine to coarse sand	GP-GC	22										
		23										
		24	S									
		25	I	46		11		7				
		26										
		27										
		28										
very dense, gravels are mudstone and weakly cemented sandstone		29	S									
		30	I	60								
		31										
		32										
		33										
		34	S									
		35	I	65		9		7				
		36										
CLAYEY GRAVEL with SAND: Grayish brown (10YR 5/2), moist, very dense; fine to coarse gravel; with fine to coarse sand, gravels are mudstone, weakly cemented sandstone, and crystalline rock fragments	GC	37										
		38										
		39	S									
		40	I	63		15		7				

DATE: 10/19/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 1
PROJECT NAME: 16179 E. Mozart Avenue	PROJECT NUMBER:	PA18.1046
DRILL RIG: Mobile B53, autohammer	LOGGED BY:	FS/BL
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DRAFT FOR CLIENT REVIEW ONLY

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
CLAYEY SAND with GRAVEL: light olive brown (2.5Y 5/4), moist, very dense; fine to coarse sand, with fine to coarse gravel and cobbles	SC	41										
		42										
		43										
		44	S	63								
		45	I									
		46										
		47										
brown (10YR 5/3), moist, dense to very dense		48	S	47		15		7				
		49	I									
BOTTOM OF HOLE= 49 FEET No Groundwater Encountered		50										
		51										
		52										
		53										
		54										
		55										
		56										
		57										
		58										
		59										
		60										

DATE: 10/19/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 2
PROJECT NAME: 16179 E. Mozart Avenue	PROJECT NUMBER:	PA18.1046
DRILL RIG: Mobile B53, downhole hammer	LOGGED BY:	FS/BL
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DRAFT FOR CLIENT REVIEW ONLY

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
SILTY SAND with GRAVEL: Yellowish brown (10YR 5/4), moist, medium dense to dense; fine to coarse sand, fine gravel	SM	1	S									
		2	D	32								
		3	D									
		4	S									
CLAYEY SAND with GRAVEL: Brown (10YR 5/3), moist, medium dense to dense; fine to coarse sand and gravel	SC	5	D	37								
		6										
		7										
		8										
very dense		9	S									
		10	I	87		22		9				
		11										
		12										
		13										
dark grayish brown (10YR 4/2)		14	S									
		15	I	51								
BOTTOM OF HOLE = 15 Feet No groundwater Encountered		16										
		17										
		18										
		19										
		20										

DATE: 10/19/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 3
PROJECT NAME: 16179 E. Mozart Avenue	PROJECT NUMBER:	PA18.1046
DRILL RIG: Mobile B53, downhole hammer	LOGGED BY:	FS/BL
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DRAFT FOR CLIENT REVIEW ONLY

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
SILTY SAND with GRAVEL: Yellowish brown (10YR 5/4), moist, medium dense; fine to coarse sand	SM	1	S									
		2	D	15				4				
		3	D									
		4	S									
dense		5	D	42				5				
		6	D									
		7										
		8										
		9	S									
pale brown (10YR 6/3), very dense, some gravels are sandstone fragments		10	I	81								
		11	I									
POORLY GRADED SAND with GRAVEL: Brown (10YR 4/3), moist, dense; fine to coarse sand, with fine to coarse gravel, gravels are mudstone and sandstone fragments	SP	12										
		13										
		14	S									
		15	I	33								
BOTTOM OF HOLE = 15 FEET No Groundwate Encountered		16										
		17										
		18										
		19										
		20										

DATE: 10/19/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 4
PROJECT NAME: 16179 E. Mozart Avenue	PROJECT NUMBER:	PA18.1046
DRILL RIG: Mobile B53, downhole hammer	LOGGED BY:	FS/BL
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

SAMPLER: D = 3" OD, 2½" ID Split-spoon; X = 2½" OD, 2" ID Split-spoon; I = Standard Penetrometer (2" OD SPT); S = Slough in sample

GROUND WATER DEPTH: Initial: --- Final: ---

DRAFT FOR CLIENT REVIEW ONLY

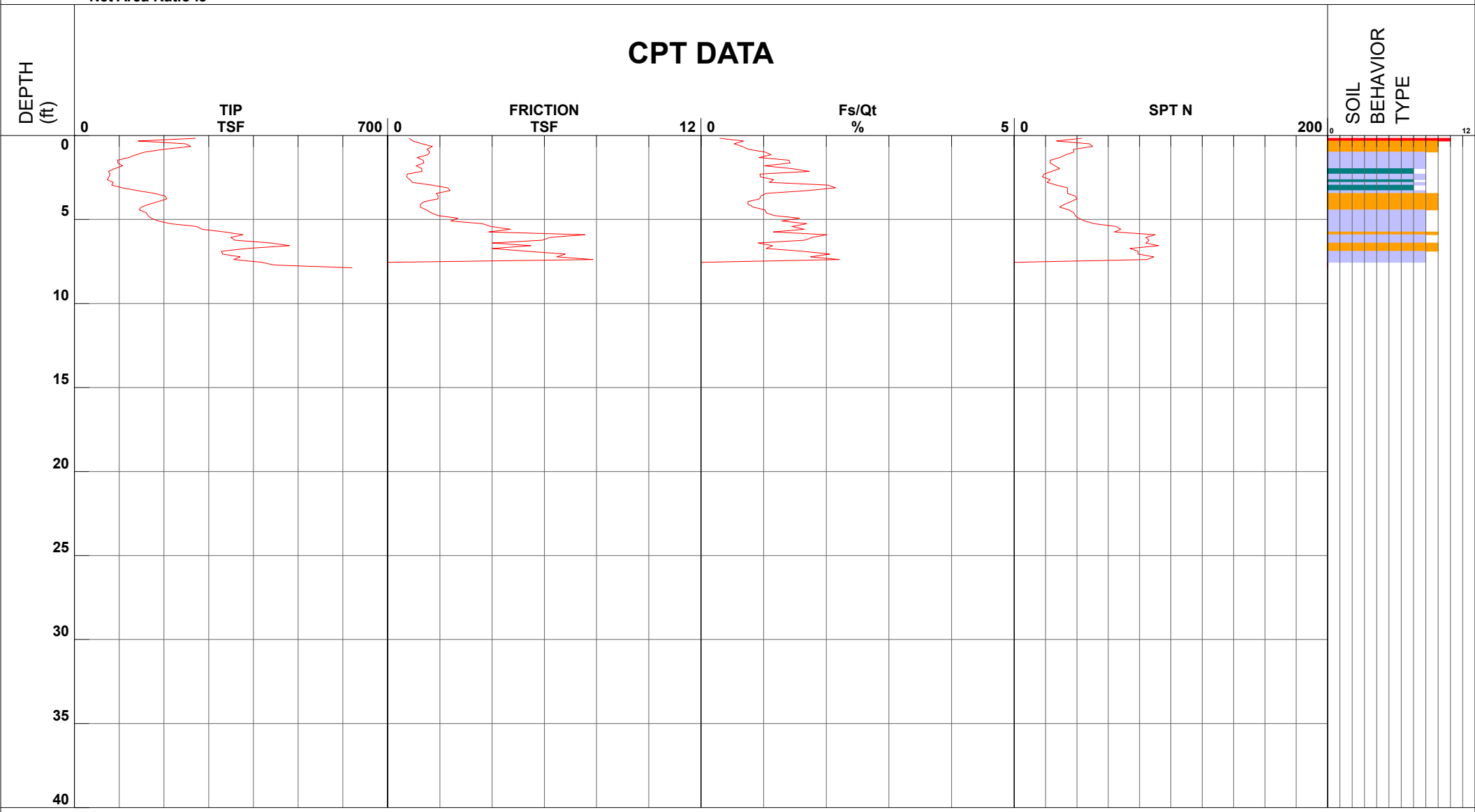
DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
SILTY SAND with GRAVEL: Yellowish brown (10YR 5/4), moist, medium dense; fine to coarse sand	SM	1	S									
		2	D	25		27		5				
		3	D									
POORLY GRADED GRAVEL with SAND: Yellowish brown (10YR 5/4), moist, medium dense, fine to coarse gravel; with fine to coarse sand and sandstone fragments	GP	4	S									
		5	D	22		4		3				
		6	D									
CLAYEY SAND with GRAVEL: Pale brown (10YR 6/3), moist, very dense, fine to coarse sand; with fine to coarse gravel, some gravels are sandstone fragments	SC	7										
		8										
		9	S									
		10	I	88								
		11	I									
BOTTOM OF HOLE = 11 FEET No Groundwater Encountered		12										
		13										
		14										
		15										
		16										
		17										
		18										
		19										
		20										

Geo-Logic Associates

Project	Mozart Ave	Operator	AS-JM	Filename	SDF(380).cpt
Job Number	PA18.1039.PR	Cone Number	DDG1418	GPS	
Hole Number	CPT-01	Date and Time	10/19/2018 11:46:49 AM	Maximum Depth	7.87 ft
EST GW Depth During Test		>7.87 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

Geo-Logic Associates

Project	Mozart Ave	Operator	AS-JM	Filename	SDF(381).cpt
Job Number	PA18.1039.PR	Cone Number	DDG1418	GPS	
Hole Number	CPT-02	Date and Time	10/19/2018 12:17:38 PM	Maximum Depth	18.04 ft
EST GW Depth During Test		>18.04 ft			

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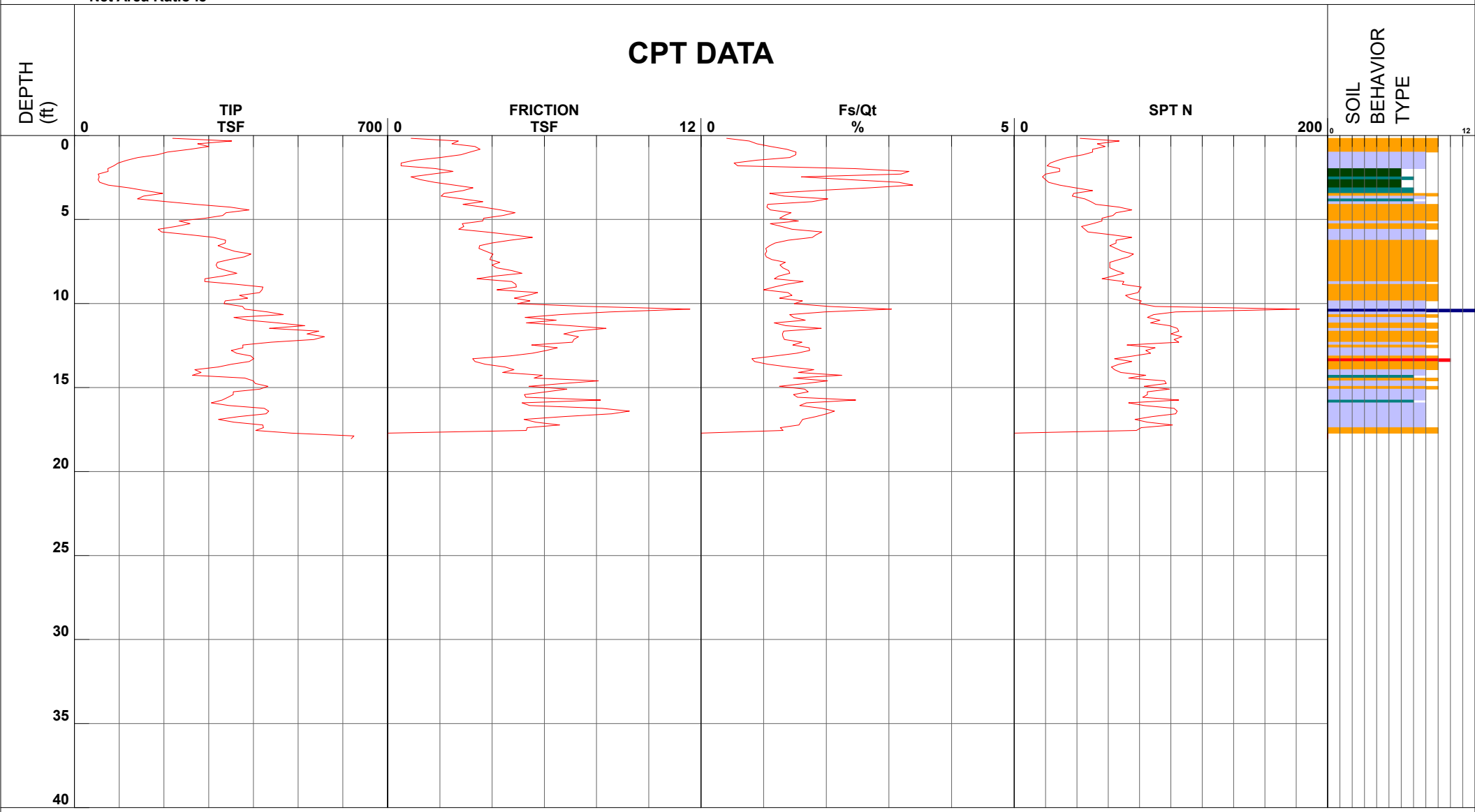
Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

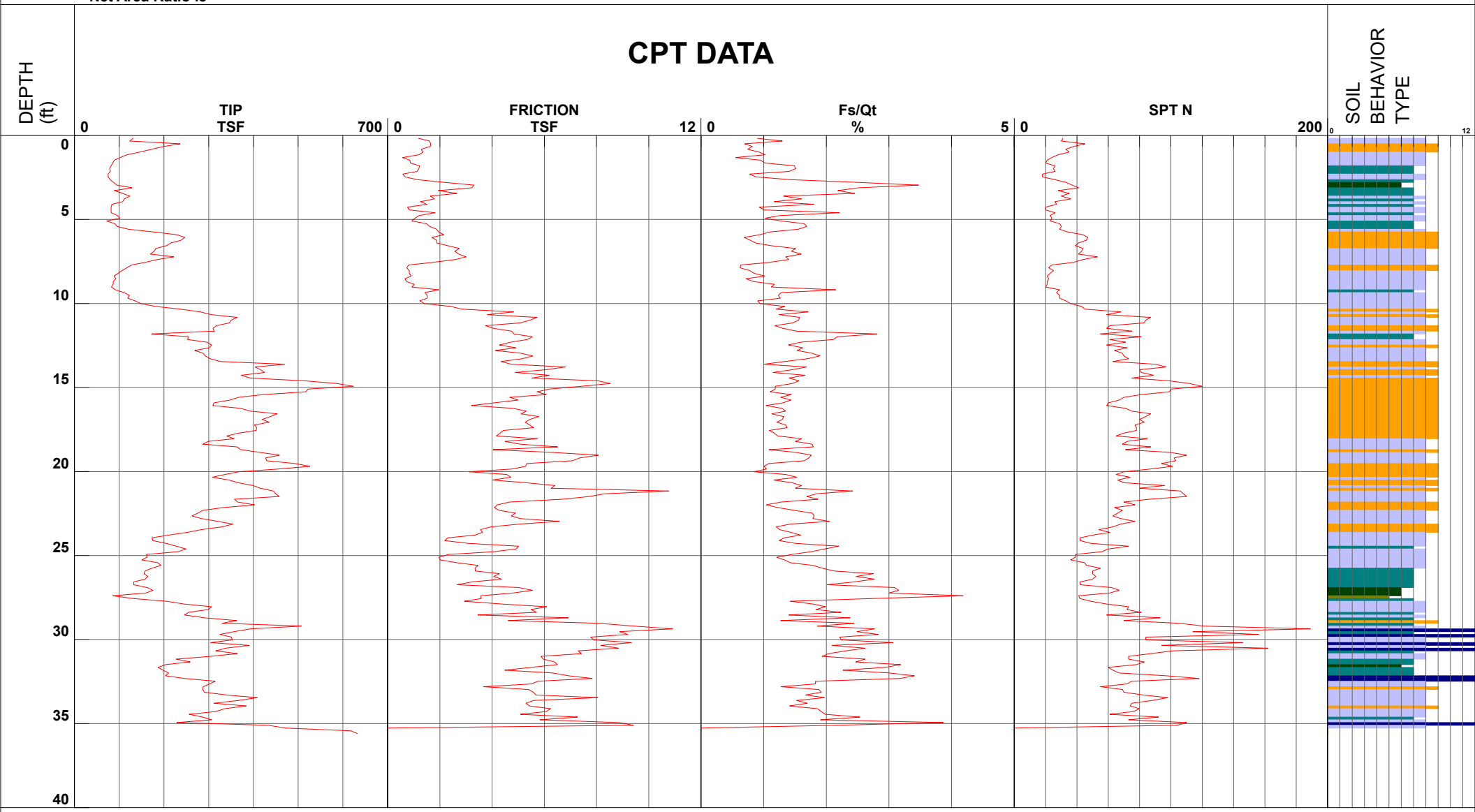
S*Soil behavior type and SPT based on data from UBC-1983

Geo-Logic Associates

Project	Mozart Ave	Operator	AS-JM	Filename	SDF(382).cpt
Job Number	PA18.1039.PR	Cone Number	DDG1418	GPS	
Hole Number	CPT-03	Date and Time	10/19/2018 12:54:01 PM	Maximum Depth	35.60 ft
EST GW Depth During Test		>35.60 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

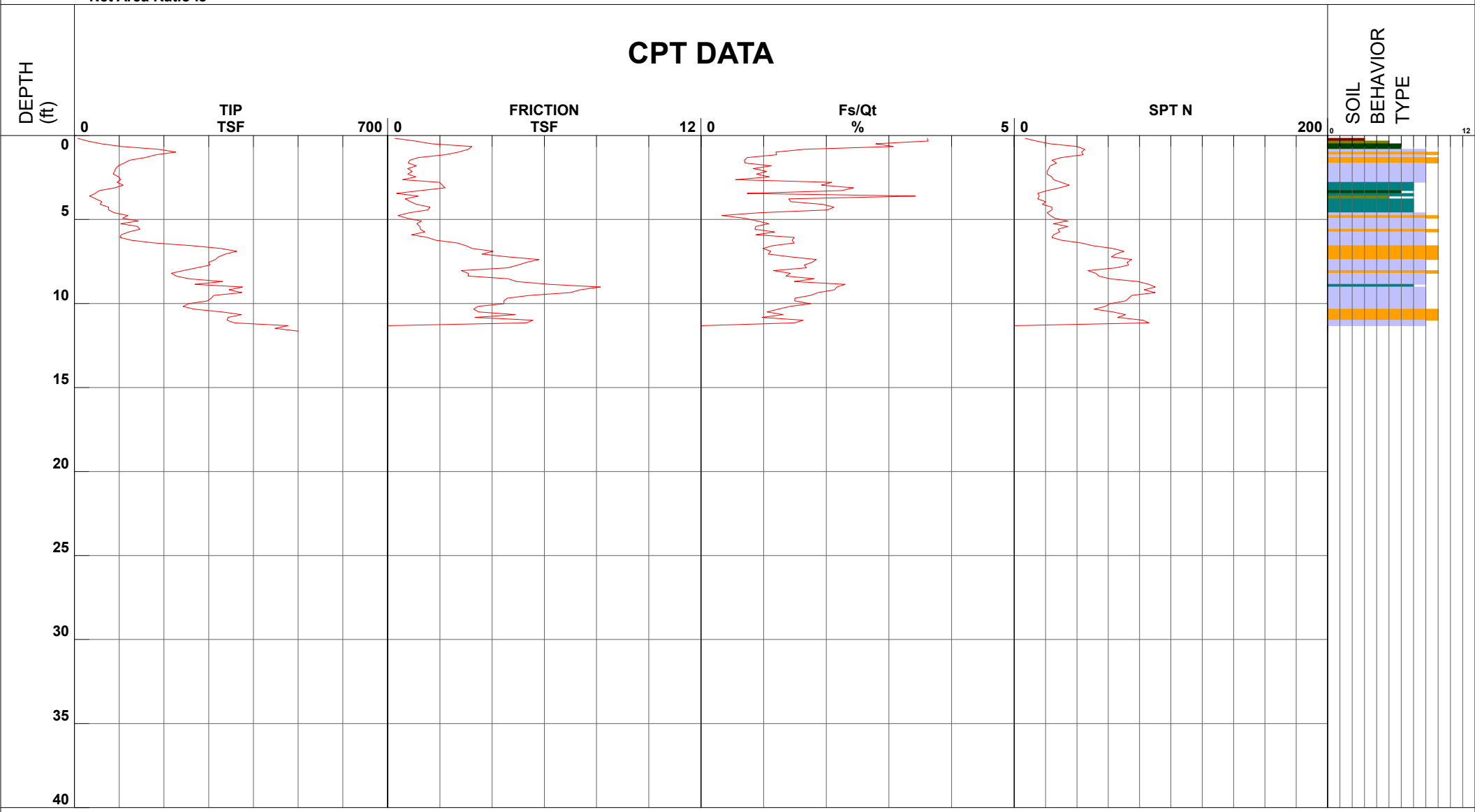
S*Soil behavior type and SPT based on data from UBC-1983

Geo-Logic Associates

Project	Mozart Ave	Operator	AS-JM	Filename	SDF(384).cpt
Job Number	PA18.1039.PR	Cone Number	DDG1418	GPS	
Hole Number	CPT-04A	Date and Time	10/19/2018 1:58:41 PM	Maximum Depth	11.65 ft
EST GW Depth During Test		>11.65 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

APPENDIX B

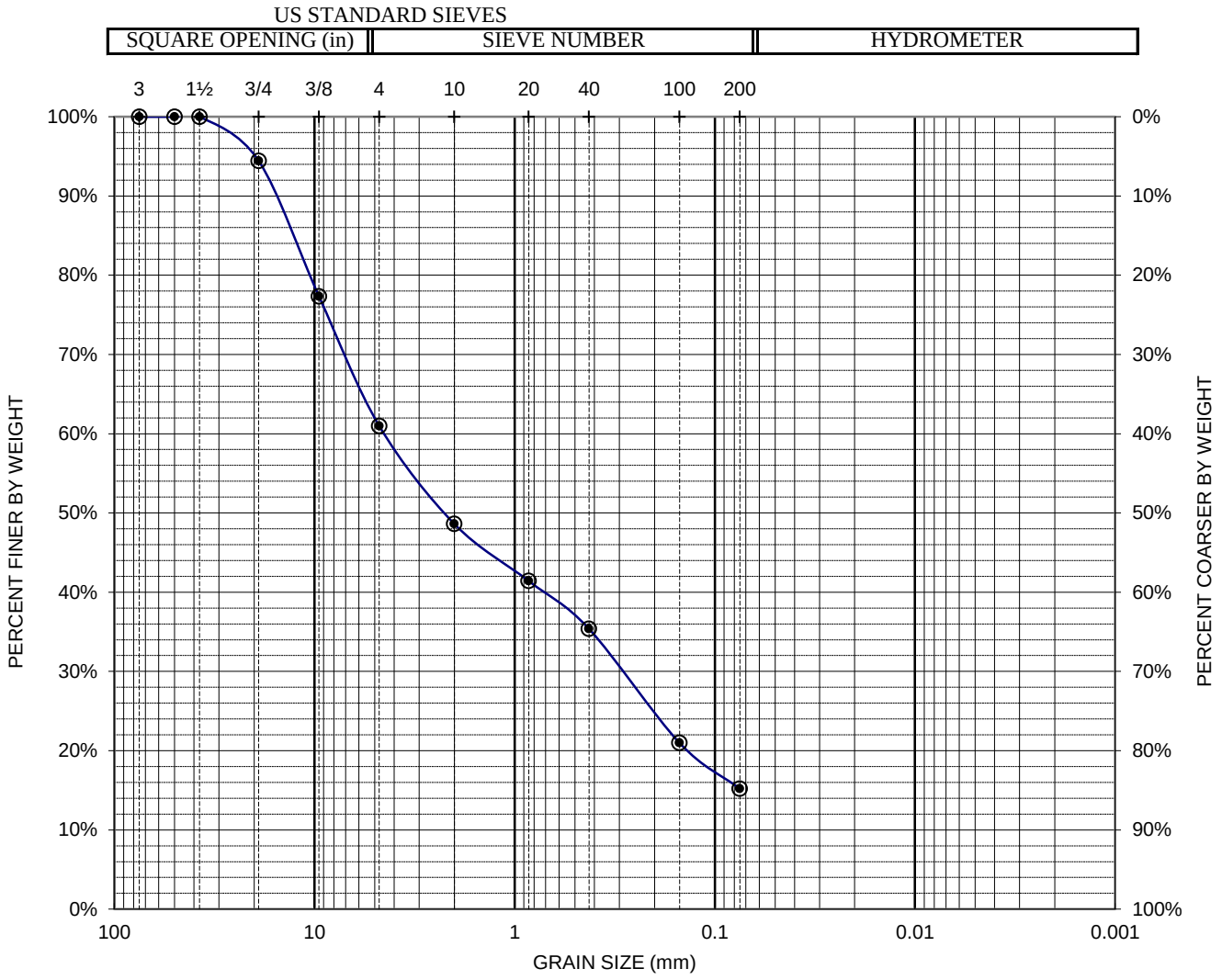
LABORATORY TEST RESULTS

GRAIN SIZE TEST RESULTS

PROJECT NAME	16179 E. Mozart Ave.					**PROJECT No.**	PA18.1046.00
DRILL HOLE No.	1	**DEPTH (ft)**	9.5	**SAMPLE**	0	**DATE OF TEST**	11/19/2018

SOURCE/QUARRY: ---

DESCRIPTION OF SOIL: CLAYEY SAND with GRAVEL



	COARSE	FINE	COARSE	MEDIUM	FINE	
COBBLES	GRAVEL		SAND			SILT & CLAY
	39.0%		45.8%			15.2%

REMARKS:

GEO-LOGIC ASSOCIATES

Figure B-1

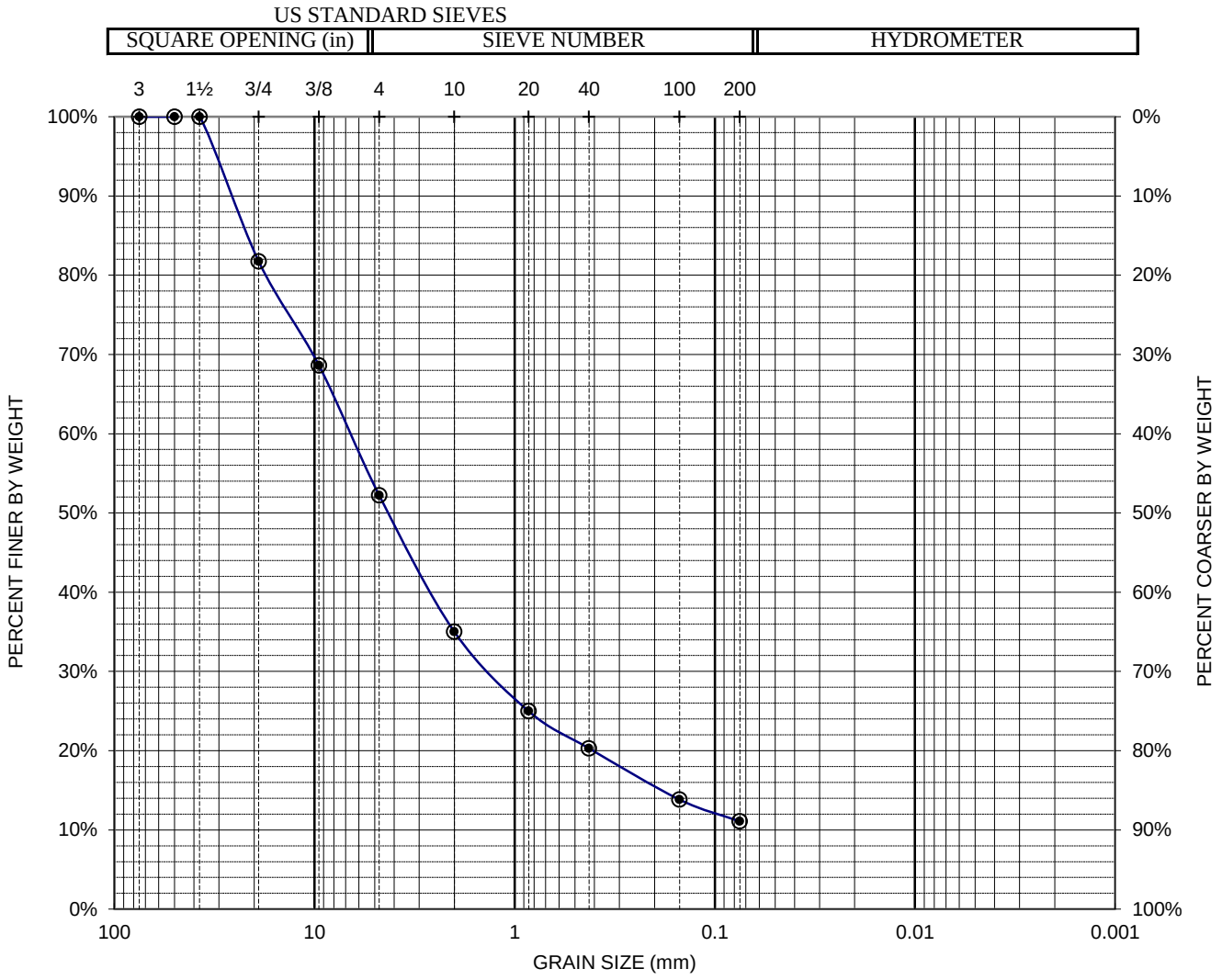
RevOct20070

GRAIN SIZE TEST RESULTS

PROJECT NAME	16179 E. Mozart Ave.					**PROJECT No.**	PA18.1046.00
DRILL HOLE No.	1	**DEPTH (ft)**	24-25	**SAMPLE**	0	**DATE OF TEST**	11/19/2018

SOURCE/QUARRY: ---

DESCRIPTION OF SOIL: POORLY GRADED GRAVEL with SAND and CLAY



	COARSE	FINE	COARSE	MEDIUM	FINE	
COBBLES	GRAVEL		SAND			SILT & CLAY
	47.8%		41.1%			11.1%

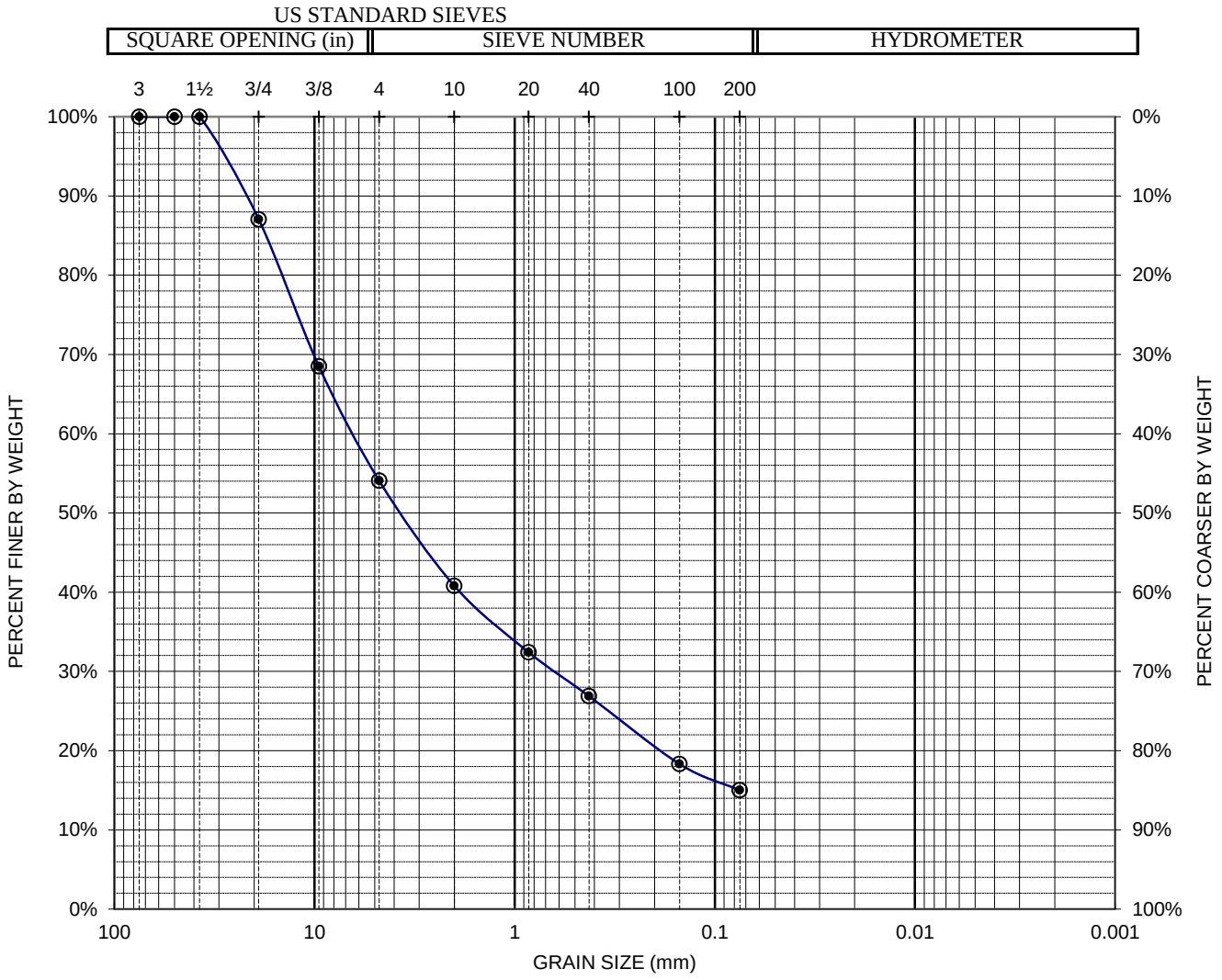
REMARKS:

GRAIN SIZE TEST RESULTS

PROJECT NAME	16179 E. Mozart Ave.					**PROJECT No.**	PA18.1046.00
DRILL HOLE No.	1	**DEPTH (ft)**	39	**SAMPLE**	0	**DATE OF TEST**	11/19/2018

SOURCE/QUARRY: ---

DESCRIPTION OF SOIL: CLAYEY GRAVEL with SAND



	COARSE	FINE	COARSE	MEDIUM	FINE	
COBBLES	GRAVEL		SAND			SILT & CLAY
	45.9%		39.1%			15.0%

REMARKS:

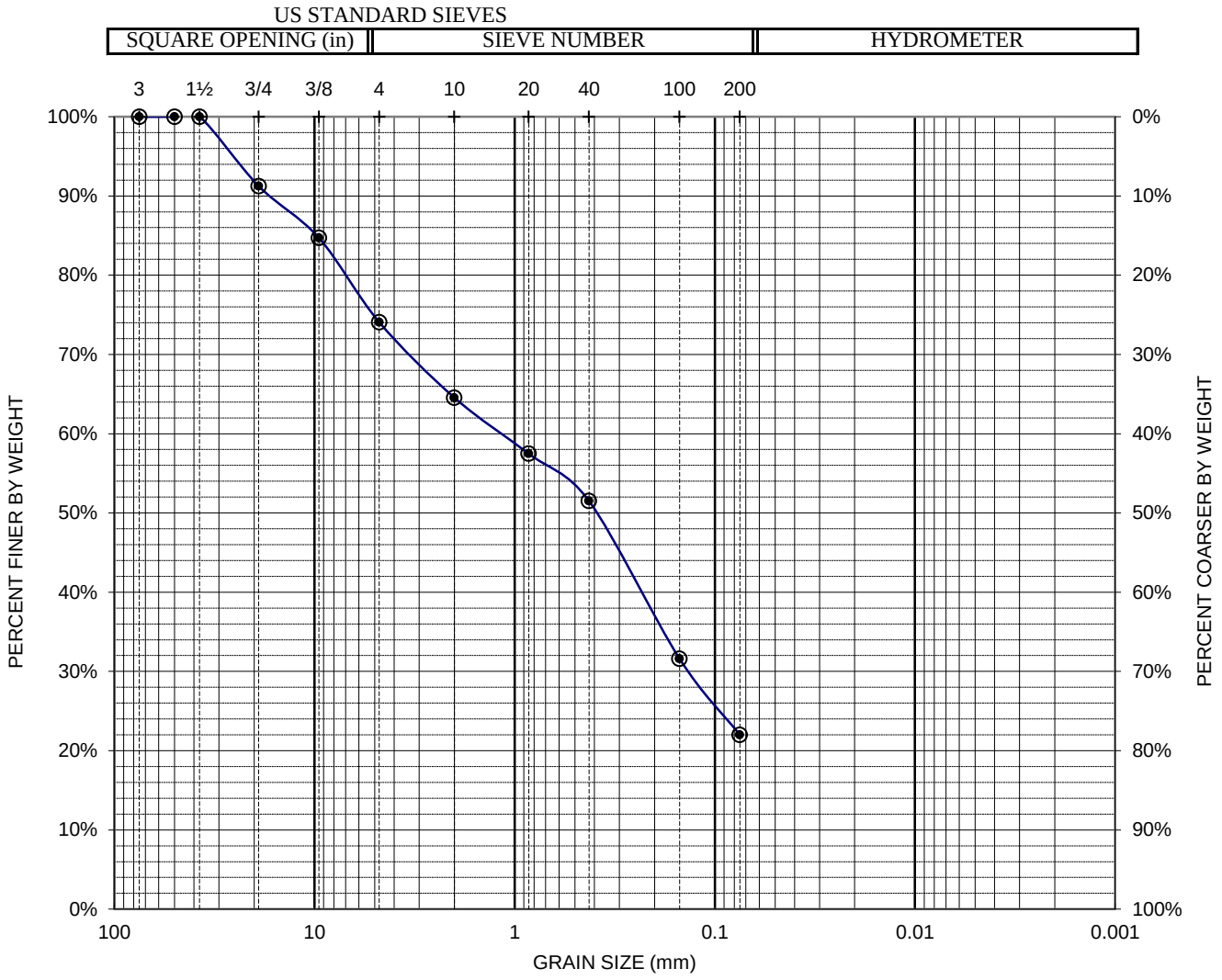
PACIFIC GEOTECHNICAL ENGINEERING

Figure B-3

RevOct20070

GRAIN SIZE TEST RESULTS

PROJECT NAME	16179 E. Mozart Ave.					**PROJECT No.**	PA18.1046
DRILL HOLE No.	2	**DEPTH (ft)**	9-10	**SAMPLE**	0	**DATE OF TEST**	11/19/2018
SOURCE/QUARRY:	---						
DESCRIPTION OF SOIL:	CLAYEY SAND with GRAVEL						



	COARSE	FINE	COARSE	MEDIUM	FINE	
COBBLES	GRAVEL		SAND			SILT & CLAY
	25.9%		52.1%			22.0%

REMARKS:

PACIFIC GEOTECHNICAL ENGINEERING

Figure B-4

'R' VALUE CA 301

Project Robson Holmes LLC Date: 11/24/18 By: LD

Job #: PA18.1046.00 Sample : 16179 Mozart Ave.

Soil Type: Brown, Sandy Silt w. Gravel

TEST SPECIMEN		A	B	C	D
Compactor Air Pressure	psi	**300**	**350**	**350**	
Initial Moisture Content	%	**1.8**	**1.8**	**1.8**	
Water Added	ml	**155**	**145**	**135**	
Moisture at Compaction	%	14.9	14.1	13.3	
Sample & Mold Weight	gms	**3062**	**3102**	**3115**	
Mold Weight	gms	**2101**	**2097**	**2102**	
Net Sample Weight	gms	961	1005	1013	
Sample Height	in.	**2.43**	**2.51**	**2.488**	
Dry Density	pcf	104.2	106.3	108.9	
Pressure	lbs	**2595**	**4665**	**8090**	
Exudation Pressure	psi	207	371	644	
Expansion Dial	x 0.0001	**60**	**88**	**109**	
Expansion Pressure	psf	260	381	472	
Ph at 1000lbs	psi	**25**	**22**	**18**	
Ph at 2000lbs	psi	**48**	**38**	**31**	
Displacement	turns	**4.5**	**4.16**	**3.88**	
R' Value		56	66	73	
Corrected 'R' Value		**56**	**66**	**73**	

FINAL 'R' VALUE	
By Exudation Pressure (@ 300 psi):	**62**
By Epansion Pressure :	**40**
TI = 5	

Figure B-5

Geo-Logic ASSOCIATES

California State Certified Laboratory No. 2153

DRAFT FOR CLIENT REVIEW ONLY

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

16 November, 2018

Job No. 1811048
Cust. No. 10854

Mr. Beeson Liang
Geo-Logic Associates
16055-D Caputo Drive
Morgan Hill, CA 95037

Subject: Project No.: Not Indicated
Project Name: Mozart Avenue
Corrosivity Analysis – ASTM Test Methods

Dear Mr. Liang:

Pursuant to your request, CERCO Analytical has analyzed the soil sample submitted on November 07, 2018. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, both sample is classified as "mildly 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 are both none detected with a detection limit of 15 mg/kg.

The sulfate ion concentrations are both none detected with a detection limit of 15 mg/kg.

The pH of the soils range from 6.67 to 7.07, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials range from 340 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.

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: Geo-Logic Associates
Client's Project No.: Not Indicated
Client's Project Name: Mozart Ave.
Date Sampled: 5-Nov-18
Date Received: 7-Nov-18
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 16-Nov-2018

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)*
1811048-001	DH-2 @ 1.5'+4'	340	7.07	-	11,000	-	N.D.	N.D.
1811048-002	SH-4 @ 1.5'+4'	370	6.67	-	12,000	-	N.D.	N.D.

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
Date Analyzed:	14-Nov-2018	13-Nov-2018	-	15-Nov-2018	-	13-Nov-2018	13-Nov-2018

Cheryl McMillen
Laboratory Director

* Results Reported on "As Received" Basis

N.D. - None Detected

Quality Control Summary - **All laboratory quality control parameters were found to be within established limits**

ATTACHMENT 5

DRAFT SOIL MANAGEMENT PLAN

DRAFT

Prepared by
Ramboll US Corporation
Emeryville, California

Prepared For:
Robson Homes, LLC
San Jose, California

Project Number
1690010020

Date
June 23, 2020

DRAFT SOIL MANAGEMENT PLAN

PROPOSED ROBSON HOMES DEVELOPMENT
16151-16187 EAST MOZART AVENUE
CAMPBELL, CALIFORNIA

RAMBOLL

ENVIRONMENT
& HEALTH

CONTENTS

FIGURES

TABLES

ATTACHMENTS

1. INTRODUCTION

On behalf of Robson Homes, LLC (Developer), Ramboll US Corporation has prepared this Soil Management Plan (SMP) related to redevelopment activities at 16151-16187 East Mozart Avenue in Campbell, California (the site).

The approximately 2.92-acre site is located at 16151, 16157, 16163, 16179, and 16187 East Mozart Avenue, Campbell, Santa Clara County, California. The Assessor's Parcel Number (APN) for the site is 424-06-119. The southern portion of the site is developed with five residences and canopy-covered parking areas that face East Mozart Avenue. The central portion of the site is largely undeveloped with two small storage structures that were formerly used as residences, a two-car garage, two covered storage areas, and two shipping containers that were formerly used by West Valley Arborists, a landscaping business (Figure 1). Proposed redevelopment of the site includes 25 single-family homes (Figure 2). Construction will include demolition of on-site structures and grading work across the site.

1.1 Purpose of SMP

The purpose of the SMP is to generally describe the procedures that will be employed when areas of soil with known or potentially-containing concentrations exceeding residential land use regulatory screening criteria are encountered during site redevelopment (primarily demolition and grading) activities. The SMP has been developed to facilitate the redevelopment of the site, by outlining procedures that will be used for identifying, testing, handling, and disposal of soil potentially-containing concentrations above residential land use regulatory screening criteria. Implementing the procedures in this SMP will ensure that soil is handled in a manner that is: 1) protective of human health and the environment; and 2) in accordance with State and local regulations.

This SMP summarizes the results of subsurface investigations performed at the site from November 2018 to May 2020. Section 2 of this SMP outlines the procedures for delineating, excavating, and disposing of soil with concentrations of metals and/or organochlorine pesticides exceeding regulatory screening criteria for residential land use.

This SMP also provides protocols and guidance that site contractors must follow in the event that soil potentially-containing concentrations exceeding residential land use regulatory screening criteria are encountered during the site demolition, grading, or other redevelopment activities at the site. Contractors and subcontractors performing such work are "Responsible Entities" or "Contractors" obligated to comply with this SMP.

1.2 Site Setting

The site is located in a mixed commercial/residential area. The site is bordered to the north, west, and south (beyond East Mozart Avenue) by single-family residences. The site is bordered to the east by medical offices (Figure 1).

According to Bay Area Air Quality Management District (BAAQMD), winds in Santa Clara County, which includes the City of Campbell, are predominantly out of the northwest.

1.3 Site History

The site was developed by the 1930s with the residence located at 16179 East Mozart Avenue and an adjacent orchard. Additional residences were constructed between the 1940s and 1960s, after which agricultural/orchard operations appear to have generally ceased. Between the 1960s and 1990s, the central portion of the site was used as the storage yard for a paving business. From 2014 to 2019, the central portion of the site was used as the storage yard area for West Valley Arborists, a landscaping business.

The surrounding properties were used for agricultural purposes (primarily orchards) from at least 1939 until approximately the 1950s and 1960s, when residential developments began to be constructed in the vicinity of the site. Commercial buildings were constructed to the east of the site in the 1980s to 1990s. The land adjacent to the west of the site was a commercial nursery from approximately the 1970s to the 2000s when the current residences were constructed.

1.4 Site Geology and Hydrogeology

Based on a geotechnical investigation at the site in 2018 and soil sampling conducted at the site by Ramboll in 2018 and 2019, soil at the site consists of silty sand with gravel, underlain by various alluvial deposits of clayey sand with gravel, poorly graded gravel with sand, and clayey gravel with sand (Geo-Logic Associates, 2018). During the 2018 geotechnical investigation, borings were advanced to 49 feet below ground surface (bgs). Groundwater has not been encountered during any site investigations.

Based on the topographic gradient and the flow direction of nearby Los Gatos Creek, shallow groundwater underneath the site is presumed to flow to the north toward San Francisco Bay.

1.5 Summary of Previous Site Investigations

1.5.1 2018-2019 Ramboll Soil Sampling Investigations

Between October 2018 and January 2019, Ramboll conducted a Phase I Environmental Assessment (ESA) and shallow soil sampling investigation at the site (Ramboll, 2019). Multiple soil samples and stepout soil samples were collected in areas of prior agricultural development, around the perimeters of the older structures, and in the locations of a historical vehicle fueling area and former oil drum storage area (see Figure 3). Soil samples were collected from depths ranging between 0.5 and 10 feet below ground surface (bgs). Samples were analyzed for California Assessment Manual (CAM17) metals by United States Environmental Protection Agency (USEPA) Method 6020, organochlorine pesticides by USEPA Method 8081A, polychlorinated biphenyls (PCBs) by USEPA method 8082, total petroleum hydrocarbons as gasoline, total petroleum hydrocarbons as gasoline, diesel, and motor oil (TPH-g,d,mo) by USEPA method 8015B, volatile organic compounds (VOCs) by USEPA method 8260B, and/or naturally occurring asbestos (NOA).

Results of the soil sampling conducted by Ramboll are discussed in Section 1.6 and summarized in Tables 1 through 4. The only detections exceeding regulatory screening

criteria[1,2,3,4] for residential land use were select metals (primarily lead and arsenic) and organochlorine pesticides (chlordane and dieldrin). Sample locations with one or more analyte exceeding regulatory screening criteria residential land use are generally located near the perimeter of existing structures at the site, as shown on Figure 4.

1.5.2 2018-2019 Geophysical Investigations

As part of due diligence in connection with the purchase and redevelopment of the site, two geophysical investigations were conducted at the site between October 2018 and January 2019 by J R Associates. The geophysical investigations revealed the locations of two anomalies at the site, approximately at the locations of samples A1 and A9, respectively (Figure 3). The anomalies were potholed on December 3, 2018 with Ramboll onsite to observe the potholing activities. The anomaly adjacent to sample A1 was suspected to be the former location of a fuel tank associated with a historical fuel pump at the site. Potholing revealed the anomaly in the vicinity of sample A1 to be an approximately eight-feet long, one-inch diameter, abandoned metal pipe. Additional potholing was performed in the vicinity of sample A1 to a depth of six feet bgs to locate a possible buried fuel tank. No evidence of a buried fuel tank was encountered during the potholing and no stained soil or odorous soil was observed by Ramboll field personnel. Potholing in the vicinity of sample A9 in the northeast portion of the site revealed the anomaly to be a two-inch diameter abandoned metal pipe.

1.5.3 2020 Ramboll Soil Gas Sampling Investigation

In May 2020, Ramboll conducted a soil gas investigation to characterize potential vapor intrusion concerns at the site. Two soil gas wells (SV01 and SV02) were installed in the locations of a historical vehicle fueling area and former oil drum storage area and SV03 was installed along the northwestern site boundary (see Figure 3). Soil gas wells installations were also attempted along the northeastern and southeastern site boundaries, but drilling was unsuccessful due to the presence of heaving gravels and cobbles. One ambient air sample was collected in the central portion of the site taken to assess potential ambient air intrusion into the soil vapor samples. Soil gas samples were collected from depths ranging from 2.5 feet bgs to 4.0 feet bgs. Soil gas samples were analyzed for VOCs by EPA method TO-15 and the ambient air sample was analyzed for VOCs by EPA method TO-15 SIM.

Results of the soil gas sampling conducted by Ramboll are summarized in Table 5. No detections exceeded regulatory screening criteria for residential land use.[5]

---

[1] California Environmental Protection Agency (Cal/EPA). 2018. Human Health Risk Assessment (HHRA) Note Number 3, Issue: DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities. June.

[2] Duvergé, Dylan Jacques. 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region.

[3] San Francisco Bay Regional Water Quality Control Board (SFRWQCB). 2016. Environmental Screening Levels Direct Exposure Human Health Risk Levels (Table S-1). February (revision 3).

[4] United States Environmental Protection Agency (USEPA). 2018. Regional Screening Levels for Chemical Contaminants at Superfund Sites. November.

[5] San Francisco Bay Regional Water Quality Control Board (SFRWQCB). 2019. Summary of Soil Vapor ESLs: Subslab/Soil Gas Vapor Intrusion: Human Health Risk Levels (Table SG-1). July. Rev 2.

1.6 Current Environmental Conditions

The results of soil sampling identified locations where concentrations of metals (lead, arsenic, and mercury) and organochlorine pesticides (chlordane and dieldrin), collectively referred to as chemicals of potential concern (COPCs), in shallow soil or soil mounds were above environmental regulatory agency screening criteria for residential land use. Tables 1 and 2 summarize the results of soil sampling for metals and organochlorine pesticides, respectively. Areas with metals and organochlorine pesticide exceeding regulatory screening criteria for residential land use are described below and designated as Areas 1 through 4 in Figure 4. Additional characterization following building demolition and excavation and offsite disposal of soil with concentrations above screening criteria for residential land use are planned as part of site redevelopment (see Section 2).

- **AREA 1:** Shallow soil in the vicinity of the 16179 East Mozart Avenue house has concentrations of arsenic, lead, chlordane, and dieldrin above regulatory screening criteria for residential land use (11 milligrams per kilogram [mg/kg], 80 mg/kg, 0.44 mg/kg, and 0.034 mg/kg, respectively). The initial sample by the 16179 East Mozart Avenue house (BC03) was collected at 0.5 feet bgs and contained arsenic, lead, chlordane, and dieldrin above regulatory screening criteria for residential land use. The sample collected at 2.0 feet bgs in the same location did not contain metals or organochlorine pesticides above regulatory screening criteria. However, 13 of the 14 step-out samples (BC03-A through BC03-I, BC03-K, and BC03-L) collected at 0.5 feet bgs in the vicinity of the 16179 East Mozart Avenue house had at least one COPC above regulatory screening criteria for residential land use. The approximate horizontal extent of COPC concentrations in shallow soil is shown on Figure 5; however, the presence of the 16179 East Mozart Avenue residence prevents further delineation of the horizontal extent.
- **AREA 2:** Sample BC01 collected at 0.5 feet bgs detected concentrations of arsenic and lead above regulatory screening criteria for residential land use. The sample collected at 2.0 feet bgs in the same location did not contain metals above regulatory screening criteria, but 3 of the 7 step-out samples (BC01-A, BC01-C, and BC01-G) collected at 0.5 feet bgs in the vicinity of BC01 detected arsenic or lead above regulatory screening criteria. The approximate horizontal extent of arsenic and lead concentrations in shallow soil is unknown to the northeast and southwest of BC01 due to the presence of a large tree and other site structures (see Figure 5).
- **AREA 3:** Sample BC02 collected at 0.5 feet bgs detected lead above regulatory screening criteria for residential land use. The sample collected at 2.0 feet bgs in the same location did not contain lead above regulatory screening criteria, and the 3 step-out samples collected at 0.5 feet bgs in the vicinity of BC02 (BC02-A to the northwest, BC02-B to the southwest, and BC02-C to the northeast) did not detect lead above regulatory screening criteria. Due to the presence of structures, the horizontal extent of lead in shallow soil is unknown to the southeast of BC02 (see Figure 5).
- **AREA 4:** Sample BC04 collected at 0.5 feet bgs detected lead above regulatory screening criteria for residential land use. The sample collected at 2.0 feet bgs in the same location did not contain lead above regulatory screening criteria, and 1 of the 6 step-out samples collected at 0.5 feet bgs (BC04-D) detected lead above regulatory

screening criteria. Due to the presence of a structure, the horizontal extent of lead in shallow soil is unknown to the north and south of BC04 (see Figure 5).

- **Soil Mounds:** Several small mounds of soil remain on the site from West Valley Arborists, the landscaping company that formerly occupied the central portion of the site. Samples collected from the three soil mounds (M01 through M03, see Figure 4) had detected concentrations of lead and mercury above regulatory screening criteria for residential land use (80 mg/kg and 1.0 mg/kg, respectively).

1.7 Organization of SMP

The SMP is organized into the following Sections:

- **Section 2 - Shallow Soil Removal Plan.** This section outlines the protocols for step-out soil delineation sampling, soil excavation, soil stockpile sampling, and soil off-haul and disposal.
- **Section 3 - Worker Health and Safety Requirements.** This section details the required components of the health and safety plan (HASP) to be employed by subcontractors at the site.
- **Section 4 - Soil Management During Grading and Site Redevelopment.** This section details required actions by subcontractors including dust control, soil inspection and notification, spills, management of buried drums, tanks or abandoned pipes, soil reuse and disposal, and reporting.

2. SHALLOW SOIL REMOVAL PLAN

As discussed in Section 1.6, subsurface investigations completed at the site between October 2018 and May 2020 identified five localized areas in shallow soil with COPCs concentrations above regulatory screening criteria for residential land use (hereinafter referred to as "screening criteria"). The objective of the removal plan outlined below is to further delineate soil with concentrations of COPCs above screening criteria, excavate these areas, and off-haul the excavated soil to an appropriate landfill or disposal facility. This work will be performed following the acquisition of the site and demolition of the site houses and structures. The "Environmental Professional" is defined as the environmental consultant hired by Robson Homes to oversee the soil delineation sampling, excavation, and off-haul activities.

2.1 Step-out Soil Sampling

Following building demolition and site clearing, step-out soil borings will be installed approximately 10 feet on-center from soil samples with concentrations of COPCs above screening criteria. These step-out sample locations are shown on Figure 6. All soil borings will be installed with a hand auger and discrete soil samples will be collected at depths of 0.5, and 2.0 feet bgs. Samples will be collected by the Environmental Professional in laboratory-provided containers, stored on ice, and transported to a California state-certified analytical laboratory under chain-of-custody procedures.

Initially, only the 0.5 feet bgs samples from the step-out borings closest to the undelineated samples will be analyzed for relevant COPCs, as designated in Figure 6. All other samples will be placed on hold at the laboratory pending results of the initial samples. If necessary, additional samples will be released from hold until all areas have been delineated (i.e., COPC concentrations are less than residential land use regulatory screening criteria) both horizontally and vertically. The below areas require additional step-out soil sampling to delineate areas with COPCs that exceed regulatory screening criteria for residential land use:

- **AREA 1:** Vicinity of 16179 East Mozart Avenue Residence. Step-out soil borings will be advanced to the northwest, north, northeast, and southeast of the former house footprint at 16179 East Mozart Avenue and within the former house footprint (Figure 6). Initial samples will be analyzed for arsenic and lead by EPA Method 6020 and chlordane and dieldrin by USEPA Method 8081A. All other samples will be placed on hold at the laboratory pending results of the initial step-out samples.

- **AREA 2:** Vicinity of Sample BC01. Step-out soil borings will be advanced to the northeast of BC01 to delineate lead and arsenic concentrations in shallow soil. Initial samples will be analyzed for arsenic and lead by EPA Method 6020. All other samples will be placed on hold at the laboratory pending results.

- **AREA 3:** Vicinity of Sample BC02. Step-out soil borings will be advanced to the southeast of BC02 to delineate lead concentrations in shallow soil. Initial samples will be analyzed for lead by EPA Method 6020. All other samples will be placed on hold at the laboratory pending results.

- **AREA 4:** Vicinity of Sample BC04. Step-out soil borings will be advanced to the north and south of BC04 to delineate lead concentrations in shallow soil. Initial samples will be analyzed for lead by EPA Method 6020. All other samples will be placed on hold at the laboratory pending results.

2.2 Soil Excavation and Stockpiling

The excavation footprints of each area described above will be considered defined once all step-out soil samples in both the horizontal and vertical direction have analytical results that are less than screening criteria for residential land use for the relevant COPCs. The soil from these areas will be excavated and stockpiled under Environmental Professional oversight and in accordance with the protocols outlined in Section 4.

The three existing soil mounds will be excavated and stockpiled on top of plastic sheeting and covered by plastic sheeting. The ground surface under the mound footprints will be scraped, and the scraped surficial soil will be added to the stockpile.

2.3 Soil Stockpile Profile Sampling

Following excavation activities, the Environmental Professional will collect soil stockpile characterization samples in accordance with DTSC's Information Advisory on Clean Imported Fill Material and the protocols outlined in Section 4.6. The samples will be submitted to the analytical laboratory and analyzed for the appropriate analytes as required by disposal facilities. The excavation subcontractor will use the analytical data to get the excavated soil accepted for disposal at an appropriate landfill or soil disposal facility.

2.4 Soil Off-haul and Disposal

The Environmental Professional will oversee the loading of excavated soil by the excavation subcontractor into off-haul trucks as outlined in Section 4.6. The Environmental Professional will keep copies of bills of laden and related soil disposal records for documentation purposes.

2.5 Reporting

At the conclusion of soil excavation and off-haul activities, the Environmental Professional will prepare a closure letter summarizing the step-out soil sampling, excavation, soil stockpile characterization sampling, and off-haul and disposal activities.

3. WORKER HEALTH AND SAFETY REQUIREMENTS

The Developer and its Contractors will be responsible for establishing and maintaining its own appropriate health and safety procedures to minimize worker and public exposure to site contaminants during construction. These procedures will be documented in a site-specific HASP, which will be prepared prior to beginning intrusive site redevelopment activities.

The components of the Contractor's HASP shall be consistent with all applicable California Occupational Safety and Health Administration (Cal/OSHA) standards and currently available toxicological information. The Contractor and its subcontractors will assure that on-site construction workers have the appropriate level of health and safety training and use the appropriate level of personal protective equipment, as determined in the HASP based upon the evaluated job hazards and relevant monitoring results. To the extent that any construction activities may constitute "clean-up operations" or "hazardous substance removal work" as defined in the Cal/OSHA standards for Hazardous Waste Operations and Emergency Response (HAZWOPER), 8 Cal. Code Reg. § 5192, Contractor will assure that on-site personnel conducting such activities, who may contact chemicals in soil have had training, and are subject to medical surveillance, in accordance with Cal/OSHA standards ("HAZWOPER-trained personnel"). Soil that is visibly stained, discolored, shiny, or oily, or has a noticeable odor, will be handled only by such HAZWOPER-trained personnel until the Environmental Professional(s) (personnel to be determined by the Developer and/or Contractor; for the purposes of the initial development) evaluates the situation (see Section 4) to understand whether the soil contains unacceptable concentrations of contaminants.

3.1 Site Specific Health and Safe Plan Components

The required components of the HASP are outlined below. The HASP should be tailored to current site conditions, current occupational safety and health standards, and task-specific activities then known to the preparer of the HASP.

3.1.1 Key Personnel/Health and Safety Responsibilities

This section of the HASP will identify the Contractor's key personnel by name and will include identification of the Project Manager, the Site Supervisor, Site Safety Officer, and the subcontractors that will be working at the site. The Contractor will provide its employees who will potentially contact soil or previously unidentified soil contamination a copy of the HASP and brief its employees as to its contents. The health and safety responsibilities of each individual worker will be described in this section of the HASP.

3.1.2 Job Hazard Analysis/Hazard Mitigation

A description of the hazards associated with the specific construction activities that give rise to contact or potential contact with soil or previously unidentified contamination will be presented in this section of the HASP. The hazards that will be discussed include, at a minimum, chemical, temperature, and explosion hazards, if applicable. As part of the job hazard analysis, the HASP will identify the chemicals likely to be encountered during the construction activities and will present a table indicating the symptoms of exposure and the relevant regulatory exposure limits for each compound (i.e., the Cal/OSHA Permissible Exposure Limit [PEL]). The procedures to mitigate the hazards identified in the job hazard

analysis will also be presented in this section of the HASP. The use of appropriate Personal Protective Equipment (PPE) will likely be the principal mitigation procedure.

3.1.3 Personal Protective Equipment

This section of the HASP will identify the PPE that will be used to protect workers from the COPCs that may be present in soil. Personal Protective Equipment will be selected based on the COPCs identified at the work site, and the known route(s) of entry into the human body. The primary exposure routes include direct contact with soil and inhalation of dust.

Although considered unlikely, certain construction activities, such as the installation of deep utility trenches or foundations, could result in workers coming into direct contact with groundwater. This contact is expected to be minimal, because Cal/OSHA regulations prohibit accumulation of water in open excavations. In the event that excavations are conducted in areas and groundwater is encountered, the HASP will identify any additional PPE required to minimize direct contact with COPCs in water, including water repellent gloves and boots.

3.1.4 Work Zones and Site Security Measures

This section of the HASP will identify the specific work zones of the construction site and describe the site security measures, such as the placement of barricades, fencing, access control, and access logs. All workers within the work zone, who will have direct contact with soil, will perform the work in compliance with relevant aspects of the HASP. The support zone will be located outside of the work zone, but within the boundaries of the construction site. All end-of-the day cleanup operations, such as cleaning of truck wheels (for vehicles exiting the construction site that could be tracking contaminated soils off site), and the removal of any PPE, will occur in the support zone. If possible, the support zone will be located in close proximity to the entry and exit point of the construction site. The entire construction site will be fenced to control pedestrian and vehicular entry, except at controlled (gated) points. The fences will remain locked during non-construction hours, and all visitors will be required to sign a visitor log.

3.1.5 Decontamination Measures

This section of the HASP will describe the specific procedures that will be used to decontaminate both equipment and personnel that have been performing work in direct contact with soil. Decontamination measures will include cleaning the wheels of all vehicles that have been in contact with soil in the support zone prior to their exiting the site. Additionally, workers will be required to remove any contaminated PPE and place it in a designated area in the support zone prior to leaving the site.

3.1.6 General Safe Work Practices

This section of the HASP will discuss the general safe work practices to be followed at the construction site, including entry restrictions, tailgate safety meetings, use of PPE, personal hygiene, hand washing facilities, eating and smoking restrictions, the use of warning signs and barricades, precautions near heavy equipment, confined space entry, and any special precautions that may be specific to the construction site and construction worker.

3.1.7 Contingency Plans/Emergency Information

This section of the HASP will provide information regarding the procedures to be followed in the event of an emergency. The location of specific emergency equipment, such as eyewash stations, first aid kits, and fire extinguishers will be presented, and emergency telephone numbers and contacts will be identified. A map indicating the route to the nearest hospital will also be provided in this section of the HASP.

3.1.8 Medical Surveillance

This section of the HASP will describe medical surveillance that would be required for certain workers. To the extent that any construction activities may constitute “clean-up operations” or “hazardous substance removal work” as defined in the Cal/OSHA standards for Hazardous Waste Operations and Emergency Response, 8 Cal. Code Reg. § 5192, each construction Contractor will assure that its on-site personnel conducting such activities have had training, and are subject to medical surveillance, in accordance with Cal/OSHA standards (“HAZWOPER-trained personnel”).

3.1.9 Construction Safety Measures

These procedures include construction safety measures for excavations and require preparation of activity hazard analyses.

4. SOIL MANAGEMENT DURING GRADING AND SITE REDEVELOPMENT

During the course of redevelopment activities, if soil is encountered that contains or potentially contains COPCs (such as lead and/or dieldrin) above residential regulatory screening criteria, the following soil management procedures should be implemented as described below.

4.1 Dust Control

Dust control measures will be implemented during construction activities at the site to minimize the generation of dust. It is particularly important to minimize the exposure of on-site construction workers to dust and to prevent dust from migrating off site. Dust generation may be associated with concrete foundation slab and paving removal and processing, excavation and grading activities, truck traffic, ambient wind traversing soil stockpiles, loading of transportation vehicles, and other earthwork.

Dust control will be implemented by the general Contractor for the project.

4.1.1 Regulatory Framework

All construction projects in San Francisco are required to comply with the Bay Area Air Quality Management District (BAAQMD) dust control measures. These measures are monitored for compliance by staff and/or special City Engineering and/or Planning inspectors. The measures include the *Basic Construction Mitigation Measures* and, if necessary, the *Additional Construction Mitigation Measures* identified in Table 8-1 and 8-2 of the BAAQMD *California Environmental Quality Act (CEQA) Air Quality Guidelines*.[6]

4.1.2 General Dust Control Measures

Potential sources of dust include demolition activities, construction traffic, site preparation and foundation work, trenching and utility construction activities, material stockpiling, and final site cleanup and grading activities.

Dust control measures will be developed and implemented by the Contractor, and may include the following or equivalent measures:

- Wetting down areas (two times per day and more as needed) around soil improvement operations, visibly dry disturbed soil surface areas, and visibly dry disturbed unpaved driveways, parking areas, and staging areas to prevent dust from becoming airborne. Watering may be increased during above average temperatures, when activity intensifies or wind speeds increase.
- Ensuring appropriate wetting is applied during soil loading and import operations, and using tarpaulins or other effective covers to cover all trucks transporting soil, sand, and other loose material.

[6] Bay Area Air Quality Management District. 2012. California Environmental Quality Act (CEQA) Air Quality Guidelines. May.

- Covering stockpiles of excavated material, backfill material, import material, gravel, sand, road base, and other potentially dust-producing materials with polyethylene plastic sheeting, tarp, or other equivalent cover.
- Using dust enclosures, dust curtains, plastic tarps, windbreaks, and dust collectors as necessary to control dust.
- Utilizing alternate work methods.
- Minimizing drop heights while loading soil into transportation vehicles.
- Limiting the maximum on-site speed for vehicles to 15 miles per hour on unpaved roads.
- Loading trucks carrying excavated and other non-excavated material so that the material does not extend above the walls or back of the truck bed.
- Wet sweeping or vacuuming paved streets, sidewalks, paths, and intersections where work is in progress at least once per day and at the end of the workday during demolition, excavation, and dirt moving activities to reduce particulate emissions. The use of dry power sweeping is prohibited.
- Installing wheel washers to clean all trucks and equipment leaving the site. In the case where wheel washers cannot be installed, tires or tracks and spoil trucks will be brushed off before they re-enter City streets to minimize deposition of dust-causing materials.

4.2 Procedures for Soil Inspection and Notifications

During grading and excavation activities, potentially contaminated soil may be identified via observation of any of the following characteristics:

- Presence of free product. Free product is defined as a petroleum product (e.g., oil) or chemical in its natural state, un-mixed with water. Free product is often identifiable by the presence of an oily substance or the presence of an oily sheen on soil or water.
- Oily or other staining. Oily staining is not consistent in appearance, but often has a black, dark gray, dark brown, or greenish hue. Other unusual staining or soil discoloration (e.g., blue soils) should also be considered potential evidence of contamination.
- Petroleum or Chemical Odor. Any petroleum or other chemical odor should be noted regardless of whether a visible sign of oil or staining is encountered. If odorous soil or debris is encountered, the material may be contaminated and should be evaluated as soon as possible by field screening with a photoionization detector (PID) and, if warranted based on the field screening results, sampling for laboratory analysis. Areas exhibiting elevated PID readings above health and safety action levels should not be entered until laboratory data is available to evaluate potential health risks.
- Presence of Elevated Metals. Elevated metals in soil may be identified by strong and sometimes bright discoloration. Any chemical or metal odor should be noted regardless of whether a visible sign of elevated metals is encountered.
- Presence of Waste Debris. If debris such as concrete, scrap metal, bricks or other garbage is identified, the debris and surrounding soil may be contaminated.

Evaluation of whether soil is potentially contaminated should include input from the Environmental Professional.

Upon identification and confirmation that soil is potentially contaminated, the following actions should immediately be taken:

- Stop work in the area of impact.
- Contact the individuals in Attachment 1 to report the finding; leave a message if the individual does not pick up the phone.
- Complete the Field Reporting Form (Attachment 2) (see Section 4.2.1 for further information relating to documentation).
- Contain the impacted material, as instructed (see Section 4.2.2 for additional information relating to containment of potentially impacted material).
- Work should not resume within the area of potential impact until clearance is received from the Environmental Professional.

A copy of this SMP will be kept in project construction trailers (or office, as appropriate) for reference and use in the event that potentially contaminated soil is encountered.

4.2.1 Documentation

In the event potentially contaminated soil and material are encountered during construction activities, information regarding the characteristics, location, and extent of the soil and material impacts must be collected. This information should be documented as follows:

- The approximate location (marked on a site map).
- Extent of potential contamination (How large an area of impacts has been identified?).
- What indications of potential impacts were observed (Odor? Discoloration? Free product? Waste material?).
- If possible, take photographs.

4.2.2 Containment

If instructed to do so, the reporting individual should work with the Contractor to contain the potentially-impacted soil and material. The Environmental Professional(s) will evaluate whether potentially-impacted soil and material should be contained based on information provided. The purpose of containment is to ensure that potentially impacted soil does not spread to other portions of the site or mobilize off site in the event of rain.

Generally, containment will include one or more of the following steps:

- Relocation of impacted soils to a constructed containment cell created using an earthen berm lined with plastic sheeting. Soils placed within containment cells are subsequently covered with plastic sheeting that extends outside the cell and is sufficiently anchored to minimize exposure to wind and rain.
- Covering impacted soil and material with plastic sheeting and marking the area “Do Not Disturb.”

- Placement of silt fencing around the area of potential impacts.
- In the event that free product is observed, applying oil dry or sorbent cloths to soak up oily material.

4.2.3 Vapor Emission Monitoring

Contractor will inspect the integrity of concrete pads, building foundation floors, piping, or other subsurface structures as they are removed, and look for visual and/or olfactory evidence of a release in soil. If visual and/or olfactory evidence of a release in soil is observed, contractor will notify the Environmental Professional. Contractor will monitor the area around the construction site for fugitive vapor emissions with appropriate field screening instrumentation, including use of a PID to screen for VOCs.

4.2.4 Site Investigation and Disposal of Soil

If necessary and as requested by the Developer, the Environmental Professional will mobilize to the site to further evaluate the nature and extent of the potential contamination. Further investigation including sampling of the soil and/or excavation may be warranted depending on Site conditions.

If necessary, soil will be transported off site for appropriate disposal per Section 4.6.

4.2.5 Waste Segregation Operations

If soil is determined following laboratory analysis to contain COPCs and off-site removal of the soil is required, such soil will be segregated and stockpiled in separate containment areas to prevent mixing with non-impacted soil. Soil stockpiles shall be documented (e.g., labeled, identified on a figure or map along with approximate volume estimates) by the Contractor and/or Responsible Entity. Any waste that is determined to be hazardous shall be managed, transported and disposed in accordance with applicable hazardous waste requirements under RCRA (e.g., 90-day limit on site). Information regarding transportation and disposal is presented in Section 4.6.

4.2.6 Decontamination Procedures

If soil containing COPCs is identified by the Contractor during excavation/grading activities, the Environmental Professional(s) will develop and oversee appropriate decontamination procedures for the field personnel and equipment that have come into contact with soil containing COPCs. Specific procedures may vary depending on the type of contamination that is identified.

4.3 Management of Buried Drums, Tanks or Abandoned Pipes

If buried drums, USTs, underground hydraulic lifts, or abandoned pipes are encountered during construction, the following actions should immediately be taken:

- Stop work in the area where the buried drums, tanks and/or pipelines were identified.
- Contact the individuals in Attachment 1 to report the finding; leave a message if the individual does not pick up the phone.

- The Contractor or the Environmental Professional(s) should notify the appropriate local, state, and/or federal agency of the discovery if required by applicable regulations. Removal permits may be required for certain features (e.g., USTs, hydraulic lifts).
- Mark the location on a site map and take photographs if possible.

If potentially contaminated soil is co-located with the drums, tank and/or pipes, then the procedures identified in Section 4.2 with respect to the potentially contaminated soil should be implemented.

4.3.1 Buried Drum Removal

Buried drums and their contents shall be removed from the excavation. The drums and contents should be placed in a sealed bin or bermed area that is covered with visqueen or other material to prevent discharge to soil or the atmosphere. Drum contents shall be characterized by the Environmental Professional in accordance with hazardous waste laws and regulations and profiled for off-site disposal as required by the disposal facility. Following characterization, drums and contents shall be transported off site for disposal at an authorized facility in accordance with applicable laws and regulations.

4.3.2 Tank and/or Pipeline Removal

If USTs and associated piping systems are discovered during grading and excavation activities, removal shall be performed under appropriate permits and agency oversight. Collection of soil samples is likely to be required, and the Contractor performing the removal shall prepare (or provide the Environmental Professional with appropriate information with which to prepare) a UST removal report.

4.4 Spills

In the event of a release of equipment fuel or other chemical, the Contractor will take the following actions, using appropriately trained personnel and appropriate personal protective equipment (PPE) as defined by the Contractor's health and safety plan:

<u>Immediately clean up the spill to the extent possible</u>

- If possible and appropriate for the situation, place containers under leaking equipment or damaged equipment or containers on secondary containment.
- Spills onto hard surfaces can be cleaned up by applying sorbent cloths or quick-dry material to the spill and subsequently containerizing the sorbent material in a rain-proof container, such as a 55-gallon drum.
- Spills onto soil can be cleaned up by excavating impacted soils and placing them into rain-proof containers or by creating a bermed, plastic-lined area to contain the impacted soils (see Section 4.2.2).

<u>Report the Spill</u>

- As soon as possible, following initial spill cleanup, contact the individuals identified in Attachment 1 to report the spill. In addition, the Environmental Professional(s) after consultation with the Responsible Entity or Contractor (as appropriate) should notify the

appropriate local, state, and/or federal agencies of the spill if required by applicable laws or regulations.

Document the Spill

- Once initial spill response has been conducted, complete the Spill Reporting Form included as Attachment 3 and provide copies of the completed form to the individuals identified in Attachment 1. If possible, take photographs of the spill, spill area, and/or spill response activities.

Final Reporting

- Following cleanup of the spill, the Environmental Professional(s) will, if requested by Responsible Entity and/or required by applicable laws or regulations, report the results of cleanup activities to the appropriate agencies.

Obtain Approval Before Resuming Work

- Approval should be obtained from the Environmental Professional(s) before resuming work within the potentially affected area of the site.

4.5 Notification of Discovery

If determined to be required and/or necessary and at the request of and on behalf of the Responsible Entity or Contractor, the Environmental Professional will make the appropriate notifications and report environmental findings to relevant agencies. Examples of such reportable findings may include discovery of significant impacts, free product, USTs, drums, or other subsurface features indicative of a known or potential release to the subsurface.

4.6 Off-Site Disposal

Soil that will be removed from the site for off-site disposal will be characterized prior to transportation off site. Soil samples representative of the volume to be transported off site will be collected in-situ and/or from stockpiles and characterized using an analytical program developed in consideration of off-site disposal facility or third-party acceptance requirements, and the DTSC's Information Advisory on Clean Imported Fill Material (Attachment 4). The soil to be off-hauled will be accepted by the disposal facility or third party prior to being removed from the site.

All water to be removed from the site, including storm water and vehicle wash water will be handled, and if necessary, transported and disposed in accordance with applicable local, state and federal regulations. Contaminated water will not be discharged to the land surface or subsurface of the site. Discharge to the sanitary sewer system is typically subject to the requirements of the local permitting authority (e.g., municipal wastewater agency), and depending on available characterization data, the agency may require additional sampling, on-site pre-treatment, and/or specify other limitations or conditions.

The Contractor, on behalf of the Developer, will arrange for transportation of all wastes off site using a permitted, licensed, and insured transportation company, and will be responsible for tracking final soil dispositions at appropriate disposal facilities. The Contractor must obtain approval from the Responsible Entity when identifying a potential disposal facility. Any soil considered Federal Resource Conservation and Recovery Act

(RCRA) or California (non-RCRA) hazardous waste (hazardous waste) will be tracked using the Uniform Hazardous Waste Manifest System (USEPA Form 8700-22), as applicable. An appropriate USEPA Generator Identification Number will be recorded on the hazardous waste manifests used to document transport of hazardous waste off site. The hazardous waste transporter, disposal facility, and U.S. Department of Transportation (DOT) waste description required for each manifest will be determined on a case-by-case basis. Soil not considered hazardous waste will be tracked using non-hazardous bills of lading. These two systems will be used to comply with appropriate federal, state, and local requirements.

The Contractor will be responsible for accurate completion of the hazardous waste manifests and non-hazardous bills of lading. Records of all wastes shipped off site, including manifests and bills of lading, will be maintained by the Contractor and will be provided to the Environmental Professional(s) within a reasonable time, as they are generated, and included in the completion summary or report prepared at the conclusion of the project.

4.7 On-Site Soil Reuse

Soil on site may be moved within site boundaries, and re-used without need for sampling, provided the soil is not obviously impacted (e.g., based on visual or olfactory observations noted above), and is not generated in close proximity (i.e., within 20 feet laterally) of impacted areas. The Environmental Professional shall be consulted and provide approval prior to reusing soil on site. An on-site inspection by the Environmental Professional may be required.

If sampling is conducted and soil is proposed for on-site reuse, sample data will be compared to then-current regulatory screening criteria appropriate for the proposed area of reuse (e.g., residential use criteria such as DTSC Screening Levels [SLs], USEPA Regional Screening Levels [RSLs], or SFRWQCB Environmental Screening Levels [ESLs]). Soil that meets residential screening criteria may be reused without restriction. Because health risk based screening criteria for arsenic are typically well below concentrations typically found in native soil in the Bay Area, the comparison criterion for arsenic will be 11 milligrams per kilogram (mg/kg), which is considered representative of typical Bay Area background concentrations (Duvergé, 2011).

4.8 Import Fill

No backfilling of an area containing potentially contaminated soil will be conducted without prior approval from the Environmental Professional.

Evaluation of any imported fill soil for the presence of contaminants must be concluded prior to consideration for use at the site (e.g. as backfill for excavations or trenching, or for raising site elevations). Unless from a documented “clean” import fill source such as a quarry, import fill will be evaluated to confirm the absence of chemical contaminants in accordance with the DTSC Information Advisory on Clean Imported Fill Material (Attachment 4). Requirements for soil generated on site that is proposed for re-use are outlined above. Import fill data will be compared to DTSC SLs, USEPA RSLs, or SFRWQCB Environmental Screening Levels as noted above. As noted above, the comparison criterion for arsenic will be 11 mg/kg.

If the source location for the import fill cannot provide appropriate documentation acceptable to the Developer, Contractor, and/or Environmental Professional (e.g., data demonstrating that the soil does not contain unacceptable concentrations of contaminants), evaluation of the material should be conducted before it is transported and placed at the site. Information regarding import fill will be included in the completion summary document prepared at the conclusion of the project.

4.9 Reporting

As discussed in Section 2.5, at the conclusion of soil excavation and off-haul activities, the Environmental Professional will prepare a closure letter summarizing the step-out soil sampling, excavation, soil stockpile characterization sampling, import fill information, off-haul and disposal activities and other activities related to SMP implementation.

5. REFERENCES

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FIGURES

Q:\DRAWINGS\1690010020\1690010020-campbell-layout.mxd

RAMBOLL

DRAFTED BY: RS | DATE: 1/21/2019

Site Layout

16151 - 16187 East Mozart Avenue
Campbell, California

FIGURE
1

1690010020

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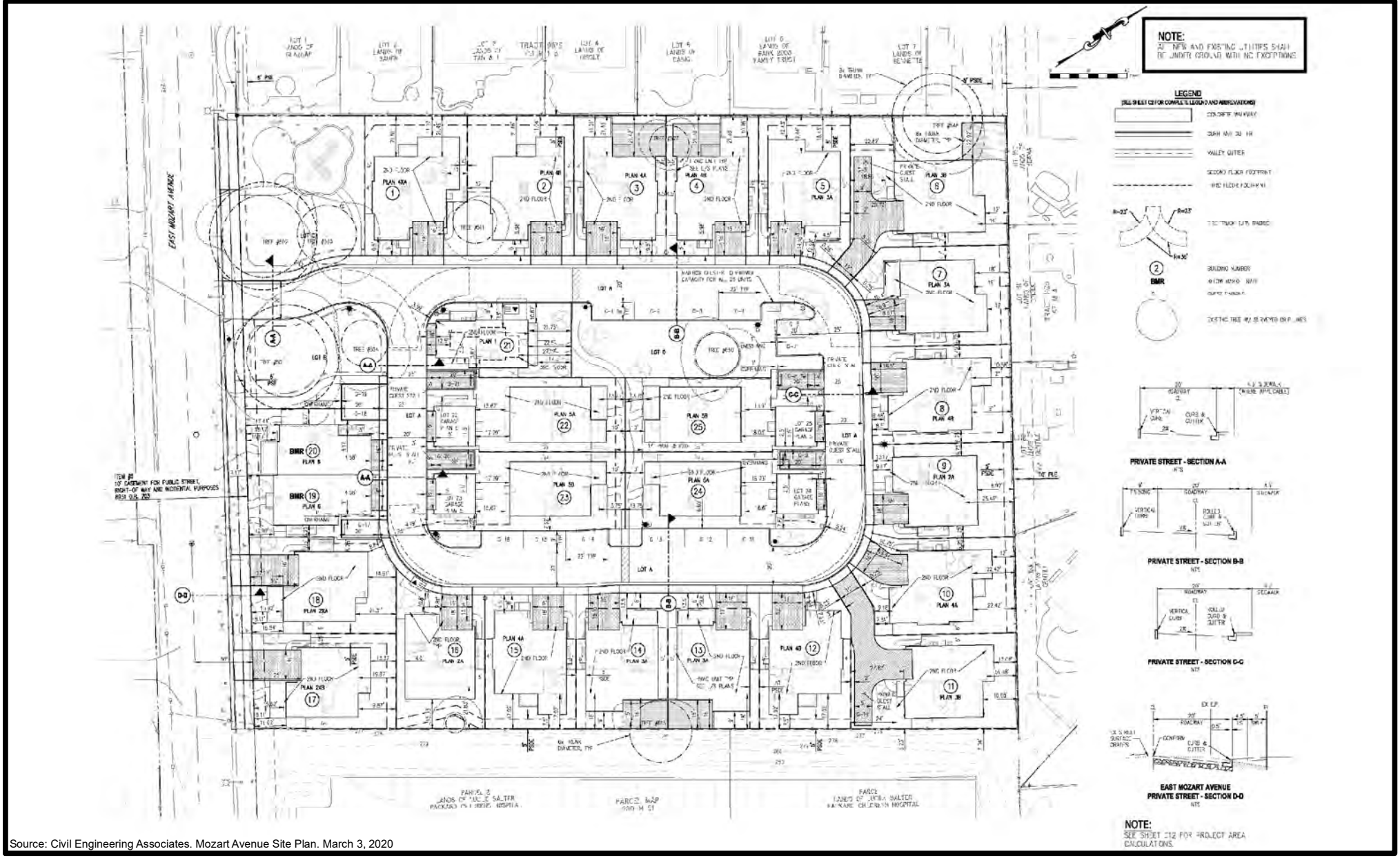

Source: Civil Engineering Associates. Mozart Avenue Site Plan. March 3, 2020

RAMBOLL

Proposed Site Redevelopment Plans

16151 - 16187 East Mozart Avenue

Campbell, California

FIGURE

2

DRAFTED BY: JC

DATE: 2020-05-19

1690010020

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RAMBOLL

DRAFTED BY: RS | DATE: 6/8/2020

Sample Location Map

16151 - 16187 East Mozart Avenue
Campbell, California

FIGURE
3

1690010020

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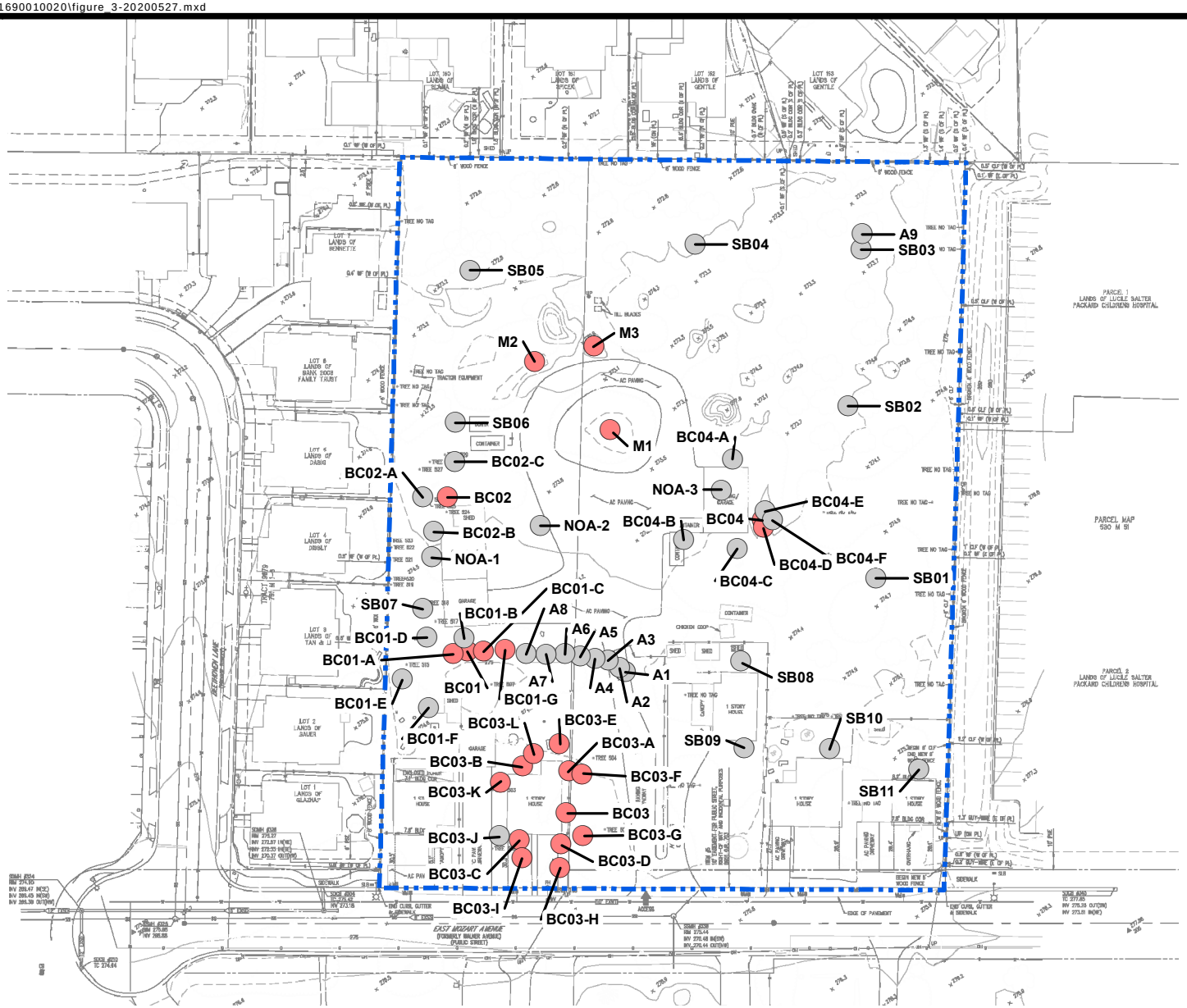

Legend

- Sample Location - No Exceedances
- Sample Location - At least one metal and/or pesticide concentration exceeds residential screening criteria.
- Approximate Site Boundary

0 100

Feet

RAMBOLL

Sample Location Map - Screening Criteria Exceedances

16151 - 16187 East Mozart Avenue

Campbell, California

FIGURE **4**

DRAFTED BY: RS/JC

DATE: 5/27/2020

1690010020

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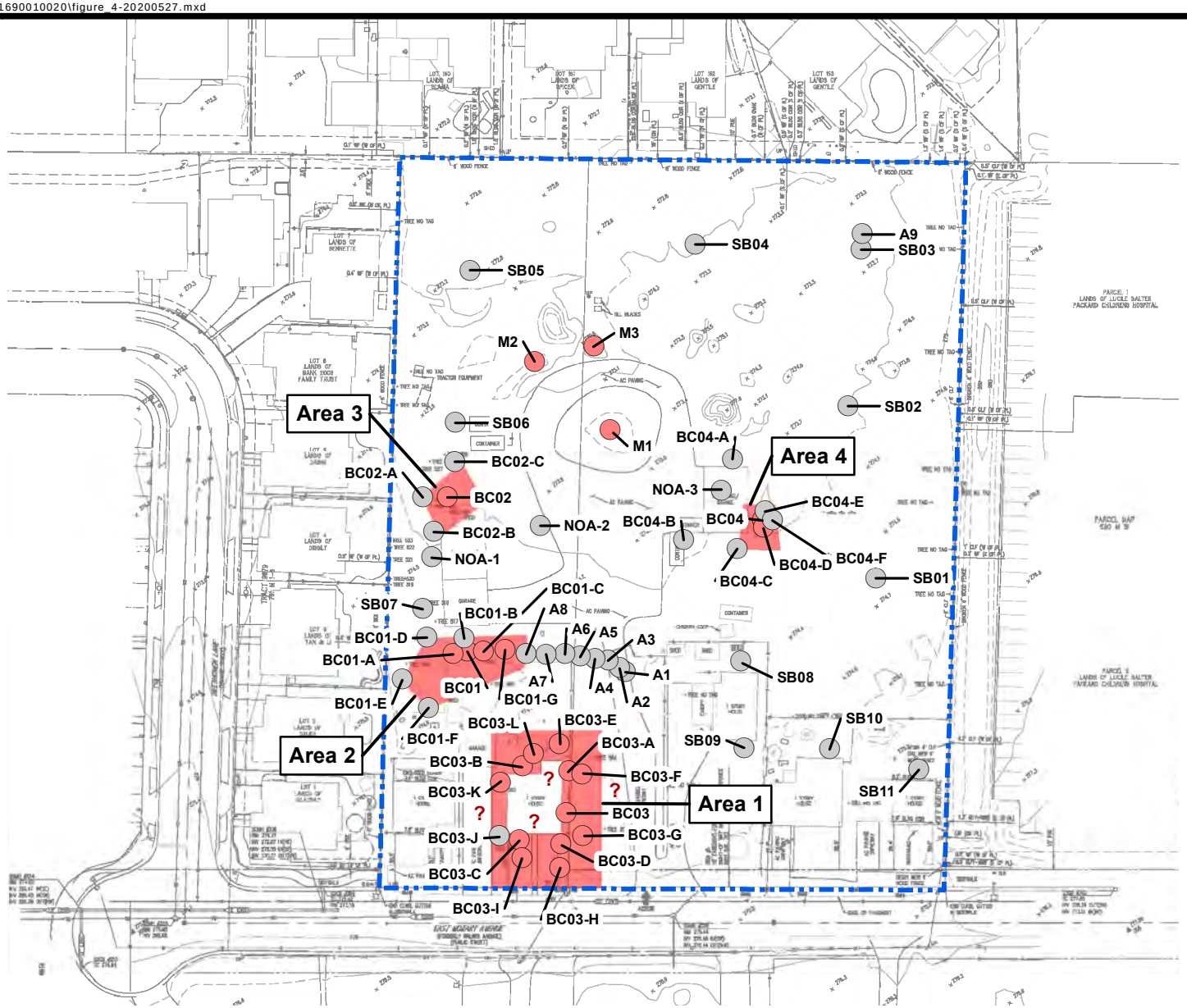

Legend

- Sample Location - No Exceedances
- Sample Location - At least one metal and/or pesticide concentration exceeds residential screening criteria.
- Approximate Excavation Area

RAMBOLL

Approximate Soil Excavation Locations

16151 - 16187 East Mozart Avenue

Campbell, California

FIGURE **5**

DRAFTED BY: RS/JC | DATE: 5/27/2020

1690010020

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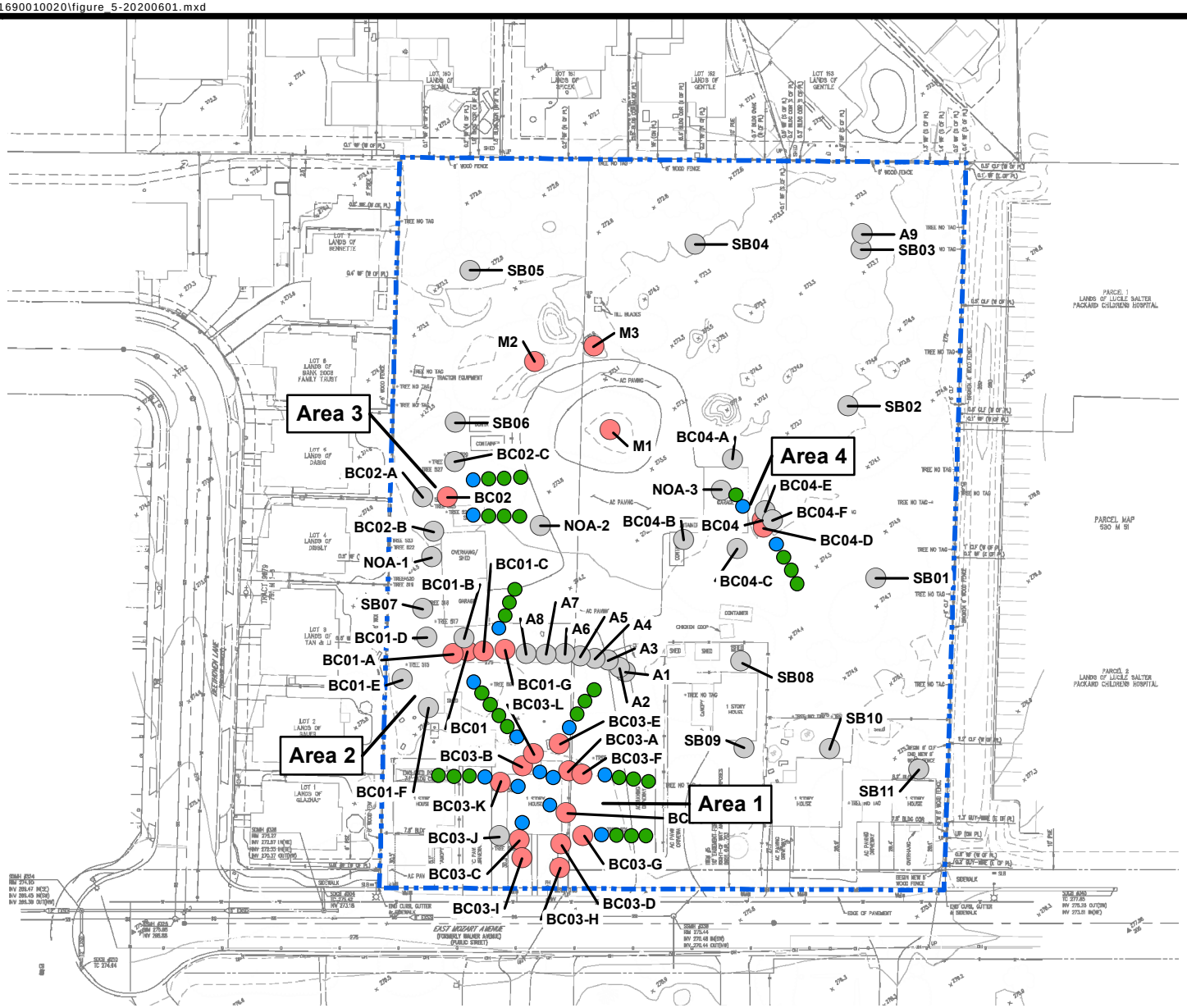


Legend

- Sample Location - No Exceedances
- Sample Location - At least one metal and/or pesticide concentration exceeds residential screening criteria.
- Soil Delineation Sample
- Soil Delineation Sample (Placed on Hold Pending Results of Other Samples)

N

0 100

Feet

RAMBOLL

Approximate Locations of Soil Delineation Samples

16151 - 16187 East Mozart Avenue

Campbell, California

FIGURE

6

DRAFTED BY: RS/JC

DATE: 6/1/2020

1690010020

TABLES

Table 1: Metals in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample Location	Sample Depth (feet bgs)	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	STLC Lead (mg/L)	TCLP Lead (mg/L)	Mercury	STLC Mercury (mg/L)	TCLP Mercury (mg/L)	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Shallow soil samples collected in field areas.																							
SB01	0.5	11/20/2018	**0.52**	**6.0**	**150**	ND<0.50	ND<0.25	**45**	**10**	**53**	**31**	--	--	**0.085**	--	--	**0.62**	**55**	ND<0.50	ND<0.50	ND<0.50	**56**	**91**
SB02	0.5	11/20/2018	ND<0.50	**5.3**	**150**	ND<0.50	ND<0.25	**53**	**11**	**43**	**12**	--	--	**0.061**	--	--	ND<0.50	**71**	ND<0.50	ND<0.50	ND<0.50	**56**	**77**
SB03	0.5	11/20/2018	ND<0.50	**5.8**	**150**	ND<0.50	ND<0.25	**46**	**9.5**	**54**	**37**	--	--	**0.16**	--	--	**0.65**	**52**	ND<0.50	ND<0.50	ND<0.50	**47**	**83**
SB04	0.5	11/20/2018	**0.61**	**6.5**	**160**	ND<0.50	**0.32**	**70**	**11**	**39**	**56**	--	--	**0.15**	--	--	**0.78**	**89**	ND<0.50	ND<0.50	ND<0.50	**43**	**110**
SB05	0.5	11/20/2018	ND<0.50	**5.6**	**150**	ND<0.50	ND<0.25	**51**	**9.6**	**35**	**21**	--	--	**0.086**	--	--	**0.65**	**49**	ND<0.50	ND<0.50	ND<0.50	**49**	**83**
SB06	0.5	11/30/2018	ND<0.50	**4.5**	**130**	ND<0.50	**0.25**	**42**	**10**	**28**	**15**	--	--	**0.072**	--	--	**0.82**	**63**	ND<0.50	ND<0.50	ND<0.50	**48**	**66**
SB07	0.5	11/30/2018	ND<0.50	**7.6**	**170**	ND<0.50	ND<0.25	**49**	**14**	**54**	**42**	--	--	**0.15**	--	--	**0.70**	**57**	ND<0.50	ND<0.50	ND<0.50	**120**	**96**
SB08	0.5	1/10/2019	**0.67**	**26**	**130**	ND<0.50	ND<0.25	**39**	**9.0**	**23**	**6.6**	--	--	ND<0.050	--	--	ND<0.50	**51**	ND<0.50	ND<0.50	ND<0.50	**45**	**62**
SB09	0.5	1/10/2019	ND<0.50	**6.5**	**130**	ND<0.50	ND<0.25	**55**	**8.1**	**94**	**13**	--	--	**0.055**	--	--	ND<0.50	**42**	ND<0.50	ND<0.50	ND<0.50	**56**	**90**
SB10	0.5	1/10/2019	ND<0.50	**6.2**	**120**	ND<0.50	ND<0.25	**51**	**8.7**	**33**	**22**	--	--	**0.075**	--	--	ND<0.50	**62**	ND<0.50	ND<0.50	ND<0.50	**41**	**69**
SB11	0.5	1/10/2019	ND<0.50	**5.1**	**140**	ND<0.50	ND<0.25	**51**	**7.5**	**35**	**19**	--	--	ND<0.050	--	--	ND<0.50	**54**	ND<0.50	ND<0.50	ND<0.50	**51**	**72**
Shallow soil samples collected near building perimeters.																							
BC01	0.5	11/20/2018	**1.1**	**12**	**300**	ND<0.50	**1.9**	**120**	**10**	**76**	**560**	**15**	ND<0.10	**0.58**	--	--	**0.88**	**56**	ND<0.50	**0.69**	ND<0.50	**51**	**370**
	2.0	11/30/2018	--	**4.3**	--	--	--	--	--	--	**59**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-A	0.5	11/30/2018	--	**21**	--	--	--	--	--	--	**390**	**21**	**0.18**	--	--	--	--	--	--	--	--	--	--
BC01-B	0.5	11/30/2018	--	**11**	--	--	--	--	--	--	**47**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-C	0.5	11/30/2018	--	**24**	--	--	--	--	--	--	**98**	**5.1**	--	--	--	--	--	--	--	--	--	--	--
BC01-D	0.5	1/10/2019	--	**5.5**	--	--	--	--	--	--	**48**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-E	0.5	1/10/2019	--	**5.9**	--	--	--	--	--	--	**23**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-F	0.5	1/10/2019	--	**7.3**	--	--	--	--	--	--	**29**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-G	0.5	1/10/2019	--	**15**	--	--	--	--	--	--	**71**	--	--	--	--	--	--	--	--	--	--	--	--
BC02	0.5	11/20/2018	**0.84**	**7.6**	**170**	**0.56**	**0.82**	**45**	**9**	**88**	**150**	**3.7**	ND<0.10	**0.88**	--	--	**0.67**	**47**	ND<0.50	ND<0.50	ND<0.50	**49**	**150**
	2.0	11/30/2018	--	--	--	--	--	--	--	--	**7.3**	--	--	--	--	--	--	--	--	--	--	--	--
BC02-A	0.5	11/30/2018	--	--	--	--	--	--	--	--	**39**	--	--	--	--	--	--	--	--	--	--	--	--
BC02-B	0.5	11/30/2018	--	--	--	--	--	--	--	--	**29**	--	--	--	--	--	--	--	--	--	--	--	--
BC02-C	0.5	1/10/2019	--	--	--	--	--	--	--	--	**15**	--	--	--	--	--	--	--	--	--	--	--	--
BC03	0.5	11/20/2018	**0.89**	**15**	**220**	ND<0.50	**0.80**	**45**	**9.3**	**34**	**760**	--	**0.62**	**0.18**	--	--	**0.82**	**46**	ND<0.50	ND<0.50	ND<0.50	**51**	**470**
	2.0	11/30/2018	--	**5.2**	--	--	--	--	--	--	**20**		--	--	--	--	--	--	--	--	--	--	--
BC03-A	0.5	11/30/2018	--	**16**	--	--	--	--	--	--	**96**	**4.1**	--	--	--	--	--	--	--	--	--	--	--
BC03-B	0.5	11/30/2018	--	**47**	--	--	--	--	--	--	**140**	**3.7**	ND<0.10	--	--	--	--	--	--	--	--	--	--
BC03-C	0.5	11/30/2018	--	**14**	--	--	--	--	--	--	**65**	--	--	--	--	--	--	--	--	--	--	--	--
BC03-D	0.5	11/30/2018	--	**26**	--	--	--	--	--	--	**350**	--	**0.41**	--	--	--	--	--	--	--	--	--	--
BC03-E	0.5	1/10/2019	--	**33**	--	--	--	--	--	--	**180**												
BC03-F	0.5	1/10/2019	--	**13**	--	--	--	--	--	--	**130**												
BC03-G	0.5	1/10/2019	--	**16**	--	--	--	--	--	--	**400**												
BC03-H	0.5	1/10/2019	--	**6.5**	--	--	--	--	--	--	**21**												
BC03-I	0.5	1/10/2019	--	**18**	--	--	--	--	--	--	**41**												
BC03-J	0.5	1/10/2019	--	**11**	--	--	--	--	--	--	**44**												
BC03-K	0.5	1/10/2019	--	**22**	--	--	--	--	--	--	**55**												
BC03-L	0.5	1/10/2019	--	**30**	--	--	--	--	--	--	**140**												
BC04	0.5	11/20/2018	**3.5**	**6.2**	**160**	ND<0.50	**1.9**	**43**	**8.5**	**50**	**160**	**3.7**	ND<0.10	**0.12**	--	--	**0.87**	**44**	ND<0.50	ND<0.50	ND<0.50	**42**	**2,900**
	2.0	11/30/2018	--	--	--	--	--	--	--	--	**9.8**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-A	0.5	11/30/2018	--	--	--	--	--	--	--	--	**31**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-B	0.5	11/30/2018	--	--	--	--	--	--	--	--	**7.9**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-C	0.5	11/30/2018	--	--	--	--	--	--	--	--	**51**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-D	0.5	1/10/2019	--	--	--	--	--	--	--	--	**120**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-E	0.5	1/10/2019	--	--	--	--	--	--	--	--	**24**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-F	0.5	1/10/2019	--	--	--	--	--	--	--	--	**14**	--	--	--	--	--	--	--	--	--	--	--	--
Samples collected from soil mounds.																							
M01	--	11/30/2018	**0.80**	**3.1**	**88**	ND<0.50	**1.1**	**26**	**5.4**	**24**	**96**	**3.5**	--	**0.095**	--	--	**1.2**	**48**	ND<0.50	ND<0.50	ND<0.50	**20**	**140**
M02	--	11/30/2018	**0.72**	**5.2**	**120**	ND<0.50	**0.26**	**56**	**10**	**27**	**28**	--	--	**5.9**	**0.012**	ND<0.010	ND<0.50	**75**	ND<0.50	ND<0.50	ND<0.50	**39**	**82**
M03	--	11/30/2018	**3.0**	**3.5**	**120**	ND<0.50	**0.66**	**27**	**6.6**	**21**	**360**	**26**	**0.33**	**0.11**	--	--	**0.71**	**37**	ND<0.50	ND<0.50	ND<0.50	**26**	**110**
Shallow soil samples collected under magnetic anomaly (metal pipe) in northeast corner of site.																							
A9	2.0	12/3/2018	ND<0.50	**4.0**	**140**	ND<0.50	ND<0.25	**39**	**8.9**	**21**	**78**	--	--	ND<0.050	--	--	**0.51**	**42**	ND<0.50	ND<0.50	ND<0.50	**43**	**55**
Residential Screening Criteria			31	11	15,000	15	5.2	36,000[a]	23	3,100	80	--	--	1[b]	--	--	390	490	390	390	0.78	390	23,000
Screening Criteria Source			USEPA	Duvergé	USEPA	Cal/EPA	Cal/EPA	Cal/EPA	USEPA	USEPA	Cal/EPA	--	--	Cal/EPA	--	--	USEPA	Cal/EPA	USEPA	USEPA		USEPA	USEPA
Hazardous Waste Screening Criteria	***TTLC***		500	500	10,000	75	100	2,500	8,000	2,500	1,000	STLC Lead Threshold = 5.0 mg/L	TCLP Lead Threshold = 5.0 mg/L	20	STLC Mercury Threshold = 0.2 mg/L	TCLP Mercury Threshold = 0.2 mg/L	3,500	2,000	100	500	700	2,400	5,000
	10x STLC		150	50	1,000	7.5	10	50	800	250	50			2.0			3,500	200	10	50	70	240	2,500
	20x TCLP		--	100	2,000	--	20	100	--	--	100			4.0			--	--	20	100	n/a	--	--

Notes:
Only compounds detected above the laboratory reporting limit are included in the table and are shown in **bold**.
All data are reported in milligrams per kilogram (mg/kg).
Blue shading denotes detected concentrations in excess of residential screening criteria.
Orange shading denotes exceedance above STLC/TCLP value.
[a] = screening value is for Chromium III
[b] = screening value is for Elemental Mercury

California Assessment Manual 17 (CAM17) metals analyzed by EPA Method 6020.

-- = not analyzed or not available
bgs = below ground surface
Cal/EPA = California Envrionmental Protection Agency
ND = not detected at or above the laboratory reporting limit shown
USEPA = United States Environmental Protection Agency

Sources:
California Environmental Protection Agency (Cal/EPA). 2018. Human Health Risk Assessment (HHRA) Note Number 3, Issue: DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities. June.
Duvergé, Dylan Jacques. 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region.
United States Evironmental Protection Agency (USEPA). 2018. Regional Screening Levels for Chemical Contaminants at Superfund Sites. Nov.

Table 2: Detected Organochlorine Pesticides and Polychlorinated Biphenyls in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample Location	Sample Depth (feet bgs)	Sample Date	Organochlorine pesticides (OCPs)							PCBs	
			Chlordane (Technical)	a-Chlordane	g-Chlordane	p,p-DDD	p,p-DDE	p,p-DDT	Dieldrin	Aroclor1254	Aroclor 1260
Shallow soil samples collected in field areas.											
SB01	0.5	11/20/2018	ND<0.050	ND<0.0020	ND<0.0020	ND<0.0020	**0.42**	**0.026**	ND<0.0020	ND<0.10	ND<0.10
SB02	0.5	11/20/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.30**	**0.013**	ND<0.0010	ND<0.050	ND<0.050
SB03	0.5	11/20/2018	ND<0.050	ND<0.0020	ND<0.0020	ND<0.0020	**0.37**	**0.018**	ND<0.0020	ND<0.10	ND<0.10
SB04	0.5	11/20/2018	ND<0.25	ND<0.010	ND<0.010	ND<0.010	**0.052**	**0.017**	ND<0.010	ND<0.50	ND<0.50
SB05	0.5	11/20/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.064**	**0.0057**	ND<0.0010	ND<0.050	**0.078**
SB06	0.5	11/30/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.022**	ND<0.0010	ND<0.0010	**0.21**	ND<0.050
SB07	0.5	11/30/2018	ND<0.025	**0.0021**	**0.0022**	**0.0013**	**0.030**	**0.018**	ND<0.0010	ND<0.050	ND<0.050
SB08	0.5	1/10/2019	ND<0.025	ND<0.0010	ND<0.0010	**0.0059**	**0.011**	**0.0030**	**0.012**	ND<0.050	ND<0.050
SB09	0.5	1/10/2019	ND<0.12	ND<0.0050	ND<0.0050	ND<0.0050	**0.036**	**0.013**	ND<0.005	ND<0.25	ND<0.25
SB10	0.5	1/10/2019	ND<0.025	ND<0.0010	ND<0.0010	**0.0028**	**0.14**	**0.026**	**0.0033**	ND<0.050	ND<0.050
SB11	0.5	1/10/2019	ND<0.025	**0.0015**	ND<0.0010	ND<0.0010	**0.019**	**0.0048**	ND<0.0010	ND<0.050	ND<0.050
Shallow soil samples collected near building perimeters.											
BC01	0.5	11/20/2018	ND<2.5	ND<0.10	ND<0.10	ND<0.10	ND<0.10	**0.28**	ND<0.10	ND<5.0	ND<5.0
BC02	0.5	11/20/2018	ND<0.25	ND<0.010	ND<0.010	ND<0.010	**0.44**	**0.15**	ND<0.010	ND<0.50	ND<0.50
BC03	0.5	11/20/2018	**5.3**	**0.59**	**0.51**	ND<0.050	ND<0.050	**0.068**	**0.11**	ND<2.5	ND<2.5
	2.0	11/30/2018	**0.073**	--	--	--	--	--	**0.0023**	--	--
BC03-A	0.5	11/30/2018	**1.9**	--	--	--	--	--	**0.072**	--	--
BC03-B	0.5	11/30/2018	**0.40**	--	--	--	--	--	**0.039**	--	--
BC03-C	0.5	11/30/2018	**0.38**	--	--	--	--	--	**0.013**	--	--
BC03-D	0.5	11/30/2018	**4.4**	--	--	--	--	--	**0.13**	--	--
BC03-E	0.5	1/10/2019	**1.3**	--	--	--	--	--	**0.86**	--	--
BC03-F	0.5	1/10/2019	**0.21**	--	--	--	--	--	**0.0073**	--	--
BC03-G	0.5	1/10/2019	**1.7**	--	--	--	--	--	**0.021**	--	--
BC03-H	0.5	1/10/2019	**0.78**	--	--	--	--	--	**0.0018**	--	--
BC03-I	0.5	1/10/2019	**0.12**	--	--	--	--	--	**0.0016**	--	--
BC03-J	0.5	1/10/2019	ND<0.025	--	--	--	--	--	**0.0097**	--	--
BC03-K	0.5	1/10/2019	ND<0.12	--	--	--	--	--	**0.013**	--	--
BC03-L	0.5	1/10/2019	**5.4**	--	--	--	--	--	**0.47**	--	--
BC04	0.5	11/20/2018	ND<1.2	ND<0.050	ND<0.050	ND<0.050	**0.10**	**0.083**	ND<0.050	ND<2.5	ND<2.5
Samples collected from soil mounds.											
M01	--	11/30/2018	ND<2.5	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<5.0	ND<5.0
M02	--	11/30/2018	ND<0.25	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.011**	ND<0.50	ND<0.50
M03	--	11/30/2018	ND<5.0	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<10	ND<10
Shallow soil samples collected under magnetic anomaly (metal pipe) in northeast corner of site.											
A9	2.0	12/3/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.0071**	ND<0.0010	ND<0.0010	--	--
Residential Screening Criteria			0.44	--	--	1.9	2.0	1.9	0.034	0.24	0.24
Screening Criteria Source			Cal/EPA	--	--	USEPA	USEPA	USEPA	USEPA	USEPA	USEPA

Notes:
Only compounds detected above the laboratory reporting limit are included in the table and are shown in **bold**.
All data are reported in milligrams per kilogram (mg/kg).
Blue shading denotes detected concentrations in excess of residential screening level.

Organochlorine pesticides (OCPs) analyzed by EPA Method 8081A.
Polychlorinated biphenyls (PCBs) analyzed by EPA Method 8082.

-- = not analyzed or not available
bgs = below ground surface
Cal/EPA = California Envrionmental Protection Agency
DDE = dichlorodiphenylethylene
DDT = dichlorodiphenyltrichloroethane
ND = not detected at or above the laboratory reporting limit shown
OCP = organochlorinated biphenyls
PCB = polychlorinated biphenyls
USEPA = United States Environmental Protection Agency

Sources:
California Environmental Protection Agency (Cal/EPA). 2018. Human Health Risk Assessment (HHRA) Note Number 3, Issue: DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities. January.
United States Evironmental Protection Agency (USEPA). 2018. Regional Screening Levels for Chemical Contaminants at Superfund Sites. May.

Table 3: Total Petroleum Hydrocarbons and Volatile Organic Compounds in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample ID	Sample Location	Sample Depth (feet bgs)	Sample Date	Total Petroleum Hydrocarbons (TPH)			VOCs
				TPH-g	TPH-d	TPH-mo	
A1	Vicinity of Suspected UST	10.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A2		10.0	11/30/2018	ND<1.0	**1.1**	ND<5.0	ALL ND*
A3	Vicinity of Suspected UST Piping	3.5	11/30/2018	ND<1.0	ND<1.0	**5.5**	ALL ND*
A4		3.0	11/30/2018	ND<1.0	**4.2**	**39**	ALL ND*
A5	Former Fuel Pump	2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A6	Former Oil Drum Storage	2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A7		2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A8		2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A9	NE Magnetic Anomaly	2.0	12/3/2018	ND<1.0	**2.0**	**6.0**	--
RWQCB Residential ESL				740	230	11,000	--

Notes:

Compounds detected above the laboratory reporting limit are shown in **bold**.
All data are reported in milligrams per kilogram (mg/kg).

Total petroleum hydrocarbons (TPH) analyzed by EPA Method 8015
Volatile organic compounds (VOCs) analyzed by EPA method 8260

* Reporting limits vary for different samples based on laboratory dilution factors.
-- = not analyzed or not available
bgs = below ground surface
ND = not detected at or above the laboratory reporting limit shown
RWQCB = Regional Water Quality Control Board
TPH-g = total petroleum hydrocarbons gasoline range (C6-C12)
TPH-d = total petroleum hydrocarbons diesel range (C10-C23)
TPH-mo = total petroleum hydrocarbons motor oil range (C18-C36)

Sources:

[a] San Francisco Bay Regional Water Quality Control Board (SFRWQCB). 2016. Environmental Screening Levels Direct Exposure Human Health Risk Levels (Table S-1). February (revision 3)

Table 4: Naturally-Occurring Asbestos in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample ID	Depth Below Ground Surface (feet)	Sample Date	Visual Estimation	Percent Asbestos in Matrix	Asbestos Type(s) Detected
NOA-1,2,3	0.5	11/30/2018	ND<0.25%	ND<0.25%	None

Notes:
Sample NOA-1,2,3 is a composite of samples NOA-1, NOA-2, and NOA-3
NOA analyzed by CARB Method 435

CARB 435 = California Air Resources Board Method 435; June 6, 1991.
ID = identification
ND = not detected at or above the laboratory limit of quantification shown
NOA = Naturally-Occurring Asbestos

Table 5: Soil Vapor Sampling Results
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample Type	Soil Vapor			Ambient Air	*Residential Screening Criteria for Soil Gas Vapor Intrusion*
Sample Location	**SV01**	**SV02**	**SV03**	**AA**	
Sample Depth (feet bgs)	2.5	2.5	4.0	--	
Sample Date	5/27/2020	5/27/2020	5/27/2020	5/27/2020	
Acetone	**39**	**14**	**9.5**	NA	1,100,000
Benzene	ND<1.6	ND<1.6	ND<1.6	**0.18**	3.2
2-Butanone (MEK)	**12**	**5.6**	ND<4.4	NA	170,000
Carbon tetrachloride	ND<3.1	ND<3.1	ND<3.1	**0.49**	16
Chloromethane	**2.8**	ND<1.0	**14**	**1.0**	3,100
1,3-Dichlorobenzene	ND<3.0	**22**	ND<3.0	NA	--
Dichlorodifluoromethane (R-12)	**4.4**	**3.8**	**2.7**	**2.5**	--
Freon 113	ND<11	ND<11	ND<11	**0.54**	--
Methylene Chloride	ND<17	ND<17	ND<17	**0.43**	34
PCE	**14**	**7.3**	ND<3.4	ND<0.17	15
1,1,1-Trichloroethane	**5.9**	ND<2.7	ND<2.7	ND<0.14	35,000
Toluene	**3.1**	**2.3**	ND<1.9	**0.54**	10,000
Trichlorofluoromethane	ND<5.6	ND<5.6	ND<5.6	**1.4**	--
m,p-Xylene	ND<8.7	ND<8.7	ND<8.7	**0.25**	3,500

Notes:
All data are reported in micrograms per cubic meter ($\mu g/m^3$).
Only compounds detected above the laboratory reporting limit are included in the table; positive results are shown in **bold**.

All samples analyzed for volatile organic compounds (VOCs) by EPA Method TO-15 except sample AA analyzed by EPA TO-15 SIM.

-- = not available/applicable
bgs = below ground surface
NA = not analyzed
ND = not detected at or above the laboratory reporting limit shown
Freon 113 = 1,1,2-Trichloro-1,2,2-Trifluoroethane
PCE = Tetrachloroethene

Screening Criteria Source:
San Francisco Bay Regional Water Quality Control Board (SFRWQCB). 2019. Summary of Soil Vapor ESLs: Subslab/Soil Gas Vapor Intrusion: Human Health Risk Levels (Table SG-1). July. Rev 2.

ATTACHMENT 1
CONTACT INFORMATION FOR NOTIFICATION

NOTIFICATION INFORMATION (UPDATE AS NEEDED)

Name (Entity)	Responsibilities	Contact Details
TBD (Robson Homes)	On-Site Construction Contact	TBD
Richard Yee (Robson Homes)	Owner Representative	C: (408) 761-0354 ryee@robsonhomes.com
Jason Kane, PE (Ramboll)	Environmental Professional	O: (510) 420-2547 C: (949) 291-0340 jpkane@ramboll.com
Anne Gates, PE (Ramboll)		O: (510) 420-2524 C: (415) 877-0123 agates@ramboll.com

ATTACHMENT 2
FIELD REPORT FORM

Field Reporting Form – Potentially Contaminated Soil		
Name:	**Date:**	**Time:**
General Site Information		
Location (mark a copy of the attached site map and return with this form):		
Have photographs been taken: YES / NO If so, please email to Environmental Professional(s)		
Soil Information		
Describe the potentially-impacted material (e.g. discoloration/staining, odor, oily sheen, presence of free flowing or floating oil/petroleum, serpentine-containing fill material, etc.)		
Estimated Extent of Potentially Impacted Soil (ft) (horizontal and vertical): • Estimated horizontal extent (in feet): • Estimated depth below ground surface (in feet):		
Mitigation Actions Taken		
Describe any actions that were taken to clean-up the potentially impacted material, to isolate the material, or to mark the area of potential impacts.		
Groundwater and Surface Water Information		
If impacts were discovered while excavating, was water encountered? YES / NO If groundwater was encountered, was any sheen or oil visible on the surface of the water? YES / NO		
Submit this form to _name_____ at the Main construction trailer and to the Environmental Professional(s)at _email and/or fax number_____		

ATTACHMENT 3
SPILL REPORTING FORM

Spill Reporting Form		
Name:	**Date:**	**Time:**
General Site Information		
Location (mark a copy of the attached site map and return with this form):		
Have photographs been taken: YES / NO If so, please email to Environmental Professional		
Spill Information		
What kind of material was spilled?		
What is the estimated volume of material spilled (in gallons)?		
Was the material spilled on a paved (asphalt/concrete) surface or on bare ground?		
Did any of the spilled material enter storm water or sewer drains, enter drainage ditches, or leave the site?		
Estimated Extent of the spill-affected area: • Estimated horizontal extent (in feet): • Estimated depth below ground surface (in feet):		
Mitigation Actions Taken		
Describe any actions that were taken to clean-up the potentially impacted material, to isolate the material, or to mark the area of potential impacts.		
Submit this form to _name_ **at the Main construction trailer and to the Environmental Professional(s)at** _email and/or fax number_		

ATTACHMENT 4
DTSC'S INFORMATION ADVISORY ON CLEAN IMPORTED FILL MATERIAL

Information Advisory
Clean Imported Fill Material

October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California

California Environmental Protection Agency

Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed. It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contamination and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

Fill Source:	Target Compounds
Land near to an existing freeway	Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310)
Land near a mining area or rock quarry	Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH
Agricultural land	Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A)
Residential/acceptable commercial land	VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191)

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area	Sampling Requirements
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every 1/2 acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 subsamples per location
Volume of Borrow Area Stockpile	**Samples per Volume**
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1000 cubic yards +1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

terials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all compounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

For further information, call Richard Coffman, Ph.D., R.G., at (818) 551-2175.

ATTACHMENT 6

REGULATORY OVERSIGHT AND PROPOSED REMEDIAL ACTIVITIES

RAMBOLL

ENVIRONMENT
& HEALTH

Mr. Richard Yee
Robson Homes
2185 The Alameda
San Jose, CA 95126

March 4, 2020

Ramboll
2200 Powell Street
Suite 700
Emeryville, California 94608
USA

T +1 510 655 7400
F +1 510 655 9517
www.ramboll.com

RE: REGULATORY OVERSIGHT AND PROPOSED REMEDIAL ACTIVITIES
16151 - 16187 E. MOZART AVENUE
CAMPBELL, CALIFORNIA

Dear Richard:

Ramboll US Corporation (Ramboll) has prepared this letter regarding activities related to excavation of shallow soil impacted by metals and organochlorine pesticides as part of redevelopment of the above referenced property in Campbell, California (the "site"). Robson Homes has retained Ramboll to enter the site into a regulatory oversight agreement with Santa Clara County Department of Environmental Health (SCCDEH) and has requested Ramboll prepare this letter to summarize the anticipated remedial actions that will be performed at the site as part of the SCCDEH regulatory oversight process. It is our understanding that Robson Homes will provide this letter to the City of Campbell Planning Division (Planning Division) as a placeholder for the eventual closure report that will detail the remedial actions performed at the site once those actions have been completed. The regulatory oversight process and remedial steps summarized in this letter are subject to change pending review and approval by SCCDEH.

BACKGROUND

The site is approximately 2.9 acres in size and located at 16151, 16157, 16163, 16179, and 16187 E. Mozart Avenue in Campbell, California (see Figure 1). Ramboll conducted a Phase I Environmental Site Assessment (ESA) and shallow soil investigation at the site in January 2019[1] (the "2019 Ramboll report"). The findings of the ESA and shallow soil investigation identified areas of elevated metals and pesticides in soil. Specifically, results from soil sampling between November 2018 and January 2019 identified concentrations of lead, arsenic, mercury and organochlorine pesticides (chlordane and dieldrin) above regulatory

[1] Ramboll. 2109. Draft Phase I Environmental Site Assessment and Shallow Soil Investigation, 16151-16187 East Mozart Avenue, Campbell, California. January.

screening criteria for residential land use (see Figure 2). The vertical extent of impacted soil appears to be in the upper 2 feet and are located in the vicinity of the 16179 East Mozart Avenue residence and older storage structures located in the central portion of the site.

REGULATORY OVERSIGHT

Based on the findings of Ramboll's shallow soil investigation at the site, it is our understanding that the Planning Division is requiring the excavation and off-haul of impacted soil under the regulatory oversight of SCCDEH. However, due to the location of the impacted soil around existing structures the impacted soil cannot be excavated and off-hauled from the site until the structures are demolished. The structures won't be demolished until the Planning Division approves Robson Homes' proposed development plans.

Due to the sequencing of the aforementioned events, this letter is meant to serve as a placeholder for the eventual closure report that will be prepared by Ramboll for review and approval by SCCDEH. The proposed soil excavation activities described below are the typical approach Ramboll has successfully implemented at similar properties on behalf of Robson Homes and other redevelopment clients in the San Francisco Bay area. At the time of this letter, Ramboll is in the process of initiating the regulatory oversight process with SCCDEH. As such, the activities described below are subject to change pending review and approval by SCCDEH.

Soil Management Plan

Ramboll will prepare a Soil Management Plan (SMP) or similar work plan for review by SCCDEH to be implemented during grading and excavation activities during site redevelopment. The SMP is expected to include the following elements:

- A description of the site history and use;
- A summary of previous environmental investigations and other information pertinent to subsurface conditions anticipated at the site;
- General procedures and requirements in relation to worker and contractor health and safety (site contractors will be responsible for preparing their own site-specific health and safety plan);
- General recommendations (e.g. dust control, safe work practices) to be implemented during excavation and grading activities;
- Guidance on the identification of suspected contamination or other unanticipated features (i.e., underground tanks or piping), and recommended procedures and notification instructions in the event suspected contamination is encountered (whether in soil or groundwater), or spills occur during excavation and grading; and
- Guidance regarding off-site soil disposal and/or evaluation of fill material, proposed for import to the site (if necessary).

In addition to summarizing the results and findings of Ramboll's previous investigations at the site, the SMP will also detail additional sampling to be performed prior to excavation of the impacted soil. The additional sampling will be performed after the existing structures at the site have been demolished. The sampling will horizontally and vertically delineate the impacted soil and designate the boundaries for the soil excavations. The approximate footprints of the soil excavations are shown on Figure 3 and will be refined after soil sampling results are available.

No soil excavation or grading activities will be performed at the site until the SMP has been reviewed and approved by SCCDEH.

Impacted Soil Excavations

After the soil excavation boundaries have been determined by the additional soil sampling, the impacted soil will be excavated and either directly placed into trucks for off-haul and disposal in accordance with applicable regulatory guidelines or stockpiled at the site. If necessary, soil will be stockpiled on top of plastic and covered by plastic. The soil will be sampled and characterized for waste disposal characterization then off-hauled and disposed of in accordance with applicable regulatory guidelines.

The additional soil samples used to delineate the impacted soil will serve as bottom and sidewall confirmation samples for the soil excavations. All metals and organochlorine pesticide concentrations in the confirmation samples will be less than applicable regulatory screening criteria for residential land use.

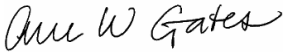
Reporting and Regulatory Closure

At the conclusion of site excavation and grading activities, Ramboll will prepare a closure report for review by SCCDEH that documents soil sampling, excavations, and disposal of the impacted soil at the site. Upon review and approval of the closure report by SCCDEH, a copy of the final report and notice of No Further Action from SCCDEH will be provided to the Planning Division.

CLOSURE

Please contact the undersigned if you have any questions or need further information.

Yours Sincerely,



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jpkane@ramboll.com

FIGURES

Q:\DRAWINGS\1690010020\1690010020-campbell-layout.mxd

RAMBOLL

DRAFTED BY: RS | DATE: 1/21/2019

Site Layout

16151 - 16187 East Mozart Avenue
Campbell, California

FIGURE
1

1690010020

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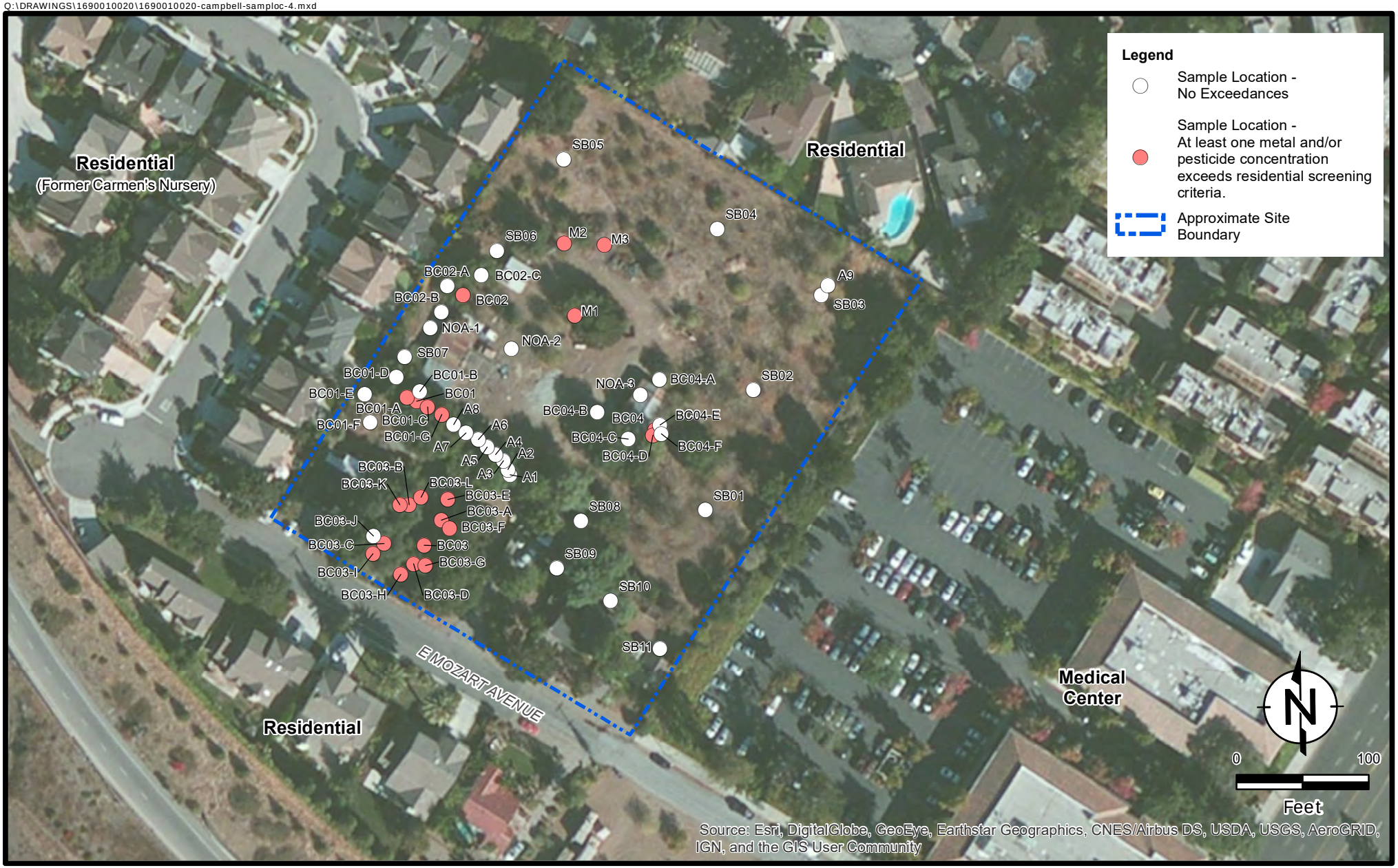

RAMBOLL

DRAFTED BY: RS | DATE: 1/28/2019

Sample Location Map - Screening Criteria Exceedances

16151 - 16187 East Mozart Avenue

Campbell, California

FIGURE

2

1690010020

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RAMBOLL

DRAFTED BY: RS | DATE: 1/21/2019

Approximate Excavation Footprint Map

16151 - 16187 East Mozart Avenue
Campbell, California

FIGURE
3

1690010020

ATTACHMENT 7

PHASE I ENVIRONMENTAL SITE ASSESSMENT

DRAFT

PHASE I ENVIRONMENTAL SITE ASSESSMENT AND SHALLOW SOIL INVESTIGATION

16151 - 16187 EAST MOZART AVENUE
CAMPBELL, CALIFORNIA

Prepared for:
Robson Homes, LLC
San Jose, CA

Prepared By:
Ramboll US Corporation
Emeryville, CA

Date
January 2019

Project Number
1690010020

RAMBOLL

SIGNATURE AND ENVIRONMENTAL PROFESSIONAL STATEMENT

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

I have the specific qualifications based on education, training, and experience to assess a site of the nature, history and setting of the subject site. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

DRAFT

_____
Anne Gates, P.E.
Senior Managing Consultant

Ramboll US Corporation
2200 Powell Street, Suite 700
Emeryville, CA

CONTENTS

TABLES

FIGURES

APPENDICES

1. SUMMARY OF CONCLUSIONS

Ramboll US Corporation ("Ramboll"; formerly Ramboll Environ US Corporation) was retained by Robson Homes, LLC ("Robson Homes") to perform a Phase I Environmental Site Assessment (ESA) of the site located at 16151 - 16187 East Mozart Avenue in Campbell, California (herein referred to as the "site"). Ramboll's assessment was conducted in connection with the purchase of the site. The objective of the Phase I ESA, which was conducted in conformance with the scope and limitations of ASTM International's *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* E1527-13 (the "ASTM Standard"), was to identify Recognized Environmental Conditions (RECs), as defined in the ASTM Standard (see Section 2.1).

1.1 Recognized Environmental Conditions

Ramboll performed a Phase I ESA of the site in conformance with the scope and limitations of the ASTM Standard. Any exceptions to, or deletions from, this practice are described in Section 7.2 of this report. This assessment has revealed the following REC in connection with unrestricted residential use of the site:

- **Areas of Elevated Metals and Pesticides in Soil.** Results from soil sampling between November 2018 and January 2019 identified concentrations of lead, arsenic, mercury and organochlorine pesticides (chlordane and dieldrin) above regulatory screening criteria for residential land use, as discussed in Section 6 of this report. The vertical extent of impacted soil appears to be in the upper 2 feet and are located in the vicinity of the 16179 East Mozart Avenue residence and older storage structures located in the central portion of the site.

1.2 Other Findings

Although not a considered REC based on currently available information, Ramboll identified the following other findings:

- **Former Fuel Pump and Oil Drum Storage.** An undated hand-drawn map from records provided by the Santa Clara County Fire Department (Fire Department) depicts four oil drums and a fuel pump located behind a residence presumed to be the 16179 East Mozart Avenue residence. In addition, a photograph provided by the site owner depicts a fuel pump located in the central portion of the site behind the 16179 East Mozart Avenue residence that appears to correspond with a hand drawn map from the Fire Department. The site owner was unaware if the fuel pump was connected to an aboveground storage tank (AST) or underground storage tank (UST). To find the potential UST, a magnetic investigation and ensuing potholing was conducted in the vicinity of the former fuel pump on behalf of Robson Homes in November 2018. The magnetic investigation and subsequent potholing did not locate the potential UST. No soil staining, odors or other evidence of the potential fuel UST was observed by Ramboll field personnel during the exploratory potholing activities. Soil sampling conducted at and in the vicinity of the former oil drum storage area, former fuel pump location, and suspected UST location did not identify fuel constituents at concentrations above regulatory screening levels. No further investigation is recommended at the time.
- **Soil Mounds Containing Elevated Metals.** Three large soil mounds located on the central portion of the site were dumped at the site by West Valley Arborists, the landscaping company occupying the central portion of the site. Samples collected by Ramboll from the soil mounds

identified concentrations of lead and mercury above regulatory screening criteria for residential land use.

- **Historical Agricultural Operations.** Historical aerial photographs dating to 1939 indicate the site was originally developed for cultivation as orchards. Aerial photographs also indicate that additional structures were present on site between the 1950s and 1960s, and that the site was largely devoid of agriculture by the 1950s. Given this historical site use and based on information provided by the site owner as well as information reviewed on GeoTracker for the adjoining property immediately to the west, pesticides and other agricultural chemicals may have been used at the site prior to the 1950's. Ramboll collected shallow soil samples in the former orchard areas of the site that were analyzed for metals and organochlorine pesticides. All metals and organochlorine pesticide concentrations were below regulatory screening criteria for residential land use. No further investigation is recommended at this time.

A discussion of *de minimis* conditions identified during this review is presented in Section 7 of this report.

2. INTRODUCTION

2.1 Purpose

Ramboll was retained by Robson Homes to conduct a Phase I ESA of the site. Ramboll's assessment was conducted in connection with the purchase of the site. The purpose of the assessment was to identify RECs, which are defined in the ASTM Standard as:

> "The presence or likely presence of any hazardous substances or petroleum products in, on, or at 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. *De minimis* conditions are not recognized environmental conditions."

2.2 Scope of the Assessment

Ramboll completed the following tasks, consistent with the ASTM Standard, during its Phase I ESA of the site:

- Visits to the site by Jason Kane of Ramboll on September 20 and October 2, 2018 to observe the features of the site and to identify the uses and conditions specified in the ASTM Standard. In addition, Ramboll observed the adjoining properties from the site or adjacent public thoroughfares. Photographs taken during the site visit are included in Appendix A.
- Between September and December 2018, interviews with Leann Wilson, the co-owner of the site since 2008. The aforementioned individual is referred to herein as the "site owner". In addition, in-person and telephone interviews were conducted with the tenants of the houses and landscaping business located at the site, who are referred to herein as "site personnel". The site owner and site personnel interviewed by Ramboll were identified as having good knowledge of the uses and physical characteristics of the site.
- Multiple visits to the site by Ramboll between November 2018 and January 2019 to collect soil samples and observe potholing activities.
- A review of information contained in federal and state environmental databases, as obtained from the sources noted below:
  - A radius report prepared by EDR, Inc. (EDR, see Appendix B), which presents the results of searches of federal and state databases for the subject site, as well as properties near the subject site. The radius searched for each database, as well as the databases themselves, were selected in accordance with the ASTM Standard.
  - The United States Environmental Protection Agency's (USEPA's) Envirofacts database, which provides site information contained in multiple USEPA regulatory databases.
  - The USEPA's Enforcement and Compliance History Online (ECHO) database, which provides information on sites' enforcement and compliance history.
  - The State of California's Regional Water Quality Control Board (RWQCB) GeoTracker online database and the California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC) EnviroStor online database.
- A review of standard historical sources (included as Appendix C) and local agency inquiries, as defined in the ASTM Standard. The following resources were reviewed:

  - Readily available historical sources, including (where available) historical topographic maps and aerial photographs, city directories, and Sanborn Maps, to develop a history of the previous uses of the site and surrounding area.
  - Historical and site-specific information obtained from the following local agencies: City of Campbell Community Development Department's Planning and Building Divisions, Santa Clara County Department of Planning and Development, Santa Clara County Fire Department (Fire Department), and the Santa Clara County Assessor's Office (Assessor). Ramboll also requested information from the Santa Clara Valley Water District (SCVWD) and the Santa Clara County Department of Environmental Health (SCCDEH), but personnel representing and/or databases maintained by these agencies reported having no information pertaining to the site.

- A review of physical setting sources, as defined in the ASTM Standard, including:
  - The current United States Geological Survey (USGS) 7.5-minute topographic map that shows the area on which the site is located.
  - Geologic, hydrogeologic, or hydrologic sources as provided in the EDR report.
- A review of documents pertaining to the site provided by Robson Homes, including:
  - Magnetic contour maps from geophysical investigations conducted at the site, prepared by JR Associates and dated November 1 and December 2, 2018 (Appendix D).
  - *Geotechnical Investigation, Residential Development, 16179 E Mozart Avenue, Campbell, California*, prepared by Geo-Logic Associates and dated December 18, 2018 (Appendix E).
- A search for environmental liens or other activity and use limitations (AULs) for the site, provided by EDR (as shown in Appendix F). Ramboll ordered the lien search using the parcel numbers believed to be associated with the site, as obtained from the Assessor and online resources.
- A review of any information provided by the user of this assessment, including information consistent with Appendix X3 of the ASTM Standard. Pertinent information, if any, is discussed in the appropriate sections of this report.

This assessment was conducted in accordance with the methodology specified in ASTM Standard E1527-13, as agreed upon by Ramboll and Robson Homes in September 2018.

2.3 Significant Assumptions

In conducting this review, no significant assumptions were made, except for the following:

- Site-specific field measurements or other detailed hydrogeological information was not publicly available or reasonably ascertainable. In the absence of such data, Ramboll has assumed that the flow direction of shallow groundwater beneath the site and in the local vicinity generally mimics surface topography. Therefore, in evaluating potential on-site impacts from off-site sources, those off-site properties not located adjacent to or within one-quarter mile upgradient of the subject site are not considered to represent a significant concern to the subject site. This interpretation is based on the assumption that a hazardous material released to the subsurface generally does not migrate laterally within the unsaturated soil for a significant distance, while a hazardous material may migrate in groundwater in a generally downgradient direction.

2.4 Reliance and General Limitations

This report has been prepared for the exclusive use of Robson Homes, LLC and affiliated entities including Santa Clara Development Company, Sun Lakes Construction Company of California, and Vesta Real Estate Company Inc., and such other persons or entities whose reliance is explicitly authorized in writing Ramboll.

Under the ASTM Standard, this report is considered current only until July 9, 2019 (a period of 180 days from the date of the most recent site visit on January 10, 2019). The conclusions presented in this report represent Ramboll's best professional judgment based upon the information available and conditions existing as of the date of this report. In performing its assignment, Ramboll must rely upon publicly available information, information provided by the client, and information provided by third parties. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate and complete. This review is not intended as legal advice, nor is it an exhaustive review of site conditions or facility compliance.

The scope of work for this assessment did not include asbestos or lead-based paint surveys or inspections. Other issues considered outside the scope of the ASTM Standard and this review include radon, lead in drinking water, wetlands, cultural and historic resources, ecological resources, endangered species, and high voltage power lines.

3. SITE DESCRIPTION

3.1 Site Setting

The site is located at 16151, 16157, 16163, 16179, and 16187 East Mozart Avenue, Campbell, Santa Clara County, California. The 2.92-acre site is located approximately two miles south of downtown Campbell (Figure 1). According to the Assessor, the assessor's parcel number (APN) for the site is 424-06-119.

The southern portion of the site is developed with five residences and canopy-covered parking areas that face East Mozart Avenue. The central portion of the site is developed with two small storage structures that were formerly used as residences, a two-car garage, two covered storage areas, and two shipping that are used by West Valley Arborists, a landscaping business (Figure 2). The site is accessed from East Mozart Avenue at the southern site boundary. Non-building portions of the site are generally unpaved and sparsely landscaped. There are no on-site surface water bodies.

Table A provides an overview of physical setting and utility information for the site.

Table A: Physical Setting and Utility Information

Conditions	Source	Description
Topography		
Elevation (above mean sea level)	USGS topographic map; Google Earth	Ranges from approximately 280 feet along the southern site boundary to approximately 275 feet along the northern site boundary.
Topographic Gradient	USGS topographic map; visual observations	Relatively flat on site, with a gentle downward slope to the north. Regional topography slopes gently downward to the north.
Hydrology		
Surface Water Runoff	Visual observations	Percolates into the ground surface at unpaved areas throughout the site.
Nearest Surface Water Body to the Site	USGS topographic map; Google Earth	Los Gatos Creek, located approximately one-quarter mile northwest of the site. The creek ultimately joins the Guadalupe River and flows north to discharge to the San Francisco Bay.
Flood Plain	FEMA*; site owner	The site owner reported no known occurrences of flooding at the site. The site is not located within a 100- or 500-year flood zone, although a 500-year flood zone is located approximately 300 feet southwest of the site.
Wetlands	NWI*; Visual observations	There are no federally-designated wetlands on site.

Table A: Physical Setting and Utility Information

Conditions	Source	Description
Geology and Hydrogeology		
Presumed Direction of Shallow Groundwater Flow	USGS topographic map	Based on the regional topographic gradient, the flow direction of Los Gatos Creek, and the location of the San Francisco Bay with respect to the site, shallow groundwater underneath the site is presumed to flow to the north.
Depth to Groundwater	2018 Geotechnical Report	A geotechnical investigation performed at the site in October 2018 by Geo-Logic Associates did not encounter groundwater in any soil borings, the deepest of which extended to a depth of approximately 49 feet below ground surface (bgs).
On-site Wells	DOGGR; Facility personnel	There are no production, monitoring or injection wells on site. The nearest oil and gas wells are located between one-half and one mile south to southwest of from the site; both are plugged and abandoned.
Nearest Groundwater Supply Wells	EDR database report	One private or municipal well that may be used for water supply is located between one-quarter and one-half mile northwest (downgradient) of the site.
Geologic Conditions	2018 Geotechnical Report; Visual observations	The October 2018 geotechnical investigation at the site reported surficial soils consisting of silty sand with gravel underlain by layers of gravel with sand, clayey gravel with sand, and clayey sand with gravel to a depth of approximately 49 feet bgs.
Site Utility Information		
Heating and Cooling Equipment	Site owner	Each of the five existing residences is serviced by wall-mounted electric heaters.
Electricity Supplier	Site owner	Pacific Gas and Electric Company (PG&E)
Natural Gas Supplier	Site owner	PG&E
Use of Fuel Oil for Building Heat	Site owner	No current or former use of fuel oil reported.
Water Supplier	Site owner	San Jose Water Company
Sanitary Sewer	Site owner	The site is not currently connected to the municipal sanitary sewer system.
Septic Systems	Site owner	Each of the five existing residences is serviced by a separate septic system. The garage in the central portion of the site also has a restroom services by a septic system.

Table A: Physical Setting and Utility Information

Conditions	Source	Description

Notes:

DOGGR = Division of Oil, Gas, and Geothermal Resources; FEMA = Federal Emergency Management Agency; NWI = National Wetlands Inventory

* - Source was provided in the EDR database report.

3.2 Current Use of the Site

The southern portion of the site has been used for residential purposes since prior to the 1930s. The central portion of the site has been leased by a landscaping business for storage operations since approximately 2014. Two storage containers, canopy-covered parking areas, miscellaneous heavy equipment, and other maintenance-related landscaping materials are stored on site on a temporary basis, although landscaping and vehicle maintenance business operations generally occur off site.

Chemical use and storage at the site is generally limited to household cleaning and vehicle maintenance supplies. According to site personnel, no chlorinated solvents are currently used at the site and the use of such chemicals would not be expected based on the nature of current site operations. Similarly, the site owner and site personnel were not aware of any historical use of chlorinated solvents at the site.

3.3 Current Uses of Adjoining Properties

The site is in a mixed residential and commercial land use area. Residential areas are located adjacent to the west, north, and south of the site. Based on discussions with site personnel, Ramboll's visual observations from the site boundary and public rights-of-way, and a limited review of publicly available information, a general determination of the current use of adjacent properties is described in Table B.

Table B: Current Use of Adjacent Properties

Direction	Property/Land Use	Ramboll's Observations
North	Residential.	No apparent exterior manufacturing or chemical storage operations were observed. Residential areas consist of single-family homes. No concerns were noted.
East	Medical offices.	
South	East Mozart Avenue, beyond which is residential.	
West	Residential.	

Notes:

During the site visit, Ramboll walked or drove by the borders of these properties that are shared with the subject site. Ramboll did not enter the neighboring properties.

4. REVIEW OF PUBLIC RECORDS AND OTHER INFORMATION SOURCES

4.1 Environmental Regulatory Database Review

Ramboll contracted with EDR in October 2018 to prepare a summary of listings in federal and state agency databases for the site and facilities within applicable radii of the site, as specified by the ASTM standard.[1] A copy of the EDR report is presented in Appendix B.

4.1.1 Database Review for Site

Ramboll reviewed the results of the state and federal environmental database searches performed by EDR (see Appendix B) and searched the GeoTracker and EnviroStor online database. The site was not listed on any of the databases searched.

4.1.2 Database Review for Surrounding Properties

There are multiple listings in the database report for off-site facilities within applicable ASTM search radii. Several of these listings (i.e., California Environmental Reporting System [CERS] and Resource Conservation and Recovery Act [RCRA] hazardous waste generators, underground storage tanks [UST], Certified Unified Program Agency [CUPA], Hazardous Waste Information System [HAZNET], Historical Auto Stations, and compliance listings), by themselves, are not necessarily indicative of a contamination concern and, therefore, are not discussed herein and were not further evaluated for purposes of this assessment. A number of properties appear on databases indicating potential contamination concerns (i.e., EnviroStor, GeoTracker, Cleanup Program Site-Spills, Leaks, Investigation, and Cleanup [CPS-SLIC], Leaking Underground Storage Tank [LUST], Superfund Enterprise Management System [SEMS], SWRCB/DTSC/Integrated Waste Board cleanup property [CORTESE], and dry cleaner databases). None of the properties listed on databases indicating a potential contamination concern (within one-quarter of a mile from the site) have open regulatory cases. Of the sites representing a potential contamination concern[2], only one was located immediately adjacent to the site, as discussed below:

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[1] EDR uses the term “radii” to refer to the ASTM terminology “approximate minimum search distance” in the environmental database report.

[2] Ramboll’s analysis of adjoining sites was based on observations made during the site reconnaissance (as discussed in Table 2) and location information for off-site listings as presented in the database report. The discussion of adjoining and non-adjoining sites does not include (if applicable) listings for certain databases that are (by themselves) not necessarily indicative of a contamination concern (e.g., compliance listings without indication of a release or chemical mishandling, such as RCRA hazardous waste generators or registered storage tanks). Also, for purposes of this analysis, Ramboll considers as “adjoining” properties that are immediately adjacent, even if separated by a road or other physical barrier.

In addition, as noted in Table 1, shallow groundwater beneath the site likely flows to the north. Within this section, Ramboll did not discuss any off-site non-adjoining property that is listed on a database indicative of a contamination concern but for which regulatory closure has been issued, as the issuance of regulatory closure suggests that impacts to the subject site from the noted off-site property are unlikely. Finally, Ramboll did not discuss any off-site non-adjoining property that is presumed to be downgradient or cross-gradient of the site. This analysis was based on the assumption that a hazardous material released to the subsurface generally does not migrate laterally within the unsaturated soil for a significant distance, but a hazardous material can migrate in the groundwater in a generally downgradient direction; however, the direction of groundwater flow may be affected by localized topographic, hydraulic, and hydrogeologic conditions.

- **Former Carmen's Nursery**. Also known as Carman's Nursery and Classics at Kilmer Park, and listed with closed status on the EnviroStor database. The case pertains to the approximately 4.3 acre adjoining property to the west, which was used for orchard agriculture from at least the 1930s to 1950s, and as a commercial nursery from 1971 to 2004. Impacts to soil with volatile organic compounds (VOCs), pesticides, and petroleum hydrocarbons were detected during a limited due diligence-related subsurface investigation completed in 2003. The investigation involved the collection of soil samples from nineteen locations (GS-1 to GS-19) throughout the property at 6 inches bgs, and one location (SB-1) at 5, 10, 15, and 19 feet bgs. Although borings were advanced to depths of up to 20 feet bgs, groundwater was not encountered at any of the sampled locations. GS-1 to GS-14 were collected to evaluate the potential for pesticide and arsenic impacts from historical orchard use[3], GS-15 and GS-16 were collected from a former soil fumigation area[4], GS-17 and GS-18 were collected beneath former aboveground storage tanks (ASTs)[5], GS-19 was collected near a former flammable materials storage shed[6], and SB-1 samples were collected from the approximate location of a former gasoline underground storage tank (UST) which was used from the 1970s to 1980s[7]. The former soil fumigation area (with suspected impacts of such fumigants as bromomethane and bromide from periodic soil sterilization processes), former AST and UST areas, and former flammable materials storage area were historically located immediately adjacent to the northwestern subject site boundary (see Figure 2). None of the analyzed constituents were detected above then-applicable regulatory action levels for residential property use (primarily RWQCB Environmental Screening Levels [ESLs], as well as USEPA Preliminary Remediation Goals [PRGs], California Human Health Screening Levels [CHHSLs], and presumed background concentrations). Although, low concentrations of pesticides including dichlorodiphenyltrichloroethane (DDT) (20 micrograms per kilogram [µg/kg]), dichlorodiphenyldichloroethylene (DDE) (70 µg/kg), heptachlor epoxide (7.6 µg/kg), and arsenic (5.5 milligrams per kilogram [mg/kg]), as well as fuel-related constituents including TPH-mo (49 mg/kg), toluene (5.5 µg/kg), 1,2,4-trimethylbenzene (9.7 µg/kg), and lead (6.5 mg/kg) were identified at the property. Based on the results of the limited investigation, DTSC concluded that no further action was necessary on April 18, 2006, and the property was subsequently redeveloped with residences. As such, because the matter has been granted regulatory closure by the state agency, it is reasonable to assume that the matter was appropriately evaluated in accordance with regulations in place at the time, and that remaining contamination (if any) is localized and unlikely to migrate at significant levels onto the site. Additionally, the property is in the presumed cross-gradient direction from the site and groundwater in the vicinity of site is encountered at approximately 25 to 30 feet bgs, beyond the known area of shallow impacts. Therefore, based on the information reviewed, this matter does not represent a contamination concern for the subject site.

[3] GS-1 to GS-14 samples were analyzed for organochlorine pesticides and select samples were analyzed for arsenic.

[4] GS-15 and GS-16 samples were analyzed for inorganic bromide and bromomethane.

[5] GS-17 and GS-18 samples were analyzed for total petroleum hydrocarbons (TPH) as diesel (TPH-d) and motor oil (TPH-mo) with silica gel cleanup, TPH as gasoline (TPH-g), VOCs including benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert butyl ether (MTBE).

[6] GS-19 samples were not analyzed due to analytical results collected from nearby GS-17 and GS-18.

[7] SB-1 samples collected at 10 and 15 feet bgs were analyzed for TPH-d, TPH-mo, and TPH-g, VOCs including BTEX and MTBE, and total lead. Reported tank volumes range from 250 to 350 gallons.

The database report indicates that poor or inadequate address information was available for one property located in the vicinity of the site; therefore, the property could not be readily mapped by the third-party provider. Because the location of the property with respect to the subject site could not be evaluated, Ramboll is limited in its ability to express an opinion regarding the potential for impact to the subject site from these properties. It was beyond the scope of this review to accurately locate the property identified by the third-party provider; however, Ramboll verified that it did not appear to be adjacent to the site.

4.2 Historical Uses of the Site and Adjacent Properties

4.2.1 Past Uses of the Site

The site was developed by the 1930s with the residence located at 16179 East Mozart Avenue and orchard agriculture. Additional residences were constructed between the 1940s and 1960s, after which agricultural operations appear to have generally ceased. Between the 1960s and 1990s, the central portion of the site was used as the storage yard for a paving business run by the father of the site owner. From 2014 to present, the central portion of the site has been used as the storage yard areas for West Valley Arborists, a landscaping business.

A summary of Ramboll's key observations from the available historical sources is presented in Table C.

Table C: Summary of Key Observations from Historical Sources for the Subject Site

Historical Source	Key Observations Regarding Site History
Topographic Maps (1889 to 1899, 1953 to 2012)	The site is depicted as undeveloped land on all maps until 1899 and is not mapped again until 1953. On the 1953 through 1973 maps, the site is developed with orchard agriculture. The site along East Mozart Avenue is improved with one smaller nondescript (likely residential) structure on the 1953 map and four structures on the 1968 to 1980 maps. No site details are shown on the 2012 map. No concerns are noted.
Aerial Photographs and Satellite Imagery[1] (1939 to 2018)	On the 1939 photograph, the site is developed with two structures on the western portion of the site that appear to be the current residence located at 16179 East Mozart Avenue and the storage structure located adjacent to the north. All remaining portions of the site are developed with orchards. A small structure appears on the central portion of the site in the 1948 photograph that appears to be the current residence located at 16163 East Mozart Avenue. Orchard agricultural use appears significantly reduced in the 1950 photograph with the exception of the eastern portion of the site. In the 1963 photograph, several additional structures are present including the current residences located at 16151 and 16187 East Mozart Avenue, the current garage located at 16179 East Mozart Avenue, and the current storage structure, garage, and covered storage area located in the central portion of the site. The current residence located at 16157 East Mozart Avenue is first present in the 1974 photograph and the site remains generally unchanged until the 1993 photograph when the large covered storage structure in the central portion of the site first appears. From the 1993 photograph through present day, the site appears generally the same with the exception of the gradual thinning of orchards on the eastern portion of the site. Certain details are difficult to assess due to poor image quality.

Table C: Summary of Key Observations from Historical Sources for the Subject Site

Historical Source	Key Observations Regarding Site History
City Directory (1962 to 2014)	The site occupants are listed as various individuals from 1970 to 2014, including: Dennis Palmer and Steven Martin (1970), J.W. and/or Lee H. Evans (1970 to 2014), J.G. Geisick, M.J. Bradford, and Paul A. Garratt (1975), John Bolender (1975 to 1985), H.A. Robinson (1980), Warren Cunningham (1992 to 2010), Janet Johansen and Gary Melott (1995), Emily L. Lenocker and C. James (2000), Donna L .Shuster (2005), John L. and/or Charann E. Raquet (2005 to 2014), and Cheri A. Thomas, Gretchen S. Cunningham, and Benjamin D. Raquet (2014).
Lien search report	According to the EDR Environmental Lien and Activity Use Limitation (AUL) search, the site was last acquired from Leann M. Wilson and Tabitha A. Evans (as tenants-in-common) on January 10, 2013.

[1] In addition to aerial photographs provided by EDR, Ramboll viewed historical satellite imagery provided via Google Earth. Printed copies were not obtained, and imagery dates were not independently verified.

EDR reported that Sanborn fire insurance map coverage is not available for the site.

4.2.2 Interview with Site Owner and Site Personnel

Ramboll conducted interviews with the site owner and site personnel between September and December 2018. According to the interviews, the site was historically developed with orchard agriculture and residences. The site owner and site personnel were not aware of any chemical applications as part of agricultural operations, although the resident at 16179 East Mozart Avenue reported pesticide spraying of the oak trees on that portion of the site.

Following the purchase of the site sometime before the late 1910s, relatives of the current owners gradually constructed the five existing residences for use as dwellings. According to the site owner, previous generations of her family also lived in small residences located on the central portion of the site that have since been used for storage of personal possessions. Additional uses of the site have included a family-owned paving business (circa 1960s to 1990s) and a landscaping business operated by West Valley Arborists (circa 2014 to present), both of which have been centrally-located on site. The current owners inherited the site in approximately 2008 and reported that there have been no known hazardous substance releases or prior environmental investigations. Except for six septic systems, no USTs or ASTs for storage of hazardous substances are known to have historically existed on site. However, a photograph provided by the site owner depicts a fuel pump located in the central portion of the site and is included in Appendix G. The site owner reported no further information regarding the fuel pump.

4.2.3 Past Uses of Adjacent Properties

The surrounding properties were used for agricultural purposes (primarily orchards) from at least 1939 until approximately the 1950s and 1960s, when residential developments began to be constructed in the vicinity of the site. Commercial buildings were constructed to the east of the site in the 1980s to 1990s. As discussed in Section 4.2.1, the land adjacent to the west of the site was a commercial nursery from approximately the 1970s to the 2000s when the current residences were constructed.

4.3 Review of Local Agency Information

Ramboll visited or otherwise contacted local governmental agencies and regulatory bodies for information relating to the site. An overview of the findings of this review is presented in Table D.

Table D: Local Agency Information for the Site

Agency Contacted / Document Reviewed	Information Obtained
Santa Clara County Assessor	The site is described on the Santa Clara County parcel map as APN 424-06-119. According to the Assessor, the 2.92-acre site is currently owned by L.H. Evans Rentals, LLC and is identified with the primary address of 16179 East Mozart Avenue, Campbell, California.
City of Campbell Planning Division (Planning Division)	According to the Planning Division, the site is located within incorporated City of Campbell, California, and was located within unincorporated Santa Clara County prior to the 2000s. No records pertaining to the site were available at the Planning Division office.
City of Campbell Building Division (Building Division)	Building Division records obtained via EDR included electrical permits for the on-site houses dated 1992 and 1998 (16163 and 16179 East Mozart Avenue). Permits were not listed under other site addresses. No concerns were noted. No records pertaining to the site were available at the Building Division office.
Santa Clara County Planning and Development Department	Prior to annexation of the site and surrounding properties into the incorporated City of Campbell, the site was within the jurisdiction of Santa Clara County for developmental matters. County building permit records obtained via telephone interview included only an electrical permit dated 1998 (16179 East Mozart Avenue). Records were not available for the other site addresses or for the site APN. No concerns were noted.
Santa Clara County Fire Department	Ramboll requested records from Fire Department for information regarding soil or groundwater investigations, USTs, LUSTs, hazardous materials inspections, or violations/permits for the site. Fire Department records included an undated hand-drawn map that shows four oil drums and a fuel pump located behind a residence. The digital file was saved under the 16179 East Mozart Avenue address in Fire Department database, although the only identifying information on the map is Mozart Avenue. Also noted in the map is a garage, parking area, and driveway that appear to correspond to the features at the site. Furthermore, the location of the fuel pump in the map appears to correspond with the photograph of a fuel pump that was provided to Ramboll by the site owner, as discussed in Section 4.2.2. A copy of the map is provided in Appendix G. Additional files reviewed at the Fire Department included inspections between 1973 and 1979 of a business at the site called “Lee Harvey Trucking”. No concerns were noted, however the site owner stated that no such business has ever existed at the site.
Santa Clara County Department of Environmental Health	Ramboll requested records from SCCDEH for information regarding soil or groundwater investigations, USTs, LUSTs, hazardous materials inspections, or violations/permits for the site. SCCDEH reported no records on file for the site addresses.
Santa Clara Valley Water District	Ramboll requested records from SCVWD and was referred to the SCVWD online database of files prior to 2004, at which time local agency oversight was transferred to SCCDEH. No records related to the site addresses were found on the online database.

4.4 Previous Environmental Assessments and Activities

Based on a review of historical site documents and interviews with the site owner and site personnel, no prior Phase I environmental assessments, UST closures, environmental sampling, or remediation activities are known to have been conducted at the site.

4.5 Environmental Lien Record Search

A review of EDR Environmental Lien and Activity Use Limitation (AUL) dated October 3, 2018 was conducted to identify environmental liens or AULs imposed by judicial authorities with respect to APN 424-06-119. No environmental liens or AULs were identified. The EDR Environmental Lien Search Report is attached as Appendix F.

4.6 User-Provided Information

Ramboll provided Robson Homes with a User Questionnaire (consistent with Appendix X3 of the ASTM Standard) that requested information relating to environmental liens, AULs, specialized knowledge of the site, site value diminution, chain-of-title, or any other commonly known or obvious indications of site contamination, that was not otherwise provided to Ramboll. The user did not provide any information that was not otherwise obtained and reviewed by Ramboll.

5. SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

Ramboll conducted site visits between September 2018 and January 2019. During the site visits, observations of the site were made to evaluate if any RECs, as defined in Chapter 2, are present. Ramboll did not observe the roofs of the buildings due to access and safety constraints.

5.2 General Site Setting and Observations

Ramboll made observations concerning all issues specified in Sections 9.4.2 through 9.4.4 of the ASTM E1527-13 Standard. The presence or absence of each issue of environmental interest or concern is noted in Table E. Additional information regarding observed and historical items is provided in the sections following the table.

Table E: Summary of Site Reconnaissance Observations

Issue	ASTM Section	Observation
Interior and Exterior Issues		
Current use(s) of the site	9.4.2.1	See Section 3.2
Past use(s) of the site	9.4.2.2	See Section 4.2
Hazardous substances and petroleum products used, treated, stored, disposed of, or generated on the site in connection with identified present or past uses	9.4.2.3	**Present and Historically Present** (see Section 5.2.1)
Storage tanks: Underground storage tanks (fill ports, vent pipes, manholes) Aboveground storage tanks	9.4.2.4	 **Potentially Historically Present** **Potentially Historically Present** (see Section 5.2.2)
Odors (strong, pungent or noxious)	9.4.2.5	Absent
Pools of liquid, standing surface water or sumps	9.4.2.6	Absent
Drums of hazardous substances or petroleum products (five-gallon, 55-gallon or totes)	9.4.2.7	**Present and Historically Present** (see Section 5.2.1)
Hazardous substance and petroleum product containers (not necessarily in connection with identified uses)	9.4.2.8	Absent
Unidentified substance containers suspected of containing hazardous substances or petroleum products	9.4.2.9	**Present** (see Section 5.2.1)

Table E: Summary of Site Reconnaissance Observations

Issue	ASTM Section	Observation
Polychlorinated biphenyls (PCBs)	9.4.2.10	
Electrical equipment on-site (e.g., transformers, capacitors)		Absent
Electrical equipment known or likely to contain PCBs		Absent
Hydraulic equipment on-site (e.g., elevators, truck dock lifts)		Absent
Hydraulic equipment known or likely to contain PCBs		Absent
Interior Issues		
Heating/cooling systems	9.4.3.1	**Present** (see Table A)
Stains or corrosion on interior floors, walls or ceilings (except for staining from water)	9.4.3.2	Absent
Floor drains and interior sumps	9.4.3.3	Absent
Exterior Issues		
Pits, ponds or lagoons on site or adjacent properties	9.4.4.1	Absent
Stained soil or pavement	9.4.4.2	Absent
Stressed vegetation (from other than insufficient water)	9.4.4.3	Absent
On-site solid waste disposal; areas apparently filled or graded by non-natural causes; or mounds or depressions suggesting solid waste disposal	9.4.4.4	Absent
Wastewater or other liquid (including storm water) or any discharge into a drain, ditch, underground injection system or stream on or adjacent to the site	9.4.4.5	Absent
Wells (including dry wells, irrigation wells, injection wells, abandoned wells, or other wells)	9.4.4.6	Absent
Septic systems or cesspools	9.4.4.7	**Present** (see Section 5.2.3)

Notes:

Observations noted in this table and discussed further below are based on information obtained during the site visit and from a review of the sources summarized in Section 4.

See the ASTM Standard for a detailed description of the issues included in each referenced ASTM section.

Per the ASTM Standard, fluorescent light ballasts likely to contain PCBs do not need to be noted.

N/A – Not applicable

5.2.1 Hazardous Material Use and Storage

Chemical use and storage at the site is generally limited to household cleaning and vehicle maintenance substances. During Ramboll's site visits, multiple containers of petroleum products (e.g., oils, greases, fuels), cleaning products, and household paint were in the storage areas (e.g., sheds, shipping containers, and covered storage areas) throughout the improved areas of the site. The size of the containers ranged from 1 quart to 5 gallons. No containers equal to or greater than 55 gallons in size are located on site, and no evidence of release was observed in storage areas. Chemicals are not stored in uncovered exterior areas of the site.

An undated hand-drawn map from the Fire Department depicts four oil drums located behind a residence presumed to be the 16179 East Mozart Avenue residence. In November 2018, Ramboll performed shallow soil sampling in the reported former oil drum storage area, as discussed in Section 6.3.4.

5.2.2 Former Fuel Pump

As discussed in Section 4.2.2, a photograph provided by the site owner depicts a fuel pump located in the central portion of the site behind the 16179 East Mozart Avenue residence. The location of the fuel pump appears to correspond with an undated hand-drawn map from the Fire Department that depicts a fuel pump in the same general location. The site owner was unaware if the fuel pump was connected to an AST or UST. In an attempt to verify the existence of a UST, a magnetic investigation and ensuing potholing was conducted in the vicinity of the former fuel pump on behalf of Robson Homes in November 2018. The magnetic investigation and potholing was unable to verify the existence of a UST, as discussed below in Section 6.2. In November 2018, Ramboll performed soil sampling at and in the vicinity of the former fuel pump, as discussed in Section 6.3.4.

5.2.3 Septic System

As discussed in Section 4.2, six septic systems are currently in use at the site (one septic system for each residence and one septic system servicing that restroom int eh garage located on the central portion of the site). The site owner and site personnel were not aware of the physical characteristics of the septic systems, including number of septic tanks or the location of associated leach fields; although, personnel reported that no hazardous substances are known to have been disposed of to the systems. A site-wide magnetic investigation conducted on behalf of Robson Homes in November 2018 was unable to verify the existence of the septic tanks.

6. EXPLORATORY POTHOLING AND SAMPLING ACTIVITIES

Between November 2018 and January 2019, Ramboll conducted shallow soil sampling at the site. Figure 3 shows the locations of the soil samples and Tables 1 through 4 summarize the results of soil sample analyses. The laboratory analytical reports are provided in Appendix H.

The soil sampling analytical results were compared to applicable USEPA Regional Screening Levels (RSLs), Cal/EPA DTSC-modified RSLs, or San Francisco RWQCB (SFRWQCB) ESLs for residential land use. In the case of arsenic, concentrations were compared to naturally-occurring background levels. For simplicity, RSLs, DTSC-modified RSLs, and ESLs for residential land use will herein be referred to as “regulatory screening criteria”.

6.1 Pre-Field Activities

Ramboll prepared a site-specific health and safety plan (HASP) and notified Underground Service Alert (USA) of the sampling activities at least two working days prior to the start of intrusive sampling, as required by law. Ramboll contracted with Subdynamic Locating Services to perform utility locating, Penecore Drilling to perform hand augering and drilling activities for soil sample collection, and McCampbell Analytical, Inc. (MAI) to perform soil sample analyses.

6.2 Geophysical Investigation and Exploratory Potholing

On behalf of Robson Homes, two geophysical investigations were performed at the site by JR Associates in October and November 2018. A report summarizing the geophysical investigations is attached as Appendix E. The geophysical investigations revealed the locations of two anomalies located in the driveway east of the 16179 East Mozart Avenue residence and in the northeast portion of the site, approximately in the locations of samples A1 and A9, respectively (Figure 3). The anomalies were potholed by Galante Brothers, Inc. (Galante), a subcontractor of Robson Homes, on December 3, 2018. Ramboll was on site to observe the potholing activities.

The anomaly in the vicinity of sample A1 was suspected to be the location of a UST associated with a former fuel pump at the site, as discussed in Section 5.2.2. Potholing revealed the anomaly in the vicinity of sample A1 to be the result of an approximately eight-feet long, one-inch diameter, abandoned metal pipe. After the pipe was discovered, additional potholing was performed in the vicinity to a depth of six feet bgs to further confirm the presence or absence of a UST. No UST was encountered during the potholing and no stained soil or odorous soil was observed by Ramboll field personnel.

Potholing in the vicinity of sample A9 in the northeast portion of the site revealed the anomaly to be the result of a two-inch diameter abandoned metal pipe. Photographs of the anomaly potholing are included in Appendix A.

6.3 Soil Sampling

Initial soil sampling was performed on November 20, 2018 and focused on soil in notable areas including areas of prior agricultural development to identify any soil impacts resulting from the use of pesticides and the perimeters of the older structures at the site to identify any soil impacts resulting from the use of lead-based paint and/or pesticides.

Additional sampling was performed on November 30, 2018, and January 10, 2019. Based on the results of the initial phase of sampling, step-out samples were collected from shallow soil at the building perimeter locations to determine the limits of extent of the elevated metals and pesticides concentrations in the central and southern portions of the site. Soil samples were collected at and in the vicinity of the former oil drums storage area and former fuel pump (shown on a hand drawn sketch in Fire Department records) located north of the 16179 East Mozart Avenue residence. Based on the geophysical investigation, a sample was collected from the anomaly in the northeastern portion of the site. Soil samples were also collected from three soil mounds that were dumped at the site by West Valley Arborists, the landscaping company occupying the central portion of the site, to characterize the chemical concentrations of the soil mounds. Finally, shallow samples beneath asphalt-paved areas in the central portion of the site were collected and analyzed for naturally occurring asbestos (NOA).

6.3.1 Initial Round of Soil Sampling

On November 20, 2018, soil samples were collected from locations SB01 through SB05 and BC01 through BC04. The soil sampling locations and depths are described below in Table F and shown on Figure 3.

Table F: Soil Sample Location Descriptions

Sample Identification	Location Description
SB01 through SB07	Shallow soil in open field. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
SB08	Shallow soil in rear of 16163 East Mozart Avenue residence. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
SB09	Shallow soil in front of 16163 East Mozart Avenue residence. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
SB10	Shallow soil in rear of 16179 East Mozart Avenue residence. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
SB11	Shallow soil in rear of 16187 East Mozart Avenue residence. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
BC01	Shallow soil near storage shed located behind 16179 East Mozart Avenue residence. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
BC02	Shallow soil behind covered storage area. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
BC03	Shallow soil on eastern side of 16179 East Mozart Avenue residence. No soil staining or odor noted. Sample collected from 0.5 feet bgs.
BC04	Shallow soil behind covered storage area. No soil staining or odor noted. Sample collected from 0.5 feet bgs.

The samples were collected by Ramboll personnel using a hand auger, placed in laboratory-provided glass jars, and submitted to MAI under chain-of-custody procedures. The sample from each location was analyzed for California Assessment Manual (CAM17) metals by USEPA method 6020, organochlorine pesticides by USEPA method 8081A, and PCBs by USEPA method 8082.

All metals concentrations were less than regulatory screening criteria for residential land use or, in the case of arsenic, below typical naturally-occurring background levels with the exception of lead at BC01, BC02, and BC03, and arsenic at BC01 and BC03. The lead concentrations of the 0.5 feet bgs samples at BC01, BC02, and BC03 ranged between of 150 and 760 milligrams per kilogram (mg/kg), exceeding the regulatory screening criteria of 80 mg/kg. The arsenic concentrations of the 0.5 feet bgs samples at BC01 and BC03 were 12 and 15 mg/kg, respectively, exceeding the regulatory screening criteria of 11 mg/kg.

The only PCB detected above the laboratory reporting limit was Aroclor 1260, detected in the 0.5 feet bgs sample at SB05 at a concentration of 0.078 mg/kg, below the regulatory screening criteria of 0.24 mg/kg. Organochlorine pesticides were detected in all nine samples. All pesticide concentrations were less than regulatory screening criteria with the exception of chlordane (technical) and dieldrin in the 0.5 feet bgs sample at BC03, which had a chlordane (technical) concentration of 5.3 mg/kg and dieldrin concentration of 0.11 mg/kg, exceeding the regulatory screening criteria of 0.44 mg/kg and 0.034 mg/kg, respectively.

Laboratory analytical results are summarized in Tables 1 and 2. Soil sample locations with at least one metal or organochlorine pesticide concentration exceeding regulatory screening criteria are noted in Figure 4.

6.3.2 First Round of Step-out Soil Sampling

On November 30, 2018, step-out soil samples were collected from 0.5 feet bgs at locations BC01-A through BC01-C, BC02-A and BC02-B, BC03-A through BC03-D, and BC04-A through BC04-C. Deeper step-out soil samples were also collected from 2.0 feet bgs at locations BC01 through BC04. In addition, soil samples were collected at 0.5 feet bgs at locations SB06 and SB07 in the field area along the western boundary of the site. No staining or odor was noted in any of the soil samples. All samples were collected by Penecore using a hand auger under the direction of Ramboll field personnel, placed in laboratory-provided glass jars, and submitted to MAI under chain-of-custody procedures. Soil sample locations are shown on Figure 3.

The step-out samples at and in the vicinity of BC01 were analyzed for lead and arsenic by USEPA method 6020. Step-out samples at and in the vicinity of BC02 and BC04 were analyzed for lead by USEPA method 6020. Step-out samples at and in the vicinity of BC03 were analyzed for lead and arsenic by USEPA method 6020 and chlordane (technical) and dieldrin by USEPA method 8081A. Samples collected from SB06 and SB07 were analyzed for CAM17 metals by USEPA method 6020, organochlorine pesticides by USEPA method 8081A, and PCBs by USEPA method 8082.

Concentrations of arsenic exceeded the regulatory screening criteria of 11 mg/kg at locations BC01-A (21 mg/kg), BC01-C (24 mg/kg), and BC03-A through BC03-D (ranging between 14 and 47 mg/kg). Concentrations of lead exceeded the regulatory screening criteria of 80 mg/kg at locations BC01-A (390 mg/kg), BC01-C (98 mg/kg), BC03-A (96 mg/kg), BC03-B (140 mg/kg), and BC03-D (350 mg/kg). Concentrations of chlordane (technical) exceeded the regulatory screening criteria of 0.44 mg/kg at locations BC03-A (1.9 mg/kg) and BC03-D (4.4 mg/kg). Concentrations of dieldrin exceeded

the regulatory screening criteria of 0.034 mg/kg at locations BC03-A (0.072 mg/kg), BC03-B (0.039 mg/kg), and BC03-D (0.13 mg/kg).

None of the 2.0 feet bgs step-out samples collected from BC01 through BC04 or the samples collected from SB06 and SB07 had metals or organochlorine pesticide concentrations exceeding regulatory screening criteria. The only PCB detected above the laboratory reporting limit was Aroclor 1260, detected in the 0.5 feet bgs sample at SB06 at a concentration of 0.21 mg/kg, below the regulatory screening criteria of 0.24 mg/kg.

Laboratory analytical results are summarized in Tables 1 and 2. Soil sample locations with at least one metal or organochlorine pesticide concentration exceeding regulatory screening criteria are noted in Figure 4.

6.3.3 Second Round of Step-out Soil Sampling

On January 10, 2019, additional step-out soil samples were collected from 0.5 feet bgs at locations BC01-D through BC01-G, BC02-C, BC03-E through BC03-L, and BC04-D through BC04-F to further delineate elevated metals and/or organochlorine pesticide concentrations. In addition, soil samples were collected at 0.5 feet bgs at locations SB08 through SB11 around the perimeter of the residences located at 16151, 16167, and 16163 East Mozart Avenue, as described above in Table F. No staining or odor was noted in any of the aforementioned soil samples. All samples were collected by Ramboll personnel using a hand auger, placed in laboratory-provided glass jars, and submitted to MAI under chain-of-custody procedures. Soil sample locations are shown on Figure 3.

The step-out samples at and in the vicinity of BC01 were analyzed for lead and arsenic by USEPA method 6020. Step-out samples at and in the vicinity of BC02 and BC04 were analyzed for lead by USEPA method 6020. Step-out samples at and in the vicinity of BC03 were analyzed for lead and arsenic by USEPA method 6020 and chlordane (technical) and dieldrin by USEPA method 8081A. Samples collected from SB08 through and SB11 were analyzed for CAM17 metals by USEPA method 6020, organochlorine pesticides by USEPA method 8081A, and PCBs by USEPA method 8082.

Concentrations of arsenic exceeded the regulatory screening criteria of 11 mg/kg at locations BC01-G (15 mg/kg), BC03-E (33 mg/kg), BC03-F (13 mg/kg), BC03-G (16 mg/kg), BC03-I (18 mg/kg), BC03-K (22 mg/kg), and BC03-L (30 mg/kg). Concentrations of lead exceeded the regulatory screening criteria of 80 mg/kg at locations BC03-E (180 mg/kg), BC03-F (130 mg/kg), BC03-G (400 mg/kg), BC03-L (140 mg/kg), and BC04-D (120 mg/kg). Concentrations of chlordane (technical) exceeded the regulatory screening criteria of 0.44 mg/kg at locations BC03-E (1.3 mg/kg), BC03-G (1.7 mg/kg), BC03-H (0.78 mg/kg), and BC03-L (5.4 mg/kg). Concentrations of dieldrin exceeded regulatory screening criteria the 0.034 mg/kg at locations BC03-E (0.86 mg/kg) and BC03-L (0.47 mg/kg).

None of the 0.5 feet bgs samples collected from SB08 through SB11 had metals or organochlorine pesticide concentrations exceeding regulatory screening criteria. No PCBs were detected above laboratory reporting limits.

Laboratory analytical results are summarized in Tables 1 and 2. Soil sample locations with at least one metal or organochlorine pesticide concentration exceeding regulatory screening criteria are noted in Figure 4.

6.3.4 Soil Sampling in Areas of Concern

As discussed in Sections 5.2 and 6.2, an undated hand-drawn map from the Fire Department depicts four oil drums and a fuel pump located behind a residence presumed to be the 16179 East Mozart Avenue residence. In addition, a photograph provided by the site owner depicts a fuel pump located in the central portion of the site behind the 16179 East Mozart Avenue residence that appears to correspond with the map from the Fire Department. The site owner was unaware if the fuel pump was connected to an AST or UST. In an attempt to verify the existence of a UST, a magnetic investigation and ensuing potholing was conducted in the vicinity of the former fuel pump on behalf of Robson Homes in November 2018. The magnetic investigation and potholing were unable to verify the existence of a UST. No soil staining or odor was observed by Ramboll field personnel during the exploratory potholing activities.

On November 30, 2018, Ramboll collected samples A1 through A8 at and in the vicinity of the former oil drums and potential UST location as discussed below in Table G.

Table G: Soil Sample Location Descriptions

Sample Identification	Location Description
A1 and A2	Vicinity of suspected UST. No soil staining or odor noted. Samples collected from 10 feet bgs.
A3 and A4	Vicinity of suspected UST piping, between the suspected UST location and the former fuel pump location. No soil staining or odor noted. Samples collected from 3.5 and 3.0 feet bgs.
A5	Location of former fuel pump. No soil staining or odor noted. Sample collected from 2.0 feet bgs.
A6 through A8	Location of former oil drum storage area. No soil staining or odor noted. Samples collected from 2.0 feet bgs.

Soil borings A1 through A4 were installed by Penecore using direct push technology (DPT) drilling equipment. Soil borings A4 through A8 were installed by Penecore using a hand auger. Soil cores were withdrawn from the subsurface and screened for VOCs using a photoionization detector (PID). The PID readings did not indicate soil was impacted by VOCs. Samples were collected by Ramboll field personnel using laboratory-provided Encore samplers and glass jars and submitted to MAI under chain-of-custody procedures. Soil sample locations are shown on Figure 3. After soil sampling was complete, all borings were backfilled with neat cement.

Samples collected at A1 through A8 were analyzed for total petroleum hydrocarbons as gasoline, diesel, and motor oil (TPH-g,d,mo) by USEPA method 8015B and VOCs by USEPA method 8260B. TPH-g was not detected above laboratory reporting limits. The only detections of TPH-d were at A2 (1.1 mg/kg) and A4 (4.2 mg/kg), well below the regulatory screening criteria of 230 mg/kg. The only detections of TPH-mo were at A3 (5.5 mg/kg) and A4 (39 mg/kg), well below the regulatory screening criteria of 1,100 mg/kg. No VOCs were detected above regulatory screening criteria. Laboratory analytical results are summarized in Table 3.

6.3.5 Sampling of Soil Mounds

Three large soil mounds located at the central portion of the site were dumped at the site by West Valley Arborists, the landscaping company occupying the central portion of the site. On November 30, 2018, Ramboll personnel collected one soil sample from each soil mound to characterize the chemical concentrations of the soil mounds. Samples were collected with a shovel from a depth of approximately 1 foot below the surface of the soil mound, placed in laboratory-provided glass jars, and submitted to MAI under chain-of-custody procedures. The locations of the soil mound samples are identified as M1 through M3 in Figure 3.

The soil mound samples were analyzed for CAM17 metals by USEPA method 6020, organochlorine pesticides by USEPA method 8081, and PCBs by USEPA method 8082. All concentrations of metals were below regulatory screening criteria with the exception of lead in samples M1 (96 mg/kg) and M3 (360 mg/kg) which exceeded the regulatory screening criteria of 80 mg/kg and mercury in sample M2 (5.9 mg/kg) which exceeded the regulatory screening criteria of 1.0 mg/kg. The only pesticide detection above laboratory reporting limits was dieldrin in sample M2 (0.011 mg/kg), below the regulatory screening criteria of 0.034 mg/kg. No PCBs were detected above laboratory reporting limits.

Laboratory analytical results are summarized in Tables 1 and 2. All three soil mound sample locations had one metal concentration exceeding regulatory screening criteria, as noted in Figure 4.

6.3.6 Magnetic Anomaly Soil Sampling

As discussed in Section 6.2, a geophysical investigation performed at the site by JR Associates in November 2018 revealed the location of a magnetic anomaly in the northeast portion of the site. The anomaly was potholed by Galante and was the result of a two-inch diameter abandoned metal pipe. The location of the anomaly is identified as A9 in Figure 3.

On December 3, 2018, a sample was collected by Ramboll personnel underneath the metal pipe at a depth of 2.0 feet bgs using a hand auger. The sample was placed in a laboratory-provided glass jar and submitted to MAI under chain-of-custody procedures. Sample A9 was CAM17 metals by USEPA method 6020, organochlorine pesticides by USEPA method 8081A, and TPH-g,d,mo by USEPA method 8015B.

All detected metals concentrations were less than regulatory screening criteria. The only pesticide detected was DDE at a concentration of 0.0071 mg/kg, below the regulatory screening criteria of 2.0 mg/kg. TPH-g was not detected above the laboratory reporting limit. TPH-d and TPH-mo were detected at concentrations of 2.0 and 6.0 mg/kg, well below the regulatory screening criteria of 230 and 11,000 mg/kg, respectively. Laboratory analytical results are summarized in Tables 1 through 3.

6.3.7 Hazardous Waste Characterization Analyses

As noted above, areas of elevated metals and organochlorine pesticides are present around older structures at the site. In the event soils in these areas were to be excavated and removed from the site, select samples collected in these areas were analyzed for Soluble Threshold Limit Concentrations (STLCs) and Toxicity Characteristic Leaching Procedure (TCLP) concentrations for comparison to California and federal hazardous waste thresholds, respectively.

Multiple samples with lead concentrations exceeding 10 times the STLC concentration for California hazardous waste (10x STLC Pb = 50 mg/kg) and 20 times the TCLP concentration for federal

hazardous waste (20x TLCP Pb = 100 mg/kg) were additionally analyzed, as shown in Table 1. In addition, sample M2 was additionally analyzed for STLC and TCLP mercury due to the mercury concentration exceeding 10 times the STLC concentration for California hazardous waste (10x STLC Hg = 2.0 mg/kg) and 20 times the TCLP concentration for federal hazardous waste (20x TLCP Hg = 4.0 mg/kg).

Of the samples analyzed for STLC and/or TCLP lead, samples from locations BC01, BC01-A, BC01-C, and M3 exceeded the STLC threshold for California hazardous waste. None of the samples analyzed for TCLP lead, STLC mercury, or TCLP mercury exceeded California or federal hazardous waste thresholds. STLC and TCLP results are summarized in Table 1.

6.3.8 Naturally Occurring Asbestos Sampling

Shallow soil samples beneath asphalt-paved areas in the central portion of the site were collected and analyzed for NOA. The locations are identified as NOA-1, NOA-2, and NOA-3 in Figure 3.

The samples were collected by Ramboll personnel using a shovel, placed in plastic zip-lock bags, and submitted to MAI under chain-of-custody procedures. The samples were composited at the laboratory and analyzed as one three-point composite sample and analyzed for NOA by California Air Resources Board (CARB) method 435. No NOA was detected in the composite sample.

7. FINDINGS, OPINION, AND CONCLUSIONS

Ramboll performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-13 of the site between December 2017 and August 2018. The objective of the ESA was to identify RECs, as defined in the ASTM Standard. A list of key definitions presented in the ASTM Standard is provided in Section 9 at the end of this report. Any exceptions to, or deletions from, this practice are described in Section 7.2.

7.1 Findings, Opinions, and Conclusions

7.1.1 Recognized Environmental Conditions

Ramboll has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of the site. Any exceptions to, or deletions from, this practice are described in Section 7.2 of this report. This assessment has revealed the following REC in connection with unrestricted residential use of the site:

- **Areas of Elevated Metals and Pesticides in Soil.** Results from soil sampling between November 2018 and January 2019 identified concentrations of lead, arsenic, mercury and organochlorine pesticides (chlordane and dieldrin) above regulatory screening criteria for residential land use, as discussed in Section 6 of this report. The vertical extent of impacted soil appears to be in the upper 2 feet. Impacted soils are located in the vicinity of the 16179 East Mozart Avenue residence and older storage structures located in the central portion of the site.

7.1.2 Other Findings

Although not a considered REC based on currently available information, Ramboll identified the following other findings:

- **Former Fuel Pump and Oil Drum Storage.** An undated hand-drawn map from records provided by the Santa Clara County Fire Department (Fire Department) depicts four oil drums and a fuel pump located behind a residence presumed to be the 16179 East Mozart Avenue residence. In addition, a photograph provided by the site owner depicts a fuel pump located in the central portion of the site behind the 16179 East Mozart Avenue residence that appears to correspond with a hand drawn map from the Fire Department. The site owner was unaware if the fuel pump was connected to an aboveground storage tank (AST) or underground storage tank (UST). To find the potential UST, a magnetic investigation and ensuing potholing was conducted in the vicinity of the former fuel pump on behalf of Robson Homes in November 2018. The magnetic investigation and subsequent potholing did not locate the potential UST. No soil staining, odors or other evidence of the potential fuel UST was observed by Ramboll field personnel during the exploratory potholing activities. Soil sampling conducted at and in the vicinity of the former oil drum storage area, former fuel pump location, and suspected UST location did not identify fuel constituents at concentrations above regulatory screening levels. No further investigation is recommended at the time.
- **Soil Mounds Containing Elevated Metals.** Three large soil mounds located on the central portion of the site were dumped at the site by West Valley Arborists, the landscaping company occupying the central portion of the site. Samples collected by Ramboll from the soil mounds identified concentrations of lead and mercury above regulatory screening criteria for residential land use.

- **Historical Agricultural Operations.** Historical aerial photographs dating to 1939 indicate the site was originally developed for cultivation as orchards. Aerial photographs also indicate that additional structures were present on site between the 1950s and 1960s, and that the site was largely devoid of agriculture by the 1950s. Given this historical site use and based on information provided by the site owner as well as information reviewed on GeoTracker for the adjoining property immediately to the west, pesticides and other agricultural chemicals may have been used at the site prior to the 1950's. Ramboll collected shallow soil samples in the former orchard areas of the site that were analyzed for metals and organochlorine pesticides. All metals and organochlorine pesticide concentrations were below regulatory screening criteria for residential land use. No further investigation is recommended at this time.

7.1.3 *De Minimis* Conditions

De minimis conditions are those that do not represent a material risk of harm to public health or the environment and that generally would not be the subject of enforcement action if brought to the attention of appropriate governmental agencies. Ramboll identified the following *de minimis* conditions related to the site:

- **Septic Tanks.** As discussed in Sections 4.2 and 5.2.3, six septic systems are currently in use at the site: one for each residence and one for the restroom in the garage located in the central portion of the site. The site owner and site personnel were not aware of the physical characteristics of the systems (e.g., number of associated septic tanks, construction, or number or location of associated leach fields). However, site personnel indicated that only sanitary waste is discharged to the systems. Further, the systems have only historically serviced residential buildings which have not historically housed commercial or industrial operations, no known discharges of hazardous materials to the systems are known to have occurred, and no floor drains are present other than common restroom or kitchen drains. Because of the nature of the reported discharges and the absence of known past releases to the systems, this matter is unlikely to represent a threat to human health or the environment. Thus, Ramboll characterizes this finding as a *de minimis* condition.

7.2 Analysis of Data Gaps

The ASTM Standard defines a data gap as "a lack of or inability to obtain information required by the practice despite good faith efforts by the environmental professional to gather such information." A data gap is only significant if other information obtained during the ESA, or professional experience, raises reasonable concerns and affects the ability of the environmental professional to identify whether a given issue is a REC. The ASTM Standard requires that the ESA report identify and comment on significant data gaps.

Limiting conditions and deviations to the ASTM Standard for the assessment are discussed below.

- The earliest readily available aerial image that indicates specific site uses is dated 1939 and suggests that at least a portion of the site was already developed for agricultural uses. ASTM defines agricultural site use as a "developed" site use. Due to extended age of the site, it was not possible to interview representatives dating back to the site's first developed agricultural use.

None of the exceptions, deletions, deviations, or site reconnaissance limitations noted above are considered to represent significant data gaps.

8. REFERENCES

8.1 Documents

EDR. 2018. "Certified Sanborn® Map Report." October 2.

EDR. 2018. "EDR Historical Topographic Map Report." October 2.

EDR. 2018. "The EDR Aerial Photo Decade Package." October 2.

EDR. 2018. "The EDR-City Directory Image Report." October 2.

EDR. 2018. "The EDR Radius MapTM Report with GeoCheck®." October 2.

EDR. 2018. "Environmental Lien Search." October 3.

Geo-Logic Associates. 2018. "Geotechnical Investigation, Residential Development, 16179 E Mozart Avenue, Campbell, California." December 18.

8.2 Interviews

Leann Wilson et al. Site owner and residents. September through December 2018. Personal and telephone interviews.

9. ASTM DEFINITIONS

The following definitions are presented in the ASTM Standard:

REC - Recognized Environmental Condition:

The presence or likely presence of any hazardous substances or petroleum products in, on, or at 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.

CREC - Controlled Recognized Environmental Condition:

A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

HREC - Historical Recognized Environmental Condition:

A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

***De minimis* Condition:**

A condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Data Gap / Significant Data Gap:

A lack of or inability to obtain information required by the practice despite good faith efforts by the environmental professional to gather such information. A data gap is significant if other information and/or professional experience raises concerns involving the data gap.

Please note that the term "other finding" is not defined by ASTM; rather, Ramboll uses the term to connote areas of contingent risk that are not clearly defined by the ASTM Standard.

TABLES

Table 1: Metals in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample Location	Sample Depth (feet bgs)	Sample Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	STLC Lead (mg/L)	TCLP Lead (mg/L)	Mercury	STLC Mercury (mg/L)	TCLP Mercury (mg/L)	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
Shallow soil samples collected in field areas.																							
SB01	0.5	11/20/2018	**0.52**	**6.0**	**150**	ND<0.50	ND<0.25	**45**	**10**	**53**	**31**	--	--	**0.085**	--	--	**0.62**	**55**	ND<0.50	ND<0.50	ND<0.50	**56**	**91**
SB02	0.5	11/20/2018	ND<0.50	**5.3**	**150**	ND<0.50	ND<0.25	**53**	**11**	**43**	**12**	--	--	**0.061**	--	--	ND<0.50	**71**	ND<0.50	ND<0.50	ND<0.50	**56**	**77**
SB03	0.5	11/20/2018	ND<0.50	**5.8**	**150**	ND<0.50	ND<0.25	**46**	**9.5**	**54**	**37**	--	--	**0.16**	--	--	**0.65**	**52**	ND<0.50	ND<0.50	ND<0.50	**47**	**83**
SB04	0.5	11/20/2018	**0.61**	**6.5**	**160**	ND<0.50	**0.32**	**70**	**11**	**39**	**56**	--	--	**0.15**	--	--	**0.78**	**89**	ND<0.50	ND<0.50	ND<0.50	**43**	**110**
SB05	0.5	11/20/2018	ND<0.50	**5.6**	**150**	ND<0.50	ND<0.25	**51**	**9.6**	**35**	**21**	--	--	**0.086**	--	--	**0.65**	**49**	ND<0.50	ND<0.50	ND<0.50	**49**	**83**
SB06	0.5	11/30/2018	ND<0.50	**4.5**	**130**	ND<0.50	**0.25**	**42**	**10**	**28**	**15**	--	--	**0.072**	--	--	**0.82**	**63**	ND<0.50	ND<0.50	ND<0.50	**48**	**66**
SB07	0.5	11/30/2018	ND<0.50	**7.6**	**170**	ND<0.50	ND<0.25	**49**	**14**	**54**	**42**	--	--	**0.15**	--	--	**0.70**	**57**	ND<0.50	ND<0.50	ND<0.50	**120**	**96**
SB08	0.5	1/10/2019	**0.67**	**26**	**130**	ND<0.50	ND<0.25	**39**	**9.0**	**23**	**6.6**	--	--	ND<0.050	--	--	ND<0.50	**51**	ND<0.50	ND<0.50	ND<0.50	**45**	**62**
SB09	0.5	1/10/2019	ND<0.50	**6.5**	**130**	ND<0.50	ND<0.25	**55**	**8.1**	**94**	**13**	--	--	**0.055**	--	--	ND<0.50	**42**	ND<0.50	ND<0.50	ND<0.50	**56**	**90**
SB10	0.5	1/10/2019	ND<0.50	**6.2**	**120**	ND<0.50	ND<0.25	**51**	**8.7**	**33**	**22**	--	--	**0.075**	--	--	ND<0.50	**62**	ND<0.50	ND<0.50	ND<0.50	**41**	**69**
SB11	0.5	1/10/2019	ND<0.50	**5.1**	**140**	ND<0.50	ND<0.25	**51**	**7.5**	**35**	**19**	--	--	ND<0.050	--	--	ND<0.50	**54**	ND<0.50	ND<0.50	ND<0.50	**51**	**72**
Shallow soil samples collected near building perimeters.																							
BC01	0.5	11/20/2018	**1.1**	**12**	**300**	ND<0.50	**1.9**	**120**	**10**	**76**	**560**	**15**	ND<0.10	**0.58**	--	--	**0.88**	**56**	ND<0.50	**0.69**	ND<0.50	**51**	**370**
	2.0	11/30/2018	--	**4.3**	--	--	--	--	--	--	**59**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-A	0.5	11/30/2018	--	**21**	--	--	--	--	--	--	**390**	**21**	**0.18**	--	--	--	--	--	--	--	--	--	--
BC01-B	0.5	11/30/2018	--	**11**	--	--	--	--	--	--	**47**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-C	0.5	11/30/2018	--	**24**	--	--	--	--	--	--	**98**	**5.1**	--	--	--	--	--	--	--	--	--	--	--
BC01-D	0.5	1/10/2019	--	**5.5**	--	--	--	--	--	--	**48**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-E	0.5	1/10/2019	--	**5.9**	--	--	--	--	--	--	**23**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-F	0.5	1/10/2019	--	**7.3**	--	--	--	--	--	--	**29**	--	--	--	--	--	--	--	--	--	--	--	--
BC01-G	0.5	1/10/2019	--	**15**	--	--	--	--	--	--	**71**	--	--	--	--	--	--	--	--	--	--	--	--
BC02	0.5	11/20/2018	**0.84**	**7.6**	**170**	**0.56**	**0.82**	**45**	**9**	**88**	**150**	**3.7**	ND<0.10	**0.88**	--	--	**0.67**	**47**	ND<0.50	ND<0.50	ND<0.50	**49**	**150**
	2.0	11/30/2018	--	--	--	--	--	--	--	--	**7.3**	--	--	--	--	--	--	--	--	--	--	--	--
BC02-A	0.5	11/30/2018	--	--	--	--	--	--	--	--	**39**	--	--	--	--	--	--	--	--	--	--	--	--
BC02-B	0.5	11/30/2018	--	--	--	--	--	--	--	--	**29**	--	--	--	--	--	--	--	--	--	--	--	--
BC02-C	0.5	1/10/2019	--	--	--	--	--	--	--	--	**15**	--	--	--	--	--	--	--	--	--	--	--	--
BC03	0.5	11/20/2018	**0.89**	**15**	**220**	ND<0.50	**0.80**	**45**	**9.3**	**34**	**760**	--	**0.62**	**0.18**	--	--	**0.82**	**46**	ND<0.50	ND<0.50	ND<0.50	**51**	**470**
	2.0	11/30/2018	--	**5.2**	--	--	--	--	--	--	**20**		--	--	--	--	--	--	--	--	--	--	--
BC03-A	0.5	11/30/2018	--	**16**	--	--	--	--	--	--	**96**	**4.1**	--	--	--	--	--	--	--	--	--	--	--
BC03-B	0.5	11/30/2018	--	**47**	--	--	--	--	--	--	**140**	**3.7**	ND<0.10	--	--	--	--	--	--	--	--	--	--
BC03-C	0.5	11/30/2018	--	**14**	--	--	--	--	--	--	**65**	--	--	--	--	--	--	--	--	--	--	--	--
BC03-D	0.5	11/30/2018	--	**26**	--	--	--	--	--	--	**350**	--	**0.41**	--	--	--	--	--	--	--	--	--	--
BC03-E	0.5	1/10/2019	--	**33**	--	--	--	--	--	--	**180**												
BC03-F	0.5	1/10/2019	--	**13**	--	--	--	--	--	--	**130**												
BC03-G	0.5	1/10/2019	--	**16**	--	--	--	--	--	--	**400**												
BC03-H	0.5	1/10/2019	--	**6.5**	--	--	--	--	--	--	**21**												
BC03-I	0.5	1/10/2019	--	**18**	--	--	--	--	--	--	**41**												
BC03-J	0.5	1/10/2019	--	**11**	--	--	--	--	--	--	**44**												
BC03-K	0.5	1/10/2019	--	**22**	--	--	--	--	--	--	**55**												
BC03-L	0.5	1/10/2019	--	**30**	--	--	--	--	--	--	**140**												
BC04	0.5	11/20/2018	**3.5**	**6.2**	**160**	ND<0.50	**1.9**	**43**	**8.5**	**50**	**160**	**3.7**	ND<0.10	**0.12**	--	--	**0.87**	**44**	ND<0.50	ND<0.50	ND<0.50	**42**	**2,900**
	2.0	11/30/2018	--	--	--	--	--	--	--	--	**9.8**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-A	0.5	11/30/2018	--	--	--	--	--	--	--	--	**31**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-B	0.5	11/30/2018	--	--	--	--	--	--	--	--	**7.9**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-C	0.5	11/30/2018	--	--	--	--	--	--	--	--	**51**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-D	0.5	1/10/2019	--	--	--	--	--	--	--	--	**120**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-E	0.5	1/10/2019	--	--	--	--	--	--	--	--	**24**	--	--	--	--	--	--	--	--	--	--	--	--
BC04-F	0.5	1/10/2019	--	--	--	--	--	--	--	--	**14**	--	--	--	--	--	--	--	--	--	--	--	--
Samples collected from soil mounds.																							
M01	--	11/30/2018	**0.80**	**3.1**	**88**	ND<0.50	**1.1**	**26**	**5.4**	**24**	**96**	**3.5**	--	**0.095**	--	--	**1.2**	**48**	ND<0.50	ND<0.50	ND<0.50	**20**	**140**
M02	--	11/30/2018	**0.72**	**5.2**	**120**	ND<0.50	**0.26**	**56**	**10**	**27**	**28**	--	--	**5.9**	**0.012**	ND<0.010	ND<0.50	**75**	ND<0.50	ND<0.50	ND<0.50	**39**	**82**
M03	--	11/30/2018	**3.0**	**3.5**	**120**	ND<0.50	**0.66**	**27**	**6.6**	**21**	**360**	**26**	**0.33**	**0.11**	--	--	**0.71**	**37**	ND<0.50	ND<0.50	ND<0.50	**26**	**110**
Shallow soil samples collected under magnetic anomaly (metal pipe) in northeast corner of site.																							
A9	2.0	12/3/2018	ND<0.50	**4.0**	**140**	ND<0.50	ND<0.25	**39**	**8.9**	**21**	**78**	--	--	ND<0.050	--	--	**0.51**	**42**	ND<0.50	ND<0.50	ND<0.50	**43**	**55**
Residential Screening Criteria			31	11	15,000	15	5.2	36,000[a]	23	3,100	80	--	--	1[b]	--	--	390	490	390	390	0.78	390	23,000
Screening Criteria Source			USEPA	Duvergé	USEPA	Cal/EPA	Cal/EPA	Cal/EPA	USEPA	USEPA	Cal/EPA	--	--	Cal/EPA	--	--	USEPA	Cal/EPA	USEPA	USEPA		USEPA	USEPA
Hazardous Waste Screening Criteria	***TTLC***		500	500	10,000	75	100	2,500	8,000	2,500	1,000	STLC Lead Threshold = 5.0 mg/L	TCLP Lead Threshold = 5.0 mg/L	20	STLC Mercury Threshold = 0.2 mg/L	TCLP Mercury Threshold = 0.2 mg/L	3,500	2,000	100	500	700	2,400	5,000
	10x STLC		150	50	1,000	7.5	10	50	800	250	50			2.0			3,500	200	10	50	70	240	2,500
	20x TCLP		--	100	2,000	--	20	100	--	--	100			4.0			--	--	20	100	n/a	--	--

Notes:
Only compounds detected above the laboratory reporting limit are included in the table and are shown in **bold**.
All data are reported in milligrams per kilogram (mg/kg).
Blue shading denotes detected concentrations in excess of residential screening criteria.
Orange shading denotes exceedance above STLC/TCLP value.
[a] = screening value is for Chromium III
[b] = screening value is for Elemental Mercury

California Assessment Manual 17 (CAM17) metals analyzed by EPA Method 6020.

-- = not analyzed or not available
bgs = below ground surface
Cal/EPA = California Envrionmental Protection Agency
ND = not detected at or above the laboratory reporting limit shown
USEPA = United States Environmental Protection Agency

Sources:
California Environmental Protection Agency (Cal/EPA). 2018. Human Health Risk Assessment (HHRA) Note Number 3, Issue: DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities. June.
Duvergé, Dylan Jacques. 2011. Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region.
United States Environmental Protection Agency (USEPA). 2018. Regional Screening Levels for Chemical Contaminants at Superfund Sites. Nov.

Table 2: Detected Organochlorine Pesticides and Polychlorinated Biphenyls in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample Location	Sample Depth (feet bgs)	Sample Date	Organochlorine pesticides (OCPs)							PCBs	
			Chlordane (Technical)	a-Chlordane	g-Chlordane	p,p-DDD	p,p-DDE	p,p-DDT	Dieldrin	Aroclor1254	Aroclor 1260
Shallow soil samples collected in field areas.											
SB01	0.5	11/20/2018	ND<0.050	ND<0.0020	ND<0.0020	ND<0.0020	**0.42**	**0.026**	ND<0.0020	ND<0.10	ND<0.10
SB02	0.5	11/20/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.30**	**0.013**	ND<0.0010	ND<0.050	ND<0.050
SB03	0.5	11/20/2018	ND<0.050	ND<0.0020	ND<0.0020	ND<0.0020	**0.37**	**0.018**	ND<0.0020	ND<0.10	ND<0.10
SB04	0.5	11/20/2018	ND<0.25	ND<0.010	ND<0.010	ND<0.010	**0.052**	**0.017**	ND<0.010	ND<0.50	ND<0.50
SB05	0.5	11/20/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.064**	**0.0057**	ND<0.0010	ND<0.050	**0.078**
SB06	0.5	11/30/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.022**	ND<0.0010	ND<0.0010	**0.21**	ND<0.050
SB07	0.5	11/30/2018	ND<0.025	**0.0021**	**0.0022**	**0.0013**	**0.030**	**0.018**	ND<0.0010	ND<0.050	ND<0.050
SB08	0.5	1/10/2019	ND<0.025	ND<0.0010	ND<0.0010	**0.0059**	**0.011**	**0.0030**	**0.012**	ND<0.050	ND<0.050
SB09	0.5	1/10/2019	ND<0.12	ND<0.0050	ND<0.0050	ND<0.0050	**0.036**	**0.013**	ND<0.005	ND<0.25	ND<0.25
SB10	0.5	1/10/2019	ND<0.025	ND<0.0010	ND<0.0010	**0.0028**	**0.14**	**0.026**	**0.0033**	ND<0.050	ND<0.050
SB11	0.5	1/10/2019	ND<0.025	**0.0015**	ND<0.0010	ND<0.0010	**0.019**	**0.0048**	ND<0.0010	ND<0.050	ND<0.050
Shallow soil samples collected near building perimeters.											
BC01	0.5	11/20/2018	ND<2.5	ND<0.10	ND<0.10	ND<0.10	ND<0.10	**0.28**	ND<0.10	ND<5.0	ND<5.0
BC02	0.5	11/20/2018	ND<0.25	ND<0.010	ND<0.010	ND<0.010	**0.44**	**0.15**	ND<0.010	ND<0.50	ND<0.50
BC03	0.5	11/20/2018	**5.3**	**0.59**	**0.51**	ND<0.050	ND<0.050	**0.068**	**0.11**	ND<2.5	ND<2.5
	2.0	11/30/2018	**0.073**	--	--	--	--	--	**0.0023**	--	--
BC03-A	0.5	11/30/2018	**1.9**	--	--	--	--	--	**0.072**	--	--
BC03-B	0.5	11/30/2018	**0.40**	--	--	--	--	--	**0.039**	--	--
BC03-C	0.5	11/30/2018	**0.38**	--	--	--	--	--	**0.013**	--	--
BC03-D	0.5	11/30/2018	**4.4**	--	--	--	--	--	**0.13**	--	--
BC03-E	0.5	1/10/2019	**1.3**	--	--	--	--	--	**0.86**	--	--
BC03-F	0.5	1/10/2019	**0.21**	--	--	--	--	--	**0.0073**	--	--
BC03-G	0.5	1/10/2019	**1.7**	--	--	--	--	--	**0.021**	--	--
BC03-H	0.5	1/10/2019	**0.78**	--	--	--	--	--	**0.0018**	--	--
BC03-I	0.5	1/10/2019	**0.12**	--	--	--	--	--	**0.0016**	--	--
BC03-J	0.5	1/10/2019	ND<0.025	--	--	--	--	--	**0.0097**	--	--
BC03-K	0.5	1/10/2019	ND<0.12	--	--	--	--	--	**0.013**	--	--
BC03-L	0.5	1/10/2019	**5.4**	--	--	--	--	--	**0.47**	--	--
BC04	0.5	11/20/2018	ND<1.2	ND<0.050	ND<0.050	ND<0.050	**0.10**	**0.083**	ND<0.050	ND<2.5	ND<2.5
Samples collected from soil mounds.											
M01	--	11/30/2018	ND<2.5	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<0.10	ND<5.0	ND<5.0
M02	--	11/30/2018	ND<0.25	ND<0.010	ND<0.010	ND<0.010	ND<0.010	ND<0.010	**0.011**	ND<0.50	ND<0.50
M03	--	11/30/2018	ND<5.0	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<0.20	ND<10	ND<10
Shallow soil samples collected under magnetic anomaly (metal pipe) in northeast corner of site.											
A9	2.0	12/3/2018	ND<0.025	ND<0.0010	ND<0.0010	ND<0.0010	**0.0071**	ND<0.0010	ND<0.0010	--	--
Residential Screening Criteria			0.44	--	--	1.9	2.0	1.9	0.034	0.24	0.24
Screening Criteria Source			Cal/EPA	--	--	USEPA	USEPA	USEPA	USEPA	USEPA	USEPA

Notes:
Only compounds detected above the laboratory reporting limit are included in the table and are shown in **bold**.
All data are reported in milligrams per kilogram (mg/kg).
Blue shading denotes detected concentrations in excess of residential screening level.

Organochlorine pesticides (OCPs) analyzed by EPA Method 8081A.
Polychlorinated biphenyls (PCBs) analyzed by EPA Method 8082.

-- = not analyzed or not available
bgs = below ground surface
Cal/EPA = California Envrionmental Protection Agency
DDE = dichlorodiphenylethylene
DDT = dichlorodiphenyltrichloroethane
ND = not detected at or above the laboratory reporting limit shown
OCP = organochlorinated biphenyls
PCB = polychlorinated biphenyls
USEPA = United States Environmental Protection Agency

Sources:
California Environmental Protection Agency (Cal/EPA). 2018. Human Health Risk Assessment (HHRA) Note Number 3, Issue: DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities. January.
United States Evironmental Protection Agency (USEPA). 2018. Regional Screening Levels for Chemical Contaminants at Superfund Sites. May.

Table 3: Total Petroleum Hydrocarbons and Volatile Organic Compounds in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample ID	Sample Location	Sample Depth (feet bgs)	Sample Date	Total Petroleum Hydrocarbons (TPH)			VOCs
				TPH-g	TPH-d	TPH-mo	
A1	Vicinity of Suspected UST	10.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A2		10.0	11/30/2018	ND<1.0	**1.1**	ND<5.0	ALL ND*
A3	Vicinity of Suspected UST Piping	3.5	11/30/2018	ND<1.0	ND<1.0	**5.5**	ALL ND*
A4		3.0	11/30/2018	ND<1.0	**4.2**	**39**	ALL ND*
A5	Former Fuel Pump	2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A6	Former Oil Drum Storage	2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A7		2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A8		2.0	11/30/2018	ND<1.0	ND<1.0	ND<5.0	ALL ND*
A9	NE Magnetic Anomaly	2.0	12/3/2018	ND<1.0	**2.0**	**6.0**	--
RWQCB Residential ESL				740	230	11,000	--

Notes:

Compounds detected above the laboratory reporting limit are shown in **bold**.
All data are reported in milligrams per kilogram (mg/kg).

Total petroleum hydrocarbons (TPH) analyzed by EPA Method 8015
Volatile organic compounds (VOCs) analyzed by EPA method 8260

* Reporting limits vary for different samples based on laboratory dilution factors.
-- = not analyzed or not available
bgs = below ground surface
ND = not detected at or above the laboratory reporting limit shown
RWQCB = Regional Water Quality Control Board
TPH-g = total petroleum hydrocarbons gasoline range (C6-C12)
TPH-d = total petroleum hydrocarbons diesel range (C10-C23)
TPH-mo = total petroleum hydrocarbons motor oil range (C18-C36)

Sources:

[a] San Francisco Bay Regional Water Quality Control Board (SFRWQCB). 2016. Environmental Screening Levels Direct Exposure Human Health Risk Levels (Table S-1). February (revision 3)

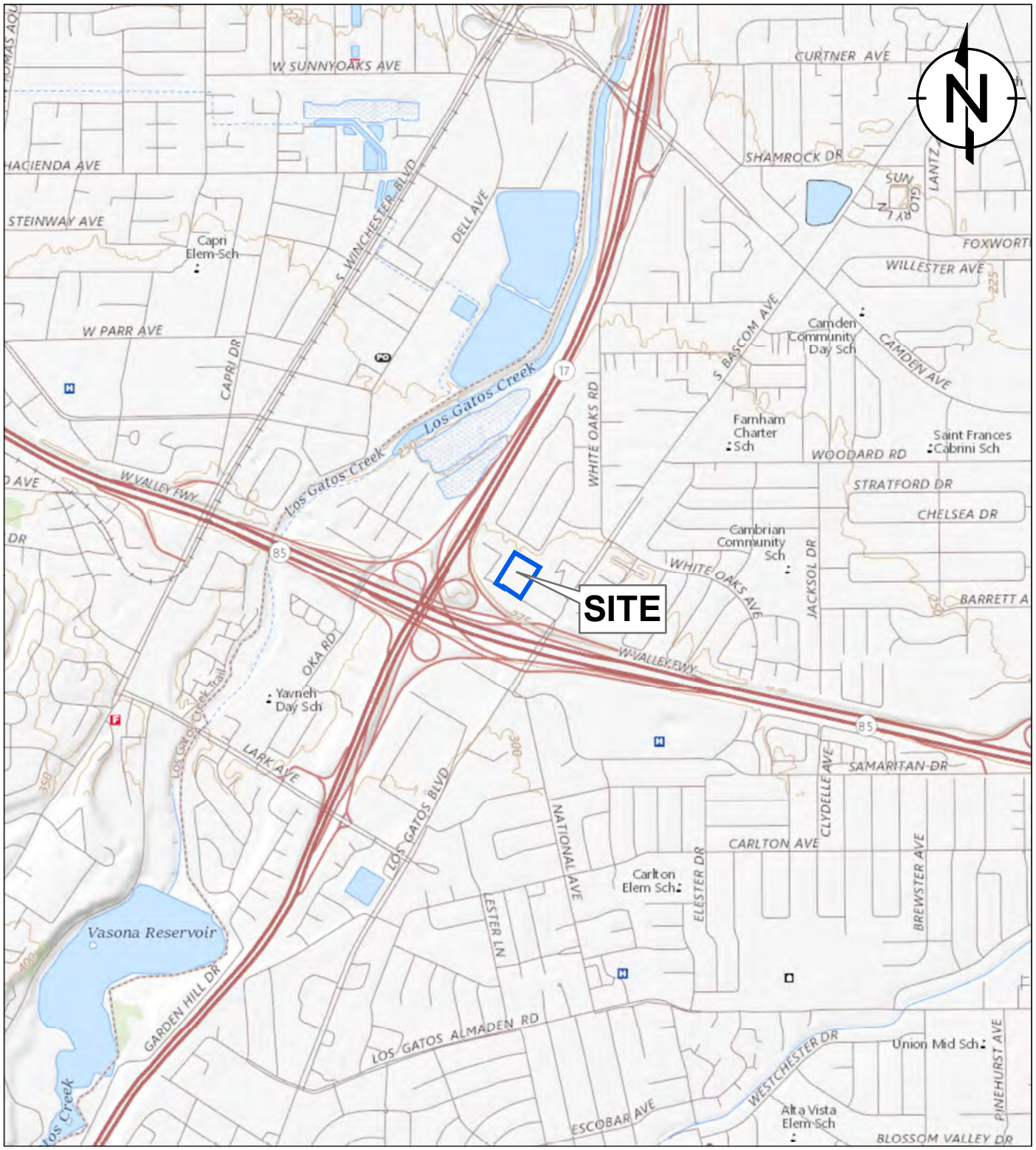
Table 4: Naturally-Occurring Asbestos in Soil Samples
SCDC Mozart
16151 - 16187 East Mozart Avenue, Campbell, California

Sample ID	Depth Below Ground Surface (feet)	Sample Date	Visual Estimation	Percent Asbestos in Matrix	Asbestos Type(s) Detected
NOA-1,2,3	0.5	11/30/2018	ND<0.25%	ND<0.25%	None

Notes:
Sample NOA-1,2,3 is a composite of samples NOA-1, NOA-2, and NOA-3
NOA analyzed by CARB Method 435

CARB 435 = California Air Resources Board Method 435; June 6, 1991.
ID = identification
ND = not detected at or above the laboratory limit of quantification shown
NOA = Naturally-Occurring Asbestos

FIGURES



LEGEND:

SITE BOUNDARY (APPROXIMATE)

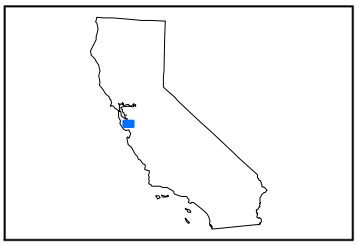
0 0.5 1

SCALE IN MILES

0 2,000 4,000 6,000

SCALE IN FEET

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



QUADRANGLE KEY MAP

RAMBOLL

Site Location Map

16151 - 16187 East Mozart Avenue
Campbell, California

FIGURE 1

DRAFTED BY: RS

DATE: 1/8/2019

1690010020

Q:\DRAWINGS\1690010020\1690010020-campbell-locmap.mxd

Q:\DRAWINGS\1690010020\1690010020-campbell-layout.mxd

RAMBOLL

DRAFTED BY: RS | DATE: 1/21/2019

Site Layout

16151 - 16187 East Mozart Avenue
Campbell, California

FIGURE
2

1690010020

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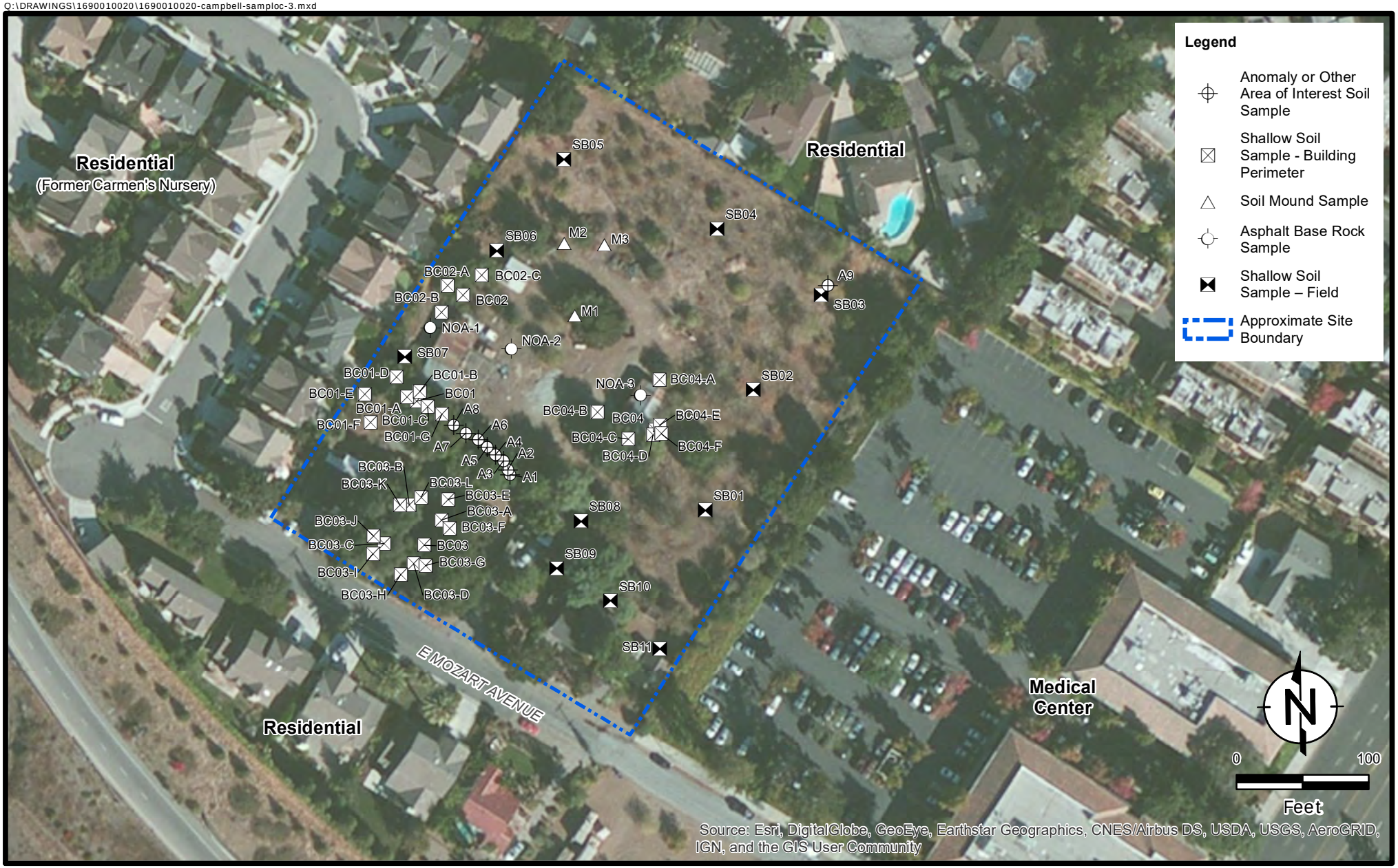


RAMBOLL

DRAFTED BY: RS | DATE: 1/28/2019

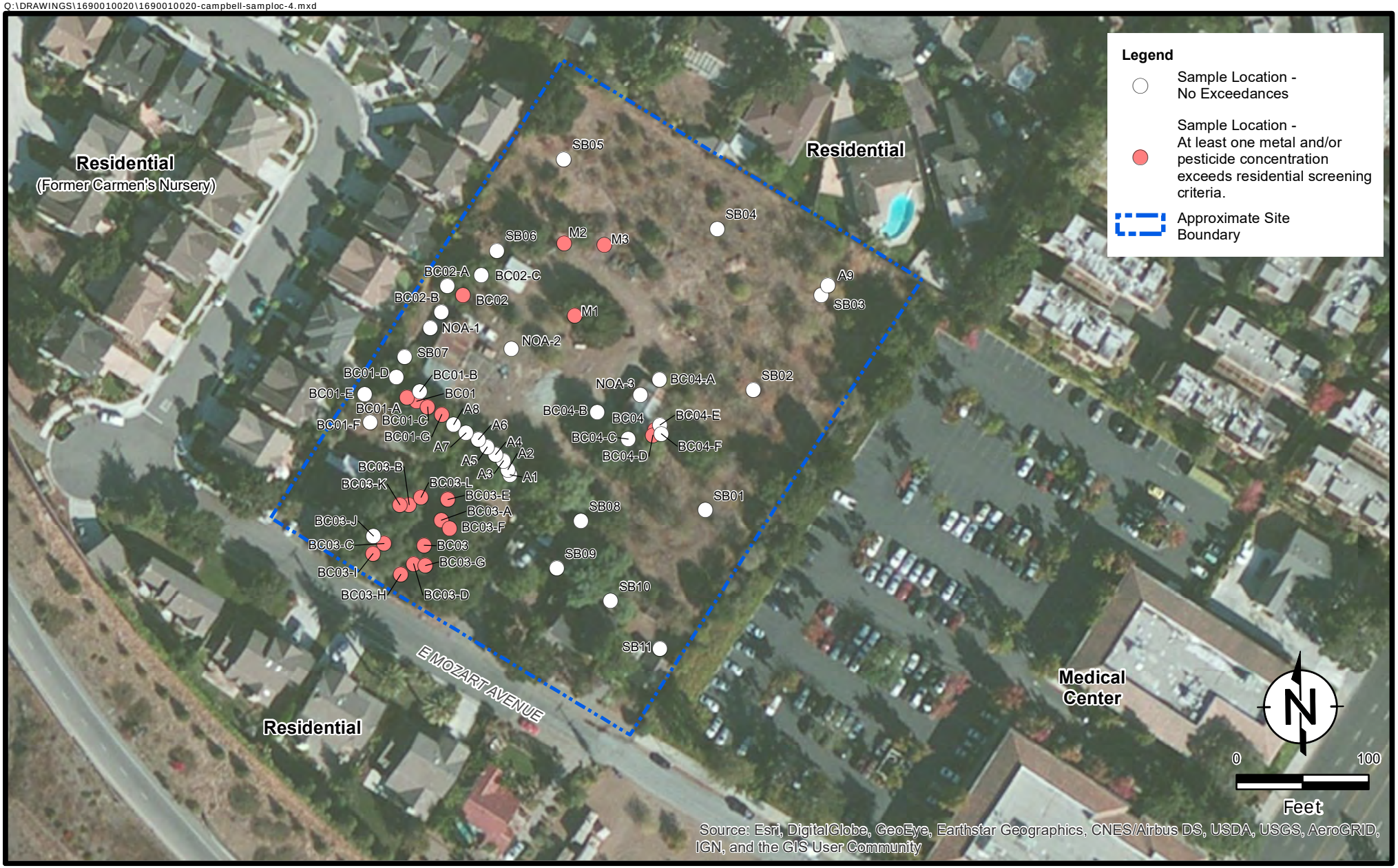
Site Layout

16151 - 16187 East Mozart Avenue
Campbell, California

FIGURE
3

1690010020

Q:\DRAWINGS\1690010020\1690010020-campbell-samploc-4.mxd



RAMBOLL

Sample Location Map - Screening Criteria Exceedances

16151 - 16187 East Mozart Avenue

Campbell, California

FIGURE 4

DRAFTED BY: RS

DATE: 1/28/2019

1690010020

ATTACHMENT 8

"WILL SERVE" LETTERS

July 16, 2019

10900 N Blaney Ave.
Cupertino, CA 95014

ROBSON HOMES
ATTN: RICHARD YEE

RE: 16179 E MOZART AVE, SUNNYVALE CA

This letter has been created to satisfy your request of a Will Serve Letter to the referenced project.

Pacific Gas & Electric Company is the provider of the electric and gas utilities for the above-mentioned project location. This letter is to inform you that we have facilities within the area that can be used to serve your project assuming any rights of way, if needed, are secured.

Application, contract, right-of-way, and moneys are due prior to construction. Be certain to keep in close contact with your PG&E Business Representative. This will insure that any changes or delays in your plans will not affect PG&E's ability to design and construct your service facilities in a manner that best meets your needs.

Please call if there are any questions.

Sincerely,

Esteban Macias, Industrial Power Engineer
PG&E Service Planning Department
E2M6@pge.com
408-725-3326

SAN JOSE WATER

1265 South Bascom Ave.
San Jose, CA 95128-3514

Writer's Direct Line: (408) 279-7874
Email: jim.bariteau@sjwater.com

July 23, 2019

Richard Yee
Robson Homes, LLC
21285 The Alameda, Suite 150
San Jose, CA 95126

Reference: Proposed 25 Lot Subdivision
16179 East Mozart Avenue, Campbell
APN 424-06-119

Dear Mr. Yee:

Pursuant to our recent phone conversation, this letter is being written to inform you that when you would like us to engineer final plans and prepare a final cost estimate to install new water facilities for the above referenced project, the following items need to be submitted. Once received, our engineering normally takes about 12 weeks minimum to complete, at which time a construction agreement can be forwarded to you. After the agreements are returned to us, our Construction Department will establish an installation schedule approximately 8 - 10 weeks later. . I have also enclosed a "will serve" letter per your request.

- A written request for us to start the engineering process.
- Confirmation of fire department requirements (i.e. new hydrant locations and fire flow requirements signed off by the Santa Clara County Fire Department).
- A hard copy drawing that shows the location of General Metered Service connections (domestic and/or irrigation services) for model type townhomes. Plumbing and/or irrigation plans are appreciated.
- A signed and completed Water Service Questionnaire for the each model type and/or irrigation service requested (copies of this form enclosed). Please include the fire sprinkler calculations for each model type.
- One copy of the Recorded Tract (or alternatively, an updated unrecorded tract map).

- One hard copy set of the approved off-site and on-site improvement plans (or alternatively, updated unapproved off-site and on-site improvement plans, with the understanding that additional engineering costs may result from needing to revise our design due to changes in the improvement plans).

- Provide all improvement plans as computer files. The preferred file format is Microstation version 8 or lower. AutoCAD version 2011 or lower is also acceptable.

- One hard copy set of the joint trench plans when available.

- One copy of the construction schedule.

- An engineering deposit in the amount of $12,000.

If you have any questions, please contact this office at (408) 279-7874. We would also be happy to meet with you and your civil engineer to discuss further the information contained in this letter.

Sincerely,

JAMES R. BARITEAU
Senior Water Services Representative

JRB:mmr
16179 East Mozart Avenue (Info Letter).doc

cc: John Gaylord, Civil Engineering Associates

Yee, Richard

From: Virginia Palafox <Virginia.Palafox@WasteConnections.com>
Sent: Tuesday, January 07, 2020 10:41 AM
To: Yee, Richard
Subject: RE: West Valley Collection & Recycling Contact

Revised

From: Virginia Palafox
Sent: Tuesday, January 07, 2020 10:40 AM
To: 'Yee, Richard'
Subject: RE: West Valley Collection & Recycling Contact

Richard,

This letter will serve as an approval from West Valley Garbage & Recycling that we have reviewed the trash management drawings provided by Robson Homes development for Mozart Ave and approve the layout for garbage and recycle service as planned.

Any additional questions please give me a call 408-283-8513 Ext #41508

Thanks,

Virginia Palafox
Ops Manager
Green Team / West Valley
408-283-8513 ext 41508
virginiap@wcnx.org

ENGAGE

From: Yee, Richard [mailto:RYee@robsonhomes.com]
Sent: Tuesday, January 07, 2020 10:22 AM
To: Virginia Palafox
Subject: RE: West Valley Collection & Recycling Contact

Hi Virginia,

Can you please forward a copy of your review/approval letter to me?

Thank you.

Richard

From: Yee, Richard
Sent: Thursday, January 02, 2020 2:29 PM

West Valley Sanitation District

August 22, 2019

Robson Homes
Attn: Richard Yee
2185 The Alameda
San Jose, CA 95126
RYee@robsonhmes.com

Re: 16179 East Mozart Avenue, Campbell – Will Serve

Dear Mr. Yee:

This letter will serve as the West Valley Sanitation District's (District) "WILL SERVE" for the proposed twenty-five single family home development at 16179 E. Mozart Avenue in the City of Campbell (Current APN 424-06-119).

Pursuant to District Ordinance Code Section 10.130, the owner is required to pay all applicable fees prior to the recordation of the Tract Map. The District will provide clearance for recordation of the Tract Map after the fees are paid.

Please contact me at (408) 385-3030 for any additional information.

Sincerely,

Alan Kan
Senior Civil Engineer

ATTACHMENT 9

HYDROLOGY AND WATER QUALITY REPORT

Hydrology and Water Quality Analysis
16179 E. Mozart Avenue

Prepared for:

City of Campbell Community Development Department

70 North First Street
Campbell, CA 95008
Contact: Daniel Fama, Senior Planner

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Dylan Duvergé, P.G. (License No. 9244)

MARCH 2020

Printed on 30% post-consumer recycled material.

Table of Contents

FIGURES

TABLES

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1 Executive Summary

1.1 Proposed Project

The 16179 E. Mozart Avenue project in Campbell, CA involves the redevelopment of an approximately 2.93-acre parcel (site) into 25 single-family homes (Project). The Project would involve the demolition of existing structures on-site, consisting of four single-story homes fronting E. Mozart Avenue and several outbuildings located behind the existing homes (e.g., storage sheds, trailer, containers, carports/garages, etc.). All 25 homes would be 2- to 3-story, 4-bedroom units, ranging in size from 2,443 to 3,783 square feet. The homes would be accessed from a new 20-foot wide driveway teeing off the east side of E. Mozart Avenue, forming an interior loop within the site. The proposed amenities would include a tot lot in one of the open space lots and a stepping stone path between the interior units. Following demolition, grading, and utility installations, construction of the homes is anticipated to occur in two phases.

Redevelopment of the site would require the removal of existing oak, almond, apricot, and other ornamental/fruit trees not identified for preservation under the city's Tree Protection Regulations (City Code Section 21.32.050.C). The Project would retain 10 existing Coast Live Oaks within 3 open space lots totaling 11,787 square feet, as well as the backyards of several of the outer private lots. The landscape plan includes a landscape strip along E. Mozart Avenue consisting of 5 street trees, and interior landscaping along the footpath, home frontage, and open space lots. The Project proposes 28 onsite trees consisting of a combination of Japanese Maple, Marina Strawberry Trees, Muskogee Crape Myrtle, Keith Davey Chinese Pistache, and Valley Oak.

Stormwater management features would consist of maximizing trees/landscaped areas, use of pervious pavement, and use of a hydrodynamic separator (Contech CDS unit or similar) and an infiltration chamber (Oldcastle Precast Storm Capture unit or similar).

1.2 Analysis Scope and Purpose

The purpose of this report is to provide the technical background and analysis necessary to evaluate the potential impacts of the Project on hydrology and water quality, in accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines.

1.3 Summary of Findings

Review of Project plans, including Hydromodification Management Plan (Schaaf & Wheeler Consulting Civil Engineers 2019), the grading and drainage plan (CEA 2019a), and Stormwater Management Plan (CEA 2019b), indicate that the Project's proposed drainage design is feasible and appropriate for site conditions. Impacts associated with Project construction and operation on hydrology and water quality would be less than significant, because existing permitting requirements and conditions of approval are sufficient to avoid water quality degradation, meet water quality standards and Basin Plan objectives, and prevent adverse effects on beneficial uses. No CEQA mitigation measures are required.

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2 Physical Setting

2.1 Surface Water

2.1.1 Regional Watersheds

The proposed project is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which administers the Water Quality Control Plan for the San Francisco Bay Basin (Region 2) (Basin Plan) and other water quality programs for the San Francisco Bay Hydrologic Basin. The San Francisco Bay region covers approximately 4,603 square miles and includes all or large portions of the Counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma (SFB RWQCB 2017). The majority of freshwater entering the San Francisco Bay is from the Sacramento and San Joaquin Rivers, which flow through the Sacramento–San Joaquin River Delta at the eastern end of Suisun Bay to enter the San Francisco Bay. In addition, bayside rivers and streams—including Los Gatos Creek located 0.4 miles northwest of the Project site—contribute freshwater to the San Francisco Bay. Over 90% of annual runoff within the San Francisco Bay region occurs within the winter rainy season between October and April (SFB RWQCB 2017).

Table 1 shows the watersheds that encompass the project site as designated by the U.S. Geological Survey (USGS) Watershed Boundary Dataset as well as the San Francisco Bay RWQCB Basin Plan. The USGS Watershed Boundary Dataset delineates watersheds according to hydrologic units, which are nested within one another according to the scale of interest. USGS identifies hydrologic units by name and by hydrologic unit code, which gets longer as the watershed boundaries get more detailed. The Basin Plan identifies watersheds in a hierarchical system similar to the USGS Watershed Boundary Dataset, but with somewhat different watershed names and boundaries. These geographic boundaries are likewise watershed based, but are typically referred to as hydrologic units, areas, and subareas, and can sometimes include administrative boundaries. These generally constitute the geographic basis around which many surface water quality problems and goals/objectives are defined in the Basin Plan. The proposed project is within the Santa Clara hydrologic unit (Basin No. 205), and the Guadalupe River hydrologic area (Basin No. 205.40), for which where are no hydrologic subareas defined (SFB RWQCB 2017). The USGS Watershed Boundary Dataset indicates the project site is within the 126-square-mile Los Gatos Creek subwatershed (hydrologic unit code 180500030303) (USGS 2020).

Stormwater runoff from the site is discharged to Los Gatos Creek after entering the municipal storm drain system, where it combines with the runoff from the rest of the Los Gatos Creek Subwatershed, shown in Figure 1. Los Gatos Creek is one of the few urban streams in Santa Clara Valley which remains relatively intact. It is both a riparian corridor for plants and wildlife and is part of an intricate system of water resources and flood protection. Eventually streamflow confluences with the Guadalupe River before discharging to the Southern San Francisco Bay (Figure 1). Valley Water (formerly the Santa Clara Valley Water District) operates several percolation ponds that are fed by a surface water diversion (Kirk Dam) on Los Gatos Creek as well as a system of gates at Vasona Lake further upstream. The closest percolation pond to the project site is the Camden Percolation Ponds located on the west side of SR-85.

Table 1
Watershed Designations by Agency/Source

Agency/Source	HUC/Basin No.	Analysis Scale	Name	Size (Sq. Mi.)
USGS Watershed Boundary Dataset	180500	Basin	San Francisco Bay	5,371
	18050003	Subbasin	Coyote	720
	1805000303	Watershed	Guadalupe River-Frontal San Francisco Bay Estuaries	470
	180500030303	Subwatershed	Los Gatos Creek	126
Water Quality Control Plan for the San Francisco Bay Basin (Region 2)	2	RWQCB Region	San Francisco Bay	4,603
	205	Hydrologic Unit	Santa Clara	839
	205.40	Hydrologic Area	Guadalupe River	162

Sources: USGS 2020; SFB RWQCB 2017.
Notes: HUC = hydrologic unit code; sq. mi. = square miles; USGS = U.S. Geological Survey; RWQCB = San Francisco Bay Regional Water Quality Control Board.

2.1.2 Local Topography and Drainage

Regionally, the proposed project is located on a broad alluvial plain formed by several creeks that emerge out of the eastern flanks of the Santa Cruz Mountains, including Saratoga Creek, Los Gatos Creek, and the Guadalupe River. Locally, the project site is nearly flat, ranging in elevation from 272 feet above mean sea level (amsl) to 276 feet amsl with a slight gradient toward the north (CEA 2019a). Under existing conditions, storm runoff is likely to pond in shallow depressions and/or swales, or contribute to runoff conveyed by street curbs to the closest catch basin at the intersection of Beethoven Lane and Mozart Avenue. The property currently consists of pervious, native soil with light vegetation, moderate tree cover, several residences and outbuildings (e.g., a trailer, chicken coop, storage sheds, and garages), and several paved and unpaved driveways that run through the site. Impervious surfaces consist of 10% of the site cover, and site soils consist of silty sand and gravel with an effective infiltration rate of 3 inches/hour (Schaaf & Wheeler Consulting Civil Engineers 2019). Table 2 shows the land cover that currently exists on the Project site.

Table 2
Existing Land Cover

Description	Square-Feet	Acres	Percent
Pervious Areas			
Landscape	57,422	1.32	45%
Unpaved Driveway	57,422	1.32	45%
Subtotal	*114,845*	*2.64*	*90%*
Impervious Areas			
Roof	10,496	0.22	8%
Paved Driveway	2,140	0.07	2%
Subtotal	*12,636*	*0.29*	*10%*
TOTAL	**127,481**	**2.93**	**100%**

Source: Schaaf & Wheeler Consulting Civil Engineers 2019.

Valley Water (2020) has mapped urban storm drain catchments as part of implementation of the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP) (described further in Section 3.2.4). This data indicates that the Project site is located in the southern part of a 65-acre catchment area that is 52% impervious and which discharges to Los Gatos Creek through 24-inch diameter outfall located downstream of the Kirk Dam/diversion structure (Valley Water 2020). The catchment area is bordered by State Route (SR) 17 on the northwest side, the SR 17 / SR 85 interchange to the south, SR 85 on the southern side, S. Boscom Avenue to the east, and White Oaks Road to the northeast (Valley Water 2020). As shown in Figure 2, local runoff in the southern part of this catchment (including Project site runoff) is carried via E. Mozart Avenue and Beethoven Lane to catch basins and curb inlets connected to the municipal storm drain system. In addition, a small (< 0.2-acre) stormwater basin located adjacent to SR-17 and the Los Gatos Creek Trail entrance intercepts local runoff prior to being directed to the municipal storm drain. The underground storm drain system, which consists of buried reinforced concrete pipes ranging in diameter from 12- to 18-inches, conveys runoff from the local streets and stormwater basin across the Caltrans right-of-way to Los Gatos Creek (Figure 2) (BkF 2005). Stormwater runoff is eventually discharged from a 24-inch stormwater outfall located on the east side of Los Gatos Creek immediately downstream of the Camden Percolation Lake within Los Gatos Creek County Park (Valley Water 2020).

2.1.3 Preliminary Runoff Estimate

Because the Project involves the creation and/or replacement of more than 1 acre of impervious surface and is located in a catchment that is less than 65% impervious, the Project is subject to the Hydromodification[1] Management Plan (HMP) requirements of the MRP. Accordingly, Schaaf & Wheeler Consulting Civil Engineers (2019) determined the pre-project flow rates for the 2-, 5- and 10-year storm events using the 2013 Bay Area Hydrology Model (BAHM)[2]. Inputs to the BAHM included the Project site as one sub-basin, the existing land cover data in Table 2, and a classification of site soils based on geotechnical report results. Based on these inputs, the flow rate from the Project site for the 2-, 5- and 10-year storm events was calculated to be 0.99, 1.40, and 1.66 cubic feet per second (cfs), respectively (Schaaf & Wheeler Consulting Civil Engineers 2019). Given the site's flat slope, its largely pervious and vegetated land cover, and the lack of any defined drainage channels, the calculated flow is likely to be distributed across multiple flow paths around the Project site and delivered to area street curbs (namely E. Mozart Avenue).

2.1.4 Receiving Water Quality

The San Francisco Bay RWQCB, which is responsible for the implementation of state and federal water quality protection statutes, regulations, and policies in the vicinity of the project site, implements the Basin Plan, a master policy document for managing water quality in the region (SFB RWQCB 2017). Several water bodies within the watershed are designated as "water quality-limited" for water quality impairments under the federal Clean Water Act (CWA) Section 303(d) (Table 2). Being "water quality-limited" means that a water body is "not reasonably expected to attain or maintain water quality standards" without additional regulation. The law requires that the U.S. Environmental Protection Agency develop total maximum daily loads[3] (TMDLs) for each impaired water body in the nation (described further below in Section 3, Regulatory Setting). The most recently approved Section 303(d) List

1 Hydromodification is a primary contributor to problems related to excessive sediment and altered steam flow dynamics (e.g., flow volumes and velocities), primarily due to impervious surfaces, mass grading, and/or poor road designs (both urban and rural/unpaved).

2 The Bay Area Hydrology Model is a continuous simulation hydrologic model which was created for use in the San Francisco Bay to meet the hydromodification requirements of the MRP.

3 A TMDL specifies the maximum amount of a pollutant a water body can receive and still meet water quality standards. A TMDL may also include a plan for bringing an impaired water body back within standards.

of Water Quality Limited Segments, as listed in the 2014/2016 Integrated Report (SWRCB 2020), lists both Los Gatos Creek and the Southern San Francisco Bay as impaired water bodies under Section 303(d) of the CWA.

As indicated in Table 3, Los Gatos Creek is identified as impaired for diazinon, and the Southern San Francisco Bay is listed as impaired for a number of pollutants originating from a multitude of urban, agricultural, and industrial/port sources. Diazinon, chlordane, DDT (Dichlorodiphenyltrichloroethane), dieldrin, and dioxins and furans are compounds that originate from pesticides, herbicides, insecticides, fungicides, and other agricultural chemicals historically used in the Santa Clara Valley. The EPA required manufacturers of pesticide products to phase out Diazinon by the late 1990s and other uses were phased out in the early 2000s. Polychlorinated biphenyls (PCBs) were once widely used as dielectric and coolant fluids in electrical apparatus and are a persistent organic pollutant that has caused adverse impacts on fish and wildlife. Mercury and selenium are naturally occurring metals that have accumulated at elevated levels in the San Francisco Bay through a combination of mining activities and natural sources. TMDLs have been adopted for diazinon, mercury, and PCBs, and other water quality issues (e.g., trash and suspended/dissolved solids) are being addressed through the provisions of the Municipal Separate Storm Sewer System (MS4) Permit.

Table 3
CWA Section 303(d) Impariments

Name	Pollutant/Stressor	Potential Sources	TMDL Status	Year
Los Gatos Creek	Diazinon	Source Unknown	Approved	2007
San Francisco Bay (South)	Chlordane	Source Unknown	Scheduled	2013
	DDT	Source Unknown	Scheduled	2013
	Dieldrin	Source Unknown	Scheduled	2013
	Dioxins	Source Unknown	Scheduled	2019
	Furans	Source Unknown	Scheduled	2019
	Invasive Species	Source Unknown	Scheduled	2019
	Mercury	Source Unknown	Approved	2008
	PCBs	Source Unknown	Approved	2010
	Selenium	Source Unknown	Scheduled	2021

Source: SWRCB 2020.
Notes: CWA = Clean Water Act; TMDL = total maximum daily load; DDT = Dichlorodiphenyltrichloroethane; PCBs = polychlorinated biphenyls.

2.2 Groundwater

The proposed project is located within the Santa Clara Subbasin (California Department of Water Resources [DWR] Basin No. 2-9.02) of the Santa Clara Valley Groundwater Basin as designated by the DWR (DWR 2019a). The DWR is currently in the process of evaluating and re-prioritizing[4] all of the groundwater basins across California. During the first phase of DWR's basin re-prioritization (finalized in January 2019) the Santa Clara Subbasin was designated a high priority ranking (DWR 2019b). The high-priority designation for the Santa Clara Subbasin is due primarily to the high number of public supply wells, the high population of the Subbasin, the percentage of public water supply sourced from groundwater (48%), and documented impacts including intrusion of seawater into the shallow aquifer and historic long-term decline in groundwater levels (DWR 2019b). The high-priority designation means it is subject

[4] DWR's priority rating is based on estimates of population density, anticipated growth, well density, the amount of irrigated agriculture, the degree to which water demands are met from wells (versus surface water), and the existence of documented impacts (e.g., overdraft) (DWR 2019b).

to the statewide requirements of the 2014 Sustainable Groundwater Management Act (SGMA). Local public agencies and groundwater sustainability agencies are required to develop and implement groundwater sustainability plans (GSPs) or alternatives to GSPs (alternative plans) for groundwater basins designated by DWR as medium and high priority.

The SCVWD has prepared an alternative plan that has been designed to be functionally equivalent to a GSP (SCVWD 2016). The City of Campbell receives its water supply from the San Jose Water Company (SJWC). SJWC obtains water from three major sources: groundwater, imported surface water, and local mountain surface water. Groundwater is pumped from over 100 wells that draw water from the Santa Clara Groundwater Basin. Groundwater accounts for approximately 40% of supply. Local surface water accounts for approximately 10% of supply. These sources are often blended together in the distribution system. Consequently, different sources are dispersed to the City from day to day as customer usage changes. According to the alternative plan prepared by Valley Water, the Santa Clara Groundwater Subbasin is currently in long-term balance, groundwater quality is overall very good (most public supply wells do not require any treatment), and the Subbasin is currently meeting sustainability goals and objectives (SCVWD 2016). Valley Water tracks the status of the basin on an annual basis by measuring conditions against measurable performance criteria (summarized in annual reports), and has committed to taking action should the basin show evidence in the future that it is not achieving sustainable management (SCVWD 2016).

Valley Water operates a groundwater monitoring well near the northwestern side of Los Gatos Creek approximately 0.5 miles northwest of the proposed project site (Well No. 08S01W03K013). Based on the groundwater level record of this well, which consists of monthly or quarterly readings between 1963 and the present, the shallowest recorded groundwater level was 14 feet below ground surface (bgs) in 1967, and the deepest recorded groundwater level was 83 feet bgs in 1964. The groundwater level throughout the period of record has remained relatively stable, with an average groundwater level of 29 feet bgs throughout the period. The fall 2019 groundwater level measurement was 25 bgs (DWR 2019a). Additionally, a nested/multi-completion well approximately 1.3 miles downstream of Well No. 08S01W03K013 on the east side of State Route 17 (Well No. 07S01W35L[013-017]) was completed in 2004 and has been monitored monthly for groundwater levels. For the top-screened interval of the well, the shallowest recorded groundwater level was 68 feet bgs in 2004, and the deepest recorded groundwater level was 168 feet bgs in 2014. The groundwater level throughout the period of record has remained relatively stable with highs and lows related to wet and dry periods, with an average groundwater level of 114 feet bgs throughout the period. The Fall 2019 groundwater level measurement at this well was 109 feet bgs (DWR 2019a).

Although the closest monitoring well (Well No. 08S01W03K013) is situated about 0.5 miles away from the project site, due to similarities in elevation and geology, it is likely that groundwater beneath the project site exists at similar depths, or deeper, since the site is located further away from Los Gatos Creek than the groundwater level monitoring well. Based on regional groundwater level contours, the groundwater gradient follows the topography along the broad alluvial plain, towards the north-northeast. The aforementioned groundwater monitoring data is consistent with a regional map (i.e., “Santa Clara County Depth to First Groundwater”) provided by Valley Water (2020) which identifies the site as being in a zone where groundwater exists at a depth of 20 to 30 feet below the ground surface.

2.3 Hydrologic Hazards

2.3.1 Flood History

Several major flood events have occurred in Santa Clara County, including in 1964, 1967, 1978, 1980, 1982, 1983, 1986, 1995, 1997, 1998, 2000, 2012 and 2017 (SCVWD 2017). These floods have affected different parts of Valley

Water's service territory, although Morgan Hill, Gilroy, and the communities in the eastern parts of the Santa Clara Valley are generally subject to greater impacts than the City of Campbell. The last regional flood event in 2017 caused the Los Gatos Creek to inundate parts of the Los Gatos Creek Trail but was limited to open space areas and low-lying roads along the creek corridor. Los Gatos Creek was one of the earliest creeks to be dammed, and the construction of Lexington Reservoir and James J. Lenihan Dam in the 1950s greatly reduced the frequency and severity of major flood events ever since. Valley Water (formerly the Santa Clara County Water District) is the primary water resources agency for Santa Clara County, California. It acts not only as the county's water wholesaler, but also as its flood protection agency and is the steward for its streams and creeks, underground aquifers, and district-built reservoirs. Valley Water has made progress in improving the channels as funds became available; as a result, flood damage has been reduced over the years.

2.3.2 Federal Emergency Management Agency Special Flood Hazard Areas

Flood zones delineated by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps are identified as Special Flood Hazard Areas (SFHAs) and "other areas of flood hazard." An SFHA is defined as the area that will be inundated by a flood event having a 1% chance of being equaled or exceeded in any given year. The 1% annual-chance flood is also referred to as the base flood or 100-year flood, and is the national standard used by all federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development. FEMA defines "other areas of flood hazard" as including areas with a 0.2% annual chance of flooding (i.e., the 500-year flood zone), and areas with reduced risk due to a levee. SFHAs are considered high-risk flood areas, whereas other areas of flood hazard are considered low- to moderate-risk areas.

The development footprint of the proposed project is not within a 100-year flood zone as identified by FEMA (FEMA 2020). As shown in Figure 3, the 100-year floodplain is confined to within the banks of Los Gatos Creek, and the Project site is located within Zone D (i.e., an "area of undetermined flood hazard"). Although FEMA has not determined the flood hazards on the project site, the designation is due to administrative rather than physical boundaries. Areas immediately to the south and east of the Project site, within the City of Los Gatos are zoned by FEMA as being within an area with a 0.2% annual chance of flooding (i.e., the 500-year flood zone) (FEMA 2020). Based on similarities in elevation and the FEMA mapping within the City of Los Gatos, it is possible that the Project area would be designated as being within the 500-year flood zone.

2.3.3 Other Flood Hazards (Dam Innundation, Sea-Level Rise, Tsunami, and Seiche)

The project site is not subject to sea-level rise, tsunami inundation, or seiche wave. The preconditions necessary for a project to be at risk of such hazards are that it be located within a reasonable distance and elevation relative to a coastline (for sea-level rise or seiche) or large body of water (for seiche waves). The project is located at an elevation of 275 - 280 feet amsl in elevation and is not adjacent to a large water body subject to seiche. Valley Water's percolation ponds adjacent to Los Gatos Creek could be subject to seiche waves during a regionally significant earthquake. However, because they exist at a lower elevation and downgradient from the Project site, they would not subject the site to seiche wave hazards.

As shown in Figure 3, the Project site is mapped as being within the dry-weather dam inundation zone for the Lenihan Dam and Lexington Reservoir (SCVWD 2016). Based on Valley Water's modeling, a failure of the dam would result in a flood arrival time of roughly 1 hour, with peak flow depths occurring only 20 minutes thereafter and

maximum flood depths of between 29 and 35 feet (SCVWD 2016). Given the project site is roughly 30 feet above the creek channel, dam failure could result in several feet of flooding on the project site.

Lenihan Dam and Lexington Reservoir do not have a history of dam failure; however, these dams are identified as having the potential to inundate habitable portions of the City of Campbell in the unlikely event of dam failure (City of Campbell 2017).

3 Regulatory Setting

3.1 Federal

3.1.1 Clean Water Act

The CWA (33 USC 1251 et seq.), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important sections of the act are as follows:

- CWA Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. California is required to establish TMDLs for each pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The impairments applicable to the project's receiving waters are described in Section 2.1.4, Physical Setting.
- CWA Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity which may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the act. The development footprint of proposed project does not contain potentially jurisdictional wetlands.
- CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and the nine RWQCBs, who have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges. The City operates under an MS4 Permit from the SFB RWQCB and all covered projects in the City are required to comply with the MS4 Permit requirement that addresses stormwater runoff discharges to a water of the United States (i.e., Los Gatos Creek and the southern San Francisco Bay).
- CWA Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the U.S. Army Corps of Engineers and the

U.S. Environmental Protection Agency. The development footprint of Project does not contain potentially jurisdictional wetlands.

Numerous agencies have responsibilities for administration and enforcement of the CWA. At the federal level this includes the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the major federal land management agencies such as the U.S. Forest Service and the Bureau of Land Management. At the state level, with the exception of tribal lands, the California Environmental Protection Agency and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA.

3.1.2 Federal Antidegradation Policy

The federal antidegradation policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and the water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

3.1.3 National Flood Insurance Program

The National Flood Insurance Act of 1968 established the National Flood Insurance Program to provide flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The National Flood Insurance Act also required the identification of all floodplain areas within the United States and the establishment of flood-risk zones within those areas. FEMA is the primary agency responsible for administering programs and coordinating with communities to establish effective floodplain management standards. FEMA is responsible for preparing the Flood Insurance Rate Maps that delineate the areas of known special flood hazards and their risk applicable to the community. The program encourages the adoption and enforcement by local communities of floodplain management ordinances that reduce flood risks. In support of the program, FEMA identifies flood hazard areas throughout the United States on FEMA flood hazard boundary maps.

3.2 State Regulations

3.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (codified in the California Water Code Section 13000 et seq.) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter-Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater in addition to federal waters. It is implemented by the SWRCB and the nine RWQCBs. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and

cleanup where discharges or threatened discharges of waste to waters of the state[5] could cause pollution or nuisance, including impacts to public health and the environment.

The act requires a Report of Waste Discharge for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. California Water Code Section 13260(a) requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the state, file a Report of Waste Discharge with the applicable RWQCB. For discharges directly to surface water (waters of the United States), an NPDES permit is required, which is issued under both state and federal law; for other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as groundwater and isolated wetlands), Waste Discharge Requirements (WDRs) are required and are issued exclusively under state law. WDRs typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits.

3.2.2 Water Quality Control Plan for the San Francisco Bay Basin

The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement basin plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The San Francisco Bay RWQCB is responsible for the protection of the beneficial uses of waters draining to the San Francisco Bay, including the project site. The Basin Plan designates beneficial uses, establishes water quality objectives aimed at preserving beneficial uses, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code Sections 13240–13247) (SFB RWQCB 2017). The beneficial uses for Los Gatos Creek consist of municipal and domestic supply (MUN), freshwater replenishment (FRSH), groundwater recharge (GWR), cold freshwater habitat (COLD), preservation of rare and endangered species (RARE), warm freshwater habitat (WARM), wildlife habitat (WILD), water contact recreation (REC-1), and non-water contact recreation (REC-2) (SFB RWQCB 2017). Potential beneficial uses consist of fish migration (MIGR) and fish spawning (SPWN) (SFB RWQCB 2017).

To enable efficient permitting under both the CWA and the Porter-Cologne Act, the SWRCB and the RWQCBs run permit programs that group similar types of activities that have similar threats to water quality. These general permit programs include the NPDES MS4 Permit, the construction general permit, the industrial general permit and other general permits for low-threat discharges. The construction stormwater program, the small MS4 permit program, and the general permit for low-threat discharges are administered by the SWRCB, while other general WDRs are administered by the San Francisco Bay RWQCB. Table 4 lists the water-quality-related permits that would apply to the project, each of which is further described below. General WDRs and NPDES permits contain effluent limitations that may be stricter than basin-wide water quality objectives, because they regulate specific categories of discharge and are designed to limit the cumulative effects of development over broad areas.

[5] "Waters of the state" are defined in the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050[e]).

Table 4
State and Regional Water Quality-Related Permits and Approvals

Program/Activity	Order Number/NPDES Number	Permit Name	Affected Area
Construction Stormwater Program	2009-0009-DWQ/ CAS000002, as amended	NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)	Statewide
Municipal Stormwater Program	RWQCB Order No. R2-2015-0049, as amended	Waste Discharge Requirements for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4 Permit)	All regulated MS4 systems; new development and redevelopment projects within the City of Campbell
Temporary/Low Volume Dewatering[1]	SWRCB Water Quality Order 2003-0003-DWQ	Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality	Statewide

Notes:
1 If any dewatering is required.
NPDES = National Pollutant Discharge Elimination System; RWQCB = Regional Water Quality Control Board; SWRCB = State Water Resources Control Board.

3.2.3 General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities

For stormwater discharges associated with construction activity in the State of California, the SWRCB has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (SWRCB Order 2009-0009-DWQ, as amended) to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects in which construction activity disturbs 1 acre or more of soil. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling and excavation. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP), which would include and specify water quality BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as defined by the SWRCB. The project applicant must submit a notice of intent to the SWRCB to be covered by an NPDES permit and must prepare the SWPPP prior to the beginning of construction.

Various levels of soil disturbances associated with project construction are anticipated to occur over the majority of project site, which has a net area of 2.93 acres and a gross area (which includes work within the public street ROW) of 3.15 acres. Therefore, the project would require coverage under the Construction General Permit.

3.2.4 San Francisco Bay Region Municipal Regional Stormwater NPDES Permit

Pursuant to Section 402 of the CWA and the Porter-Cologne Act, municipal stormwater discharges in the City are regulated under the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP), Order No. R2-2015-0049, NPDES Permit No. CAS612008, adopted November 18, 2015. The most relevant requirement that pertains to the project is Provision C.3.

MRP Provision C.3 addresses post-construction stormwater management requirements for new development and redevelopment projects. Because the project would create or replace 10,000 square feet or more of impervious surface, it is subject to the MRP. Currently, the City requires project applicants to install hydrodynamic devices or other BMPs to remove pollutants such as floating liquids and solids, trash and debris, and coarse sediment from stormwater runoff, and to show the locations of such controls on plans submitted with the building permit application. In addition, the City requires implementation of low impact development (LID) strategies, preventative source controls, and additional stormwater treatment measures to minimize the discharge of pollutants in stormwater runoff and non-stormwater discharge, as well as prevention of increase in runoff flows. The MRP requires that LID methods shall be the primary mechanism for implementing such controls. The City and Santa Clara Valley Urban Runoff Pollution Prevention Program C.3 requirements require the project to treat 100% of the stormwater runoff with LID treatment measures.

The project is also subject to hydromodification requirements per the Santa Clara County C.3 technical guidance document due to the fact that the impervious area added or replaced is more than 1 acre and because the catchment area has less than 65% imperviousness (Schaaf & Wheeler Consulting Civil Engineers 2019). The purpose of this provision is to place limits on increases in runoff peak flow, duration and volume where such increases may cause increased erosion of creek beds and banks, silt pollutant generation, or other impacts to beneficial uses. The hydromodification requirements in the MRP and Attachment F can be summarized as follows:

- Increases in runoff peak flow, volume, and duration shall be managed for all projects that create and/or replace 1 acre or more of impervious surface;
- Post-project runoff rates and durations shall not exceed estimated pre-project rates and durations;
- These conditions apply to areas where such increases in runoff flow or volume can cause increased erosion of creek beds and banks (as shown on hydromodification applicability maps).
- hydromodification requirements do not apply to projects that discharge to hardened or tidally-influenced portions of channels, where increased discharges present minimal potential for erosion or other impacts to beneficial uses.

3.2.5 Dam Safety Programs

Since 1929, the State of California has supervised all non-federal dams in California through the Dam Safety Program under the jurisdiction of the Department of Water Resources, Division of Safety of Dams (DSOD). The DSOD came into existence as a direct result of the failure of St. Francis Dam in southern California in 1928, causing the deaths of more than 450 people. The DSOD engineers and engineering geologists review and

approve plans and specifications for the design of dams and oversee their construction to ensure compliance with the approved plans and specifications. Reviews include site geology, seismic setting, site investigations, construction material evaluation, dam stability, hydrology, hydraulics, and structural review of appurtenant structures. In addition, the DSOD engineers inspect over 1,200 dams on a yearly schedule to ensure they are performing and being maintained in a safe manner.

Additionally, the Valley Water's Dam Safety Program recognizes the catastrophic nature of potential dam failure and operates a comprehensive dam safety program to protect the public. The Dam Safety Program includes four main components:

1. Periodic special engineering studies
2. Surveillance and monitoring program
3. Routine inspections and maintenance activities
4. Maintaining emergency response and preparedness plans

Through the water district's dam safety program, it ensures the continued operation of its 10 major dams within the county. The water district also works closely with state and federal regulators, and downstream emergency response partners (City of Campbell 2017).

3.2.6 Sustainable Groundwater Management Act

The SGMA is a package of three bills (Assembly Bill 1739, Senate Bill 1168, and Senate Bill 1319) that provides local agencies with a framework for managing groundwater basins in a sustainable manner. The SGMA establishes standards for sustainable groundwater management, roles and responsibilities for local agencies that manage groundwater resources, and priorities and timelines to achieve sustainable groundwater management within 20 years of adoption of a GSP. Central to the SGMA are the identification of critically over-drafted basins and the prioritization of groundwater basins, establishment of groundwater sustainability agencies, and preparation and implementation of GSPs for medium-priority, high-priority and critically overdrafted basins. Groundwater sustainability agencies must be formed by June 30, 2017. GSPs must consider all beneficial uses and users of groundwater in the basin, as well as include measureable objectives and interim milestones that ensure basin sustainability. A basin may be managed by a single GSP or multiple coordinated GSPs.

At the state level, DWR has the primary role in the implementation, administration, and oversight of the SGMA, with the SWRCB stepping in should a local agency be found to not be managing groundwater in a sustainable manner. DWR recently approved regulations and guidelines for implementation of the SGMA. Under SGMA Section 10733.6, a local entity (or entities) can pursue an alternative to a GSP provided that certain sustainability objectives are met. An alternative to a GSP may include "[a]n analysis of basin conditions that demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years" (California Water Code Section 10733.6[b][3]). In response to SGMA, Valley Water, which has elected to become the groundwater sustainability agency for the Santa Clara Valley and Llagas Subbasins, prepared the 2016 Groundwater Management Plan to serve as the alternative to a GSP, per the requirements of California Water Code Section 10733.6(b)(3).

3.3 Local Regulations

3.3.1 Santa Clara Valley Urban Runoff Pollution Prevention Program Requirements

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) is an association of 15 municipal agencies in the Santa Clara Valley that discharge stormwater to the lower South San Francisco Bay. Member agencies (Co-permittees) include the cities of Campbell, Cupertino, Los Altos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, and Sunnyvale, the towns of Los Altos Hills and Los Gatos, the County of Santa Clara, and Valley Water. The SCVURPPP and member agencies implement pollution prevention, source control, monitoring and outreach programs aimed at reducing pollutants in stormwater runoff, and protecting water quality and beneficial uses of the San Francisco Bay and Santa Clara Valley creeks and rivers. The SCVURPPP also promotes valuing stormwater as an important resource. The member agencies of the SCVURPPP share a common NPDES permit, i.e., the MRP, to discharge stormwater to the South San Francisco Bay. The SCVURPPP incorporates regulatory, monitoring and outreach measures aimed at reducing pollution in urban runoff to the "maximum extent practicable" to improve the water quality of South San Francisco Bay and the streams of Santa Clara Valley.

3.3.2 City of Campbell Stormwater Regulations

In order to comply with Provision C.3 of the MRP, project applicants are required to submit a Stormwater Management Plan (SWMP) with building plans, to be reviewed and approved by the City of Campbell's Public Works Department. The SWMP must be prepared under the direction of and certified by a licensed and qualified professional, which includes civil engineers, architects, or landscape architects. Conditions of approval for development projects include the installation and maintenance of Best Management Practices (BMPs) for site design and stormwater treatment, which must be designed per approved numeric sizing criteria.

Each development project mandated to implement stormwater treatment will also require a Certification of Engineered Stormwater Treatment for New and Redevelopment Projects. The Certification of Engineered Stormwater Treatment for New and Redevelopment Projects may be obtained at the City's Public Works Department. Owners of properties with treatment BMPs will also be required to certify ongoing operation and maintenance by filing and recording a covenant submitted to the City.

In addition to implementing LID measures, the MRP also includes a provision to mitigate for hydromodification caused by increases in the volume and frequency of runoff discharges to creeks and streams. Generally, projects in highly developed urban areas are less likely to cause hydromodification. Consequently, projects located in catchment/watersheds that are already more than 65 percent impervious are exempt from this requirement. For projects in these areas that create or replace one acre or more of impervious surfaces, flow controls are required so that post-project runoff does not exceed pre-project runoff rates and durations. As noted above, the Project is subject to hydromodification requirements of the MRP (Provision C.3.g).

3.3.3 City of Campbell General Plan Policies

The existing City of Campbell General Plan identifies the following policies related to hydrology and water quality:

Open Space, Parks and Public Facilities Element

GOAL OSP-9: Properly functioning storm drainage system.

> Policy OSP-9.1 - Drainage Facilities: Ensure that drainage facilities convey storm runoff without polluting local watercourses.
>
> Policy OSP-9.2 - NPDES: Comply with the federal Clean Water Act requirements for National Pollutant Discharge Elimination System permits.

Conservation and Natural Resources Element

GOAL CNR-5: Promote high-quality drinking, surface and ground water Citywide.

> Policy CNR-5.1 - Water Quality Enhancement: Enhance the quality of surface water and groundwater resources and prevent their contamination.

Health and Safety Element: Flooding

> Policy HS-5.1: Flood Regulations: Enforce flood regulations during the development review process.

3.3.4 City of Campbell Municipal Code

Besides the General Plan, the City of Campbell Municipal Code is the primary tool that guides development in the city. The City's Municipal Code identifies land use categories, site development regulations, and other general provisions that ensure consistency between the General Plan and proposed development projects. The following four chapters of the City of Campbell's Municipal Code contain directives pertaining to stormwater:

- **Chapter 14.02 – Stormwater Pollution Control**. The purpose of this chapter is to provide minimum requirements designed to control the discharge of pollutants into the City's municipal storm drain system and to assure that discharges from the City's storm drain system comply with applicable provisions of the Federal CWQ and the current NPDES Permit.

- **Chapter 20.56 – Drainage and Sewer Facilities**. Prior to filing a final map or parcel map, the project applicant must pay fees for defraying the costs of constructing planned drainage facilities.

- **Chapter 20.80 – Environmental Impact and Grading and Erosion Control**. Every parcel or tentative map filed with the City is conditional on compliance with requirements for grading and erosion control, including the prevention of sediment or damage to off-site property.

- **Chapter 21.22 – Flood Damage Prevention**. The purpose of this chapter is to minimize public and private losses due to flood conditions. A development permit must be obtained and reviewed by the Director of Public Works before new construction, substantial improvements, or development occurs within any area of a special flood hazard area (SFHA). The chapter also contains construction standards that must be implemented within the 100-year floodplain to protect buildings and improvements from flood damage.

- **Chapter 21.26 – Landscaping Requirements**. This chapter implements the California Water Conservation in Landscaping Act of 2006 by establishing new water-efficient landscaping and irrigation requirements.

4 Impact Analysis

4.1 Method of Analysis

Impacts with respect to hydrology and water quality are assessed by comparing conditions expected under the proposed project to the existing environmental setting described above. Post-project hydrology is assessed using the HMP, grading and drainage plan, and the stormwater management plan prepared for the proposed project by the applicant's engineering consultants (Schaaf & Wheeler Consulting Civil Engineers 2019, CEA 2019a, CEA 2019b). The analysis considers impacts on hydrology, water quality, flooding, and groundwater resources in the context of broader issues and concerns affecting the region. The study area for surface water hydrology is the Los Gatos Creek subwatershed (see Table 1), and the study area for groundwater resources is the Santa Clara Groundwater Subbasin of the Santa Clara Groundwater Basin. Actions required to implement the City's General Plan policies related to hydrology and water quality, as enforced through the City of Campbell Municipal Code and the development approval process, are considered as components of the project in the evaluation of impacts.

4.2 Thresholds of Significance

The City of Campbell uses the questions in Appendix G of the CEQA Guidelines as the thresholds of significance for projects requiring environmental review under CEQA (14 CCR 15000 et seq.). Therefore, according to Appendix G, a significant impact would occur if development of the Project would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - result in substantial erosion or siltation on or off site;
    - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    - create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    - impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.3 Criteria not Applicable to the Proposed Project

Due to the location and characteristics of the proposed project, certain elements of the significance criteria above are not applicable and therefore are not considered potential impacts. These criteria elements are addressed briefly below and are not discussed further in this document.

Alteration of a Stream or River

The proposed project would not alter the course of a stream or river because none are encompassed by the development footprint of the proposed project. Therefore, Impact HYD-3 addresses the potential for alteration of existing drainage patterns through the increases in the rate or volume of runoff from impervious surfaces, but not through modification of the course of a stream or river.

Coastal Flooding, Tsunami, or Seiche

The preconditions necessary for a project to be at risk of hazards due to coastal flood (as exacerbated by sea-level rise), tsunami, or seiche require a reasonable distance and elevation relative to a coastline (for sea-level rise or seiche) or large body of water (for seiche waves). The project is located at 275 feet amsl in elevation and is not next to a large water body subject to seiche. Therefore, there is no impact (or risk) associated with a coastal flooding, tsunami, or seiche and this issue is not further addressed.

4.4 Impacts Analysis

Impact HYD-1: Would the project violate water quality standards or waste discharge requirements or degrade surface or ground water quality?

Construction

The proposed project would involve approximately 2.93 acres of soil disturbance over the course of the construction phases of the Project, which would include demolition, grading and utility installations, and two phases of home construction. The most intensive soil disturbance would occur during site preparation and earthmoving activities associated with installation of underground utilities, foundation and building pad construction, and road and streetscape construction. During this period, soil erosion may result in discharges of sediment-laden stormwater runoff into nearby receiving waters. As discussed in the setting, existing runoff from the project site may pond on site, run into the City's storm drain system along E. Mozart Avenue, and eventually (indirectly) flow into Los Gatos Creek.

The primary potential pollutant associated with construction activity is sediment (i.e., high turbidity) generated from site preparation and grading activities. Although Los Gatos Creek is not listed under CWA Section 303(d) as impaired for sedimentation/siltation, a measurable increase in sedimentation/siltation from construction activities on the site could temporarily violate Basin Plan objectives, if not properly controlled. In addition to sediment, other pollutants associated with construction activity could include heavy metals, oil/grease, fuels, demolition debris and trash, and other pollutants from accidental spills or releases of refuse, paints, solvents, sanitary wastes, and concrete curing compounds. Without adequate precautions, wind and/or rain events that occur during construction

activities could generate pollutants and/or mobilize sediment such that it contributes to water quality degradation of receiving waters and/or violates Basin Plan objectives.

However, standard construction management practices, as required through the Campbell Municipal Code and the statewide Construction General Permit, would substantially minimize construction-related impacts on water quality. Campbell Municipal Code section 20.80.020 (grading and erosion control) requires approval of subdivision maps to be conditioned on implementation of appropriate grading practices and erosion controls, including the prevention of sedimentation or damage to off-site property. As described in Section 3.2.3, the Project is subject to the Construction General Permit, which would require implementation of a SWPPP to address potential construction-related impacts on water quality. The SWPPP must specify the location, type, and maintenance requirements for BMPs necessary to prevent stormwater runoff from carrying construction-related pollutants into the City's municipal storm drain system, Los Gatos Creek, and/or the underlying groundwater basin. BMPs must be implemented to address potential release of fuels, oil, and/or lubricants from construction vehicles and equipment (e.g., drip pans, secondary containment, washing stations); release of sediment from material stockpiles and other construction-related excavations (e.g., sediment barriers, soil binders); and other construction-related activities with the potential to adversely affect water quality. The number, type, location, and maintenance requirements of BMPs to be implemented as part of the SWPPP depend on site-specific risk factors such as soil erosivity, construction season/duration, and receiving water sensitivity.

SWPPPs must be developed and implemented by a Construction General Permit Qualified SWPPP Developer (QSD)/Qualified SWPPP Practitioner (QSP). The QSD/QSP is tasked with determining the receiving water risks (including beneficial uses and CWA Section 303d impairments), monitoring site activities that could pose risks to water quality, and developing a comprehensive strategy to control construction-related pollutant loads in site runoff. Based on the review of Appendix 1 of the Construction General Permit (risk determination worksheet)[6], the site's sediment risk is low whereas the receiving water risk (i.e., Los Gatos Creek) is high. This means the SWPPP will need to comply with Risk Level 2 requirements (the Construction General Permit uses a 3-tiered risk spectrum in setting minimum standards for development/implementation of SWPPPs). Minimum standard BMPs include erosion and sediment controls; site management/ housekeeping/waste management; management of non-stormwater discharges; run-on and runoff controls; and BMP inspection, maintenance, and repair activities. A rain event action plan must also be prepared by the QSD/QSP to outline the procedures to prepare the construction site for rain events and minimize the potential release of construction-related contaminants.

The following list includes examples of treatment control BMPs commonly employed during construction, although these could vary based on the nature of construction activities, the characteristics of the site, and the existing receiving waters impairments (these features would appear as notes on any final design plans):

- Silt fences installed along limits of work and/or the construction site
- Stockpile containment (e.g., visqueen, fiber rolls, gravel bags)
- Exposed soil stabilization structures (e.g., fiber matrix on slopes and construction access stabilization mechanisms)
- Street sweeping

[6] https://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

- Tire washes for equipment
- Runoff control devices (e.g., drainage swales, gravel bag barriers/chevrons, velocity check dams) and slope protection
- Drainage system inlet protection
- Wind erosion (dust) controls
- Tracking controls
- Prevention of fluid leaks (inspections and drip pans) from vehicles
- Materials pollution management
- Proper waste management (e.g., concrete waste management)
- Regular inspections and maintenance of BMPs

Based on the local groundwater levels described in the setting (i.e., 20 – 30 feet bgs), subsurface excavations and/or utility trenches are not expected to encounter groundwater. Therefore, water quality issues associated with groundwater dewatering discharges are not anticipated.

The standard requirements contained in a SWPPP, and enforced through the Campbell Municipal Code Chapter 14.02 (Stormwater Pollution Control) and Chapter 20.80 (Environmental Impact and Grading and Erosion Control), are sufficient to address a project's potential to violate water quality standards or waste discharge requirements during construction. The construction-related impact of the project on water quality would be **less than significant**, because existing permitting requirements and conditions of approval are sufficient to avoid water quality degradation, meet water quality standards and Basin Plan objectives, and prevent adverse effects on beneficial uses.

Operation

Constituents found in urban runoff vary because of differences in rainfall intensity and occurrence, geographic features, the land use of a site, and vehicle traffic and percent of impervious surface. In the Santa Clara Valley, there is a natural weather pattern of a long dry period from May to October. During this seasonal dry period, pollutants contributed by vehicle exhaust, vehicle and tire wear, crankcase drippings, spills, and atmospheric fallout accumulate on roadways, driveways, and parking lots within the urban watershed. Precipitation during the wet season (which typically spans from November to April) washes these pollutants into the stormwater runoff, which can result in elevated pollutant concentrations, particularly in the initial wet weather runoff (i.e., "first flush"), but also throughout the wet season. Under existing conditions, the Project site consists of four single-story homes fronting E. Mozart Avenue and several outbuildings located in a large area behind the existing homes with storage sheds, trailers, containers, carports/garages, and other materials/equipment, which is exposed to stormwater and discharged to the municipal storm drain system without any form of retention or treatment.

Implementation of the proposed project would include the development of impervious surfaces, including roofs, streetscapes, and structures that—in the absence of adequate design measures—could impede water infiltration and contribute to increased water runoff rates. Increased water runoff rates and/or volumes are a water quality

concern because they can gather potential pollutants such as sediment, metals, nutrients, bacteria, oil, grease, and organic compounds sometimes associated with residential uses (e.g., fluid leaks from parked cars, improper refuse storage, landscaping chemicals, pet waste, etc.). Table 5 provides a comparison of pre- and post-Project land cover, indicating an increase in impervious surface coverage from 10% presently to 53% upon full buildout of the Project. The increase in impervious surface associated with the Project would have been 5% greater, were it not for the use of permeable pavers for residential driveways.

Table 5
Comparison of Pre- and Post-Project Land Cover

Description	Pre-Project Condition in acres (% of total)	Post-Project Condition in acres (% of total)
Pervious Areas		
Landscape	1.32 (45%)	1.21 (41%)
Unpaved Driveway	1.32 (45%)	–
Permeable Pavers	–	0.16 (5%)
Subtotal	*2.64 (90%)*	*1.38 (47%)*
Impervious Areas		
Roof	0.22 (8%)	0.9 (31%)
Paved Driveway	0.07 (2%)	–
Roads	–	0.39 (13%)
Sidewalks and Streets	–	0.15 (5%)
Parking	–	0.12 (4%)
Subtotal	*0.29 (10%)*	*1.55 (53%)*
TOTAL	**2.93**	**2.93**

Source: Schaaf & Wheeler Consulting Civil Engineers 2019.

The Project site would be re-graded such that stormwater runoff from all portions of the site would be directed to area drains and curb inlets into the on-site drainage system, which would carry runoff to a southeasterly extension of the municipal storm drain line along E. Mozart Avenue (Figure 4) (CEA 2019b). Water quality design features included in Project plans consist of an inline Continuous Deflection Separation (CDS) Unit (also referred to as a hydrodynamic separator) and a storm capture infiltration chamber designed to retain 10,920 cubic feet, in accordance with MRP requirements (described in Section 3.2.4). The purpose of the CDS unit is to pre-screen flows for floatable, trash and suspended solids. The infiltration chamber was designed based on the infiltration rate of 3 inches/hour determined through geotechnical testing of the project site, and would be 8 feet deep with an area of 1,365 square feet. It would allow infiltration of stormwater generated from Project-related increases in impervious surfaces to recharge the underlying groundwater aquifer. As shown in Figure 4, these features would treat and retain stormwater runoff from all parts of the developed Project site prior to discharge into the municipal storm drain system. In addition to these design features, the Project's Stormwater Management Plan includes pollutant source control measures consisting of 1) stenciling "no dumping – flows to bay" on all storm inlets, 2) placing splashblocks beneath all roof drains in a location that is away from building foundations and near unpaved areas where practical, and 3) sweeping sidewalks regularly to minimize the accumulation of litter and debris.

As part of the Project's HMP, Schaaf & Wheeler Consulting Civil Engineers (2019) determined the mitigated post-project flow rates for the 2-, 5- and 10-year storm events using the BAHM to be 0.47, 1.26, and 1.4 cfs, respectively. Table 6 provides a comparison of pre-Project and mitigated post-Project flow rates, and indicates that flow rates

would decrease relative to pre-project conditions, effectively avoiding hydromodification impacts to receiving waters.

Table 6
Flow Rates (cubic-feet per second)

Flow Frequency	Pre-Project	Mitigated Post-Project
2 Year	0.99	0.47
5 Year	1.40	1.26
10 Year	1.66	1.40

Sources: Schaaf & Wheeler Consulting Civil Engineers 2019.

Review of the Project's HMP, grading and drainage plan, and the stormwater management plan indicate that the Project's proposed stormwater design is feasible and effective in meeting the standards, performance criteria and numeric sizing requirements contained in the MS4 Permit, the SCVURPPP C.3 Stormwater Handbook, and Chapter 14.02 of the Campbell Municipal Code (described in Section 3.9.3, Regulatory Setting). These plans would be reviewed and approved by the City of Campbell's Public Works Department as a condition of tentative map approval, and the applicant would be required to certify appropriate ongoing operation and maintenance of the proposed site design and stormwater treatment BMPs by filing and recording a covenant submitted to the City. Impacts associated with Project operation on water quality would therefore be **less than significant**, because existing permitting requirements and conditions of approval are sufficient to avoid water quality degradation, meet water quality standards and Basin Plan objectives, and prevent adverse effects on beneficial uses.

Mitigation Measures

None required.

Impact HYD-2: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The project does not propose any on-site groundwater wells, nor would it indirectly result in the off-site construction of groundwater wells. The regional static groundwater level underlying the proposed project is estimated to be between 20 and 30 feet bgs, based on regional monitoring (DWR 2019a). Therefore, construction excavations are not anticipated to intercept the groundwater table. Although the project would include impervious surfaces that impede groundwater recharge, runoff from those impervious surfaces would be directed to a subsurface infiltration system designed to promote recharge of the underlying aquifer. Therefore, potential impacts to groundwater supplies or to sustainable groundwater management would be limited to the indirect impacts from the water demand for the proposed project.

The water demand for the proposed project would be served by SJWC. SJWC has a large 139-square-mile service area consisting of 225,299 municipal connections that serves a population of 983,000 people (SJWC 2016). On average, groundwater consists of one third of the SJWC's water supply portfolio; for the 5-year period between 2011 and 2015, SJWC has supplied between 12,346 and 18,804 acre-feet of groundwater to its service area (SJWC 2016). The amount of groundwater utilized depends on the availability of local surface water supplies and the amount available for purchase from water wholesalers, which, for the area, consists of Valley Water. Groundwater use increases during drought periods to compensate for the loss of surface water availability. The 2015 Urban

Water Management Plan incorporates land use and population projections in its water supply reliability and water shortage contingency planning.

Because the proposed project does not involve a regional population increase sufficient to affect the growth assumptions or methodology of the SJWC's 2015 UWMP, the available water supply would be sufficient to serve the proposed project (SJWC 2018). Although the Project would change the zoning from R-1-6 (single family residential with a 6,000 square foot lot size minimum) to Planned Development of 25 units, the overall use (residential) remain the same, albeit with a moderate increase in density. However, the increase in water demand associated with the Project is not expected to be substantial, given the use of water efficient fixtures and updated plumbing codes, and implementation of the City's water-efficient landscape ordinance (Campbell Municipal Code Chapter 21.26). The conclusions of the UWMP regarding the sufficiency of future water supplies and the efficacy of water conservation programs and drought contingency planning would be unaffected by the proposed project. As indicated in Section 2.2, Valley Water monitors the Santa Clara Subbasin for groundwater level trends. On average, groundwater supplies and groundwater levels have remained stable. Given the proposed project would consist of only 25 water supply connections out of SJWC's 225,299 municipal connections, it would have a negligible and less-than-significant impact with respect to the sustainable management of the groundwater basin.

Mitigation Measures

None required.

Impact HYD-3: Would the project substantially alter the existing drainage pattern of the site or area through the addition of impervious surfaces resulting in erosion or siltation on- or off-site; increasing the rate or amount of surface runoff resulting in flooding on- or off-site; contributing runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide polluted runoff; or impede or redirect flood flows?

Alterations to drainage patterns would be limited to increases in the rate and volume of runoff associated with impervious surfaces. As discussed in Impact HYD-1 and shown in Table 5, the project will be developed with approximately 1.55 acres of impervious surfaces, resulting in an impervious percentage of 53% compared to 10% under existing conditions. Increases in the rate and volume of storm runoff can be associated with exceedance of local storm drain capacity, increases in on- or off-site flooding, and/or hydromodification impacts to receiving waters, which include increased bank erosion or contribution of site-related pollutants. Because the project would not alter the course of a stream or river and is not located within the SFHA of Los Gatos Creek, it would not impede or redirect flood flows. Potential impacts associated with increases in the rate and/or volume of runoff produced by the project are addressed below.

Substantial Erosion or Siltation On or Off Site

As discussed under Impact HYD-1, the proposed project would be constructed to capture, store and infiltrate runoff from the site in a subsurface infiltration system designed to meet the requirements of the MS4 Permit and the SCVPPP C.3 Stormwater Handbook. Because the increase in runoff produced from site development would be routed underground, there would be a **less than significant** impact with regard to increased erosion or siltation on or off site.

Increases in On- or Off-Site Flooding

Because the development footprint of the project is not located within a FEMA SFHA, the project would not result in increases in on- or off-site riverine flooding.

However, the project site is located within the dam inundation zone for the Lenihan Dam and Lexington Reservoir (SCVWD 2016). Based on Valley Water's modeling, a failure of the dam would result in a flood arrival time of roughly 1 hour, with peak flow depths occurring only 20 minutes thereafter and maximum flood depths of between 29 and 35 feet (SCVWD 2016). Given the project site is roughly 30 feet above the creek channel, dam failure could result in several feet of flooding on the project site.

The Lexington Reservoir and Elsman Lake are under the jurisdiction of the DSOD. The dams have been assessed for seismic stability and have been deemed capable to withstand the maximum credible earthquake. The probability of dam failure is extremely low and the City of Campbell and Santa Clara County have never been impacted by a major dam failure. Dams in California are continually monitored by various governmental agencies, including the DSOD, which conducts inspections twice a year and reviews all aspects of dam safety. Dam owners are also required to maintain Emergency Action Plans (EAPs) that include procedures for damage assessment and emergency warnings. In addition, Valley Water addresses the possibility of dam failure in its Hazard Mitigation Plan, which also provides emergency response actions (SCVWD 2017). Furthermore, in the extremely unlikely event of a catastrophic flood of this nature, development of the Project as proposed does not increase the severity or extent of the flooding that dam failure would produce relative to off-site properties or the general public.

Therefore, implementation of the proposed Project would not expose people or structures to a significant risk of loss, injury, or death in the case of dam failure and impacts are considered to be **less than significant**.

Stormwater Drainage System Capacity

As discussed under Impact HYD-1, the proposed project would be constructed with a subsurface infiltration system designed to meet the requirements of the MS4 Permit and the SCVPPP C.3 Stormwater Handbook. The underground chambers have a combined 10,920 cubic feet cubic feet of storage capacity, which is sufficient to match (and actually reduces) the pre-Project runoff rate for the 10-year peak flow (Schaaf & Wheeler Consulting Civil Engineers, 2019). Under existing conditions, runoff from the site is carried untreated and unstored to surface street curbs and eventually to the storm drain along E. Mozart Avenue. For these reasons, the impact of the project on existing stormwater drainage system capacity would be **less than significant**.

Mitigation Measures

None required.

Impact HYD-4: Would the project release pollutants during flooding?

The project site would be subject to flooding only in a highly unlikely, catastrophic scenario as described under Impact HYD-3 (Increases in On- or Off-Site Flooding). Because the project consists of single-family residences (as opposed to industry or businesses that store appreciable quantities of hazardous materials and/or wastes), the risk of releasing pollutants during such flooding would be low. The Project site may store small quantities of household hazardous wastes or e-wastes, but such wastes would be stored in interior/enclosed spaces and would not be released in a catastrophic flood scenario. Similarly, solid waste (i.e., trash bins) would be stored in an

enclosed space that would minimize the risk of release during a dam failure inundation. For these reasons the impact would be **less than significant**.

Mitigation Measures

None required.

Impact HYD-5: Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As discussed under Impact HYD-1, the project would comply with applicable regulations and permits designed to comply with the Basin Plan. The SWPPP and stormwater management plan to be developed and implemented in compliance with the Campbell Municipal Code, Construction General Permit, and MRP would be effective at meeting water quality objectives of the Basin Plan. As discussed under Impact HYD-2, Valley Water is currently achieving sustainable groundwater management under an alternative GSP submittal (SCVWD 2016). For the reasons discussed therein, the groundwater demand of the project would not have an appreciable impact on sustainable management of groundwater within the Santa Clara Subbasin. Therefore, the impact of the project on water quality and groundwater management plans would be **less than significant**.

Mitigation Measures

None required.

5 Mitigation, Monitoring and Reporting Program

Because project does not result in significant impacts on hydrology and water quality, no mitigation measures are required. Accordingly, no Mitigation, Monitoring and Reporting Program elements are recommended for hydrology and water quality.

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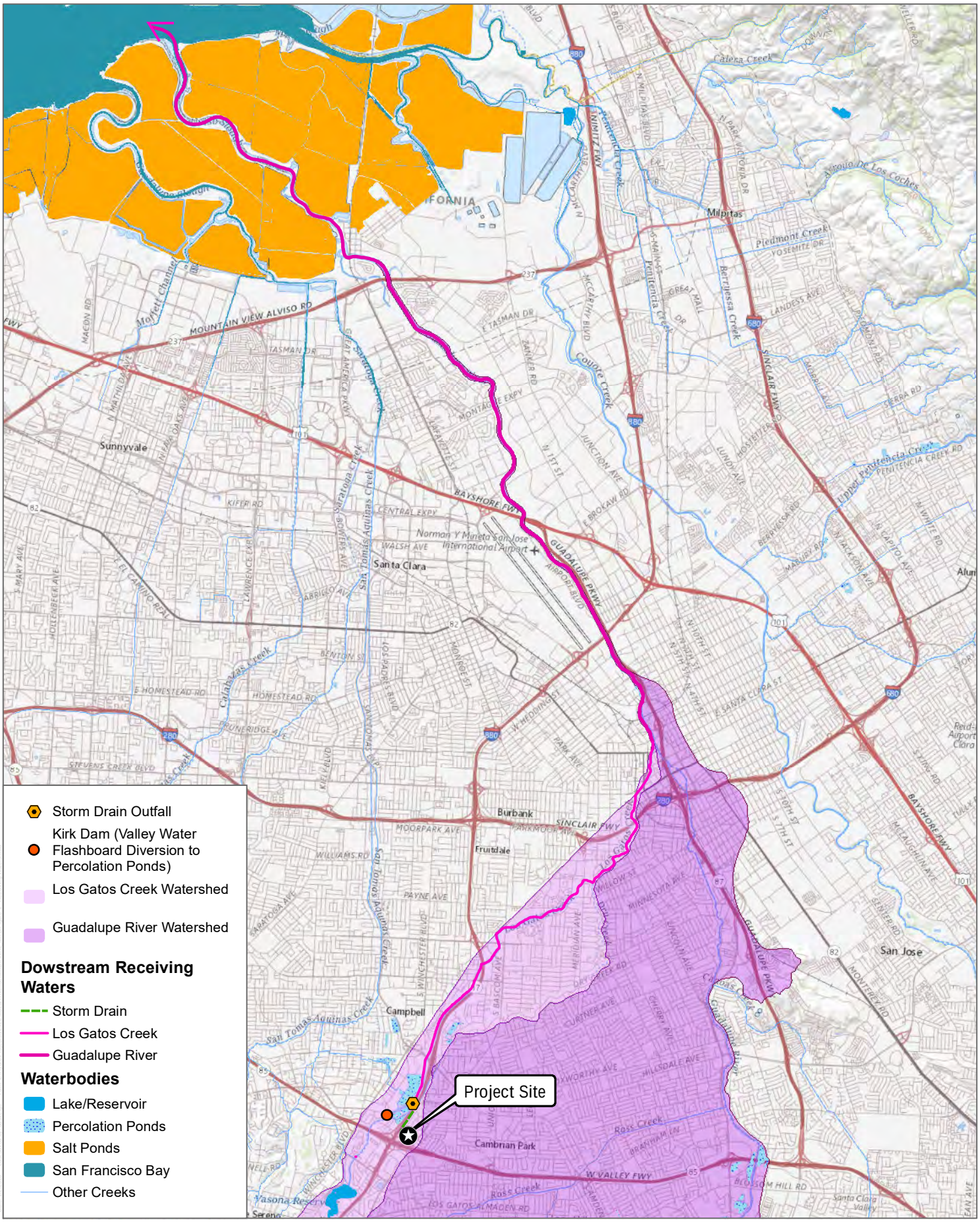

SOURCE: USGS National Map (Basemap); Valley Water 2019

FIGURE 1

Receiving Waters Map

Hydrology and Water Quality Analysis - 16179 E. Mozart Avenue, Campbell, California

DUDEK

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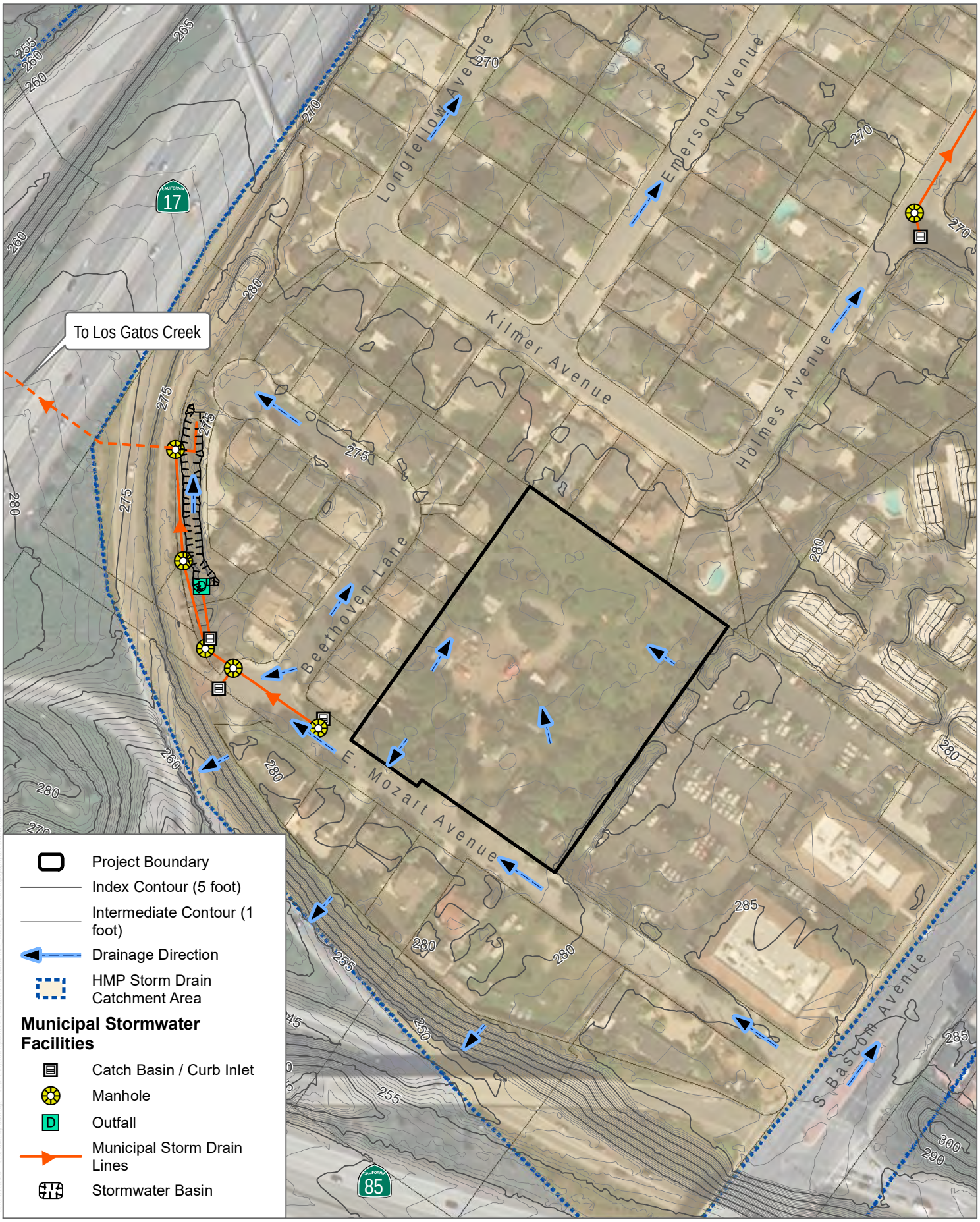

SOURCE: City of Campbell 2019 (Storm Drainage); Valley Water 2019 (Lidar)

DUDEK

0 130 260 Feet

FIGURE 2

Existing Conditions Drainage Map

Hydrology and Water Quality Analysis - 16179 E. Mozart Avenue, Campbell, California

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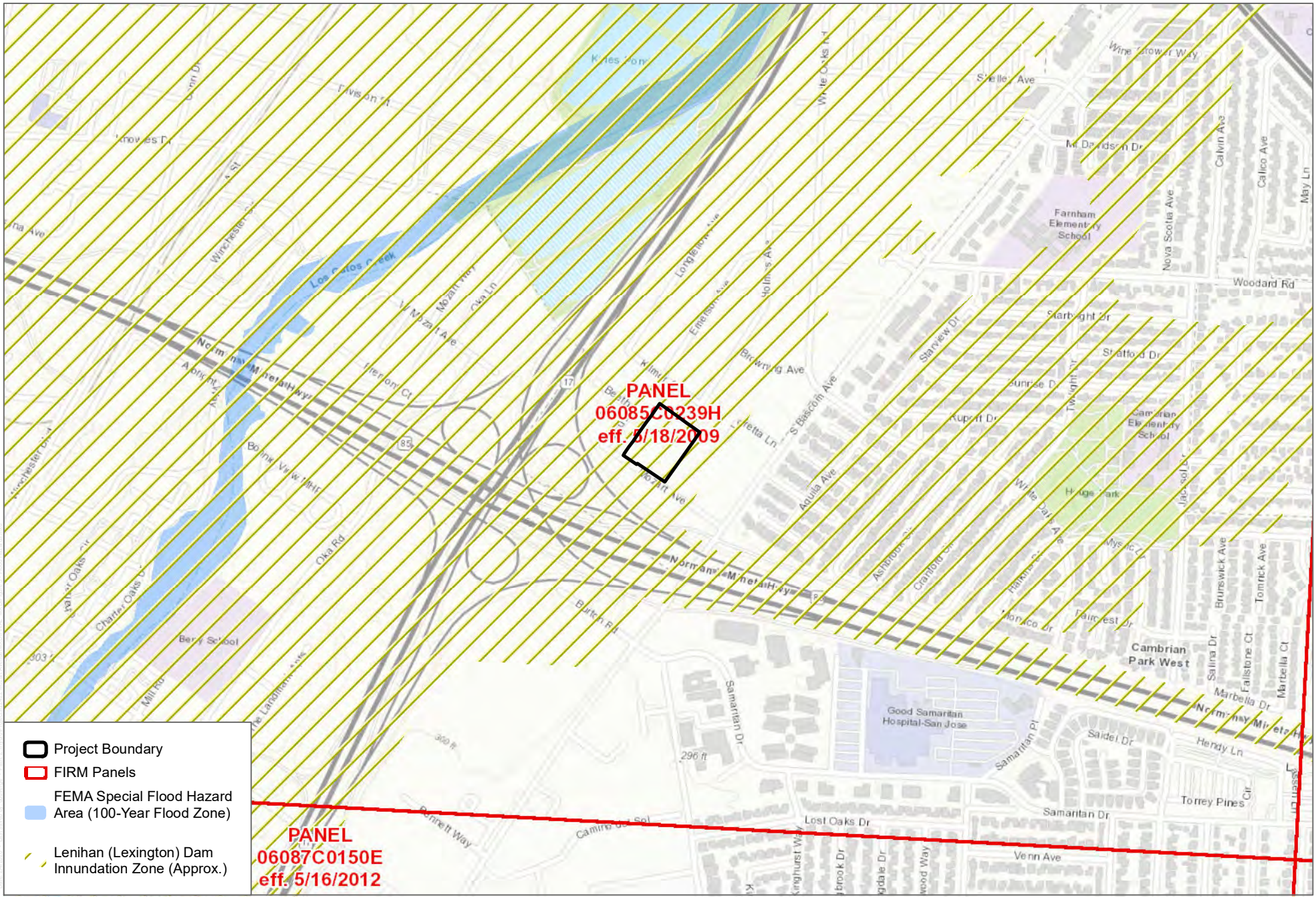

SOURCE: FEMA 2020; SCVWD 2016

DUDEK

0 0.125 0.25 Miles

FIGURE 3

Flood Hazards

Hydrology and Water Quality Analysis - 16179 N. Mozart Avenue

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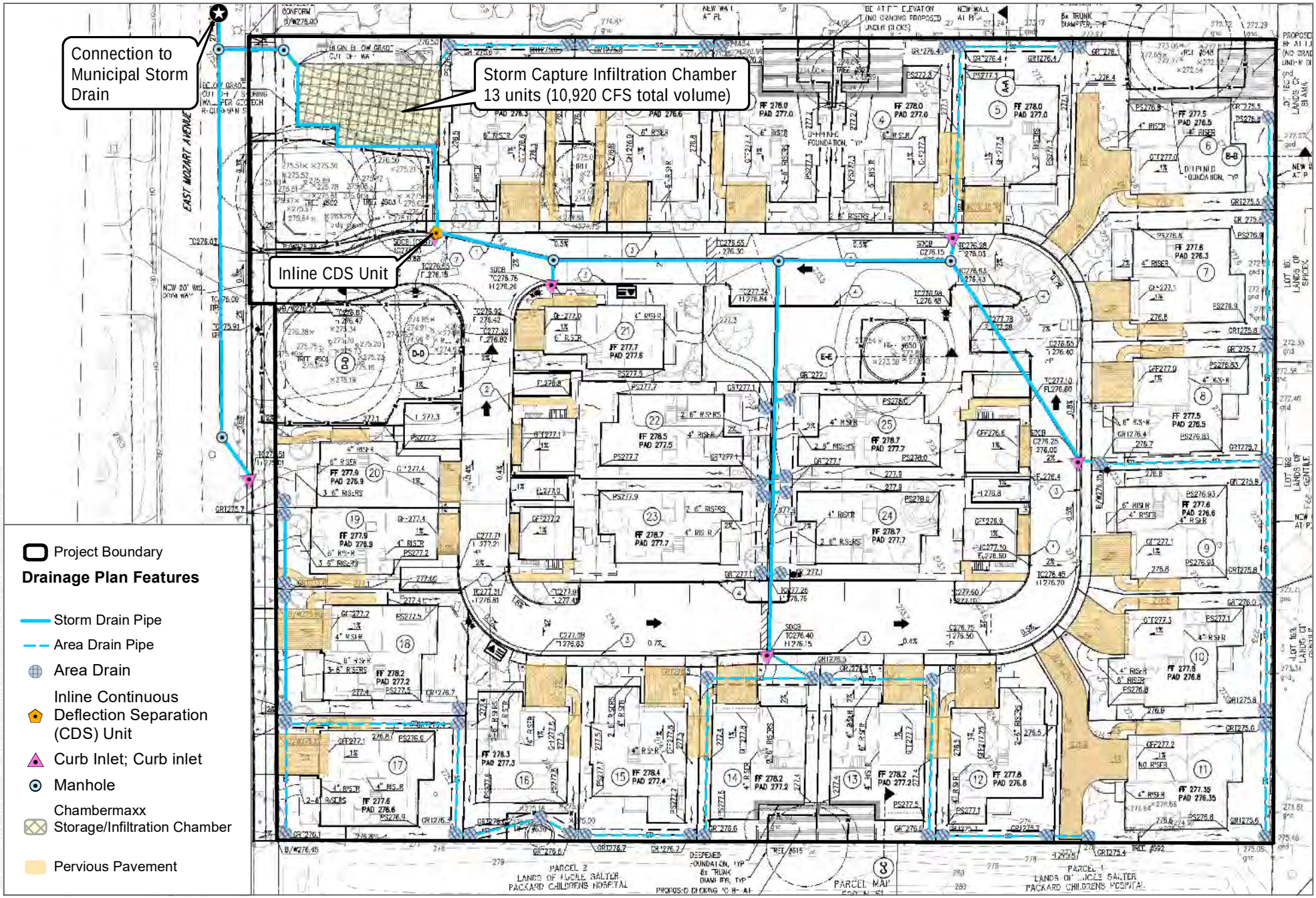

SOURCE: Shaaf & Wheeler 2019

DUDEK

0 25 50 Feet

FIGURE 4

Proposed Conditions Drainage Map

Hydrology and Water Quality Analysis - 16179 N. Mozart Avenue

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ATTACHMENT 10

ENVIRONMENTAL NOISE STUDY

16179 East Mozart Avenue

Los Gatos, CA

Environmental Noise Study

4 September 2020

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INTRODUCTION

This report summarizes our environmental noise study for the 16179 East Mozart Avenue project in Los Gatos, California. The purpose of the study is to determine the noise environment at the site, compare the measured data with the applicable City and State standards. We have also been asked to evaluate potential noise impacts generated by the project such as traffic, mechanical equipment, and construction noise. This report summarizes the results of our study.

The project consists of 25 single-family lots, each with two to three-story structures. The project site is located directly north of East Mozart Avenue and is bordered by existing residential on three sides and medical offices to the east. Highway 17 is approximately 590 feet to the west and Highway 85 is approximately 475 feet to the south. The City of Campbell is the authority having jurisdiction (AHJ) on the project.

In summary, interior noise levels would be reduced to meet City and State standards by incorporating sound-rated assemblies at exterior building facades. A CEQA analysis has also been performed at the request of the City and is included in the Appendix. This analysis indicates that potential noise impacts created by the project can be mitigated.

ACOUSTICAL CRITERIA

The City of Campbell establishes guidelines, regulations, and policies designed to limit noise exposure at noise-sensitive land uses. The State of California also limits indoor noise levels in residential units. In addition, the City Environmental (CEQA) Review document received 8 July 2019 requires compliance with State CEQA guidelines, used to determine whether a project will have a significant impact on the existing environment. The applicable criteria are as follows:

State of California – California Building Code (CBC)

The California Building Code regulates exterior noise insulation for residential uses. Part 1 of the Supplement to the California Building Code, effective 1 July 2015, requires that the indoor noise level in residential units of multi-family dwellings not exceed DNL 45 dB where the exterior noise level is greater than DNL 60 dB.

City of Campbell – Noise Section of the General Plan

The City of Campbell establishes the following noise goals and policies. To summarize interior noise goals, new residential developments shall conform to a stationary source noise exposure standard of 65 dBA for exterior noise levels and 45 dBA for interior noise levels due to stationary sources, and to a traffic-related noise exposure standard of 60 dBA CNEL[1] for outdoor noise in noise-sensitive outdoor activity areas and 45 dBA CNEL for indoor noise.

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[1] CNEL (Community Noise Equivalent Level) – A descriptor for a 24-hour A-weighted average noise level. CNEL accounts for the increased acoustical sensitivity of people to noise during the evening and nighttime hours. CNEL penalizes sound levels by 5 dB during the hours from 7 PM to 10 PM and by 10 dB during the hours from 10 PM to 7 AM. For practical purposes, the CNEL and DNL are usually interchangeable.

Noise Goals and Policies

Applicable noise goals and policies contained in the Conservation and Natural Resources Element of the General Plan are as follows:

Noise Goal CNR-10: Protect the community, especially sensitive noise receptors such as schools, hospitals and senior facilities, from excessive noise.

Policy CNR-10.1: Noise Reduction: Reduce noise levels at the source.

Strategy CNR-10.1a: Noise Ordinance: Adopt and strictly enforce a Noise Ordinance that establishes noise standards for various noise-sensitive land uses and for all Zoning Districts.

Strategy CNR-10.1b: Minimization of Noise Exposure and Generation: Encourage practices and technologies that minimize noise exposure and noise generation in new development and redevelopment.

Strategy CNR-10.1c: Noise and New Development: Evaluate the potential for noise pollution and ways to reduce noise impacts when reviewing development proposals.

Noise from Stationary Sources: New residential development shall conform to a stationary source noise exposure standard of 65 dBA for exterior noise levels and 45 dBA for interior noise levels. Acoustical studies shall be required for all new noise-sensitive projects that may be affected by existing noise from stationary sources. Where existing stationary noise sources exceed the City's noise standards, mitigation measures shall be implemented to reduce noise exposure to or below the allowable levels of the Noise Ordinance.

Traffic-Related Noise: New residential development shall conform to a traffic-related noise exposure standard of 60 dBA CNEL for outdoor noise in noise-sensitive outdoor activity areas and 45 dBA CNEL for indoor noise. New development, which does not and cannot be made to conform to this standard shall not be permitted. Acoustical studies, describing how the Conservation and Natural Resources Element CNR-21 exterior and interior noise standards will be met, shall be required for all new residential developments with a noise exposure greater than 60 dBA CNEL. The studies should also satisfy the requirements set forth in Title 24, part 2, of the California Administrative Code, Noise Insulation Standards, for multiple-family attached residential projects, hotels, motels, etc., regulated by Title 24. Table CNR-2: Traffic-Related Noise Conditions at General Plan Buildout should be used as the basis to initially identify areas with potential excessive noise exposure.

Strategy CNR-10.1d: Noise Mitigation Measures: Review and require noise mitigation measures for development projects, including setbacks between uses, earth berms, sound walls, landscaping and site design that shields noise-sensitive uses with non-sensitive structures such as parking lots, utility

areas and garages, or orients buildings to shield outdoor spaces from noise sources.

Strategy CNR-10.1e: Construction Noise Mitigation: Require mitigation measures during construction, including limits on operating times of noise-producing activities (including vehicles).

Strategy CNR-10.1f: Sound Walls: In cases where sound walls are used as mitigation, they should be encouraged to help create an attractive setting with features such as setbacks, changes in alignment, detail and texture, pedestrian access (if appropriate) and landscaping.

City of Campbell Municipal Code

Section 21.16.070 (Noise) of the City's Municipal Code states the following:

- New residential development shall conform to a stationary source noise exposure standard of sixty-five dBA for exterior noise levels and forty-five dBA for interior noise levels.
- New residential development shall conform to a traffic-related noise exposure standard of sixty dBA CNEL for outdoor noise in noise-sensitive outdoor activity areas and forty-five dBA CNEL for indoor noise. New development that does not and cannot be made to conform to this standard shall not be allowed.
- Acoustical studies are required for all new noise-sensitive projects that may be affected by existing noise from stationary sources, including all new residential developments with a noise exposure greater than 60 dBA CNEL.
- Where acoustical studies show that existing stationary noise sources exceed, or will exceed maximum allowable noise levels, mitigation shall be identified to reduce noise exposure to or below the allowable levels of this chapter. Mitigation measures may include increased setbacks between uses, earth berms, sound walls, landscaping, and site design that shields noise-sensitive uses with non-sensitive structures, (e.g., parking lots, utility areas and garages), or orientation of buildings to shield outdoor spaces from noise sources. In cases where sound walls are used as mitigation, they should be encouraged to help create an attractive setting with features such as setbacks, changes in alignment, detail and texture, pedestrian access (if appropriate) and landscaping.
- Private construction (e.g., construction, alteration or repair activities) between the hours of eight a.m. and five p.m. Monday through Friday, and between the hours of nine a.m. and four p.m. Saturday, in compliance with Section 18.04.052 of the Municipal Code. The community development director may impose further limitations on the hours and day of construction or other measures to mitigate significant noise impacts on sensitive uses.
- Powered equipment shall be limited to the hours of eight a.m. and seven p.m. Monday through Friday, and between the hours of nine a.m. and six p.m. Saturday, Sunday and nationally recognized holidays.

Section 18.04.052 (Hours of construction – Time and noise limitations) of the City's Municipal Code states the following:

- Construction activity shall be limited to the hours of eight a.m. and five p.m. daily, Monday through Friday. Saturday hours of construction shall be nine a.m. and four p.m. There shall be no construction activity on Sundays or National Holidays.
- No loud environmentally disruptive noise over fifty dbs., such as air compressors without mufflers, continuously running motors or generators, loud playing musical instruments or radios will be allowed

during the authorized hours of construction, Monday through Saturday, where such noise may be a nuisance to adjacent residential neighbors. Such nuisances shall be discontinued.

- Exemptions:
    - Construction activity is permitted for homeowner permits, when the work is being performed by only the owner of the property, provided no construction activity or loud noises are conducted prior to six a.m. or after seven p.m., Monday through Saturday, and prior to eight a.m. or after six p.m. on Sundays or National Holidays.
    - Where emergency conditions exist, as determined by the building official, construction activity or construction noise may be permitted at any hour or day of the week. Such emergencies shall be completed as rapidly as possible to prevent any disruption to the residential neighborhood.
    - When the building official determines that construction activity and/or construction noises will not be detrimental to the adjacent neighbors, an exception to the time of work activity may be granted to the general contractor who shall be responsible for controlling the site for loud disruptive noises as described above. Hours of operation shall be determined by the building official on a case-by-case basis.

NOISE ENVIRONMENT

To quantify the existing noise environment, we conducted noise measurements at the site between 25 and 27 June 2019. The noise monitors used for these measurements were RION model NL-52 Type 1 integrating sound level meters. We placed noise monitors at two long-term continuous locations (L1 and L2), as well as three 15-minute spot locations (S1 through S3). Measurement Locations L1 and L2 were chosen to determine the noise levels generated by traffic on East Mozart Avenue vs. traffic on Highways 17 and 85, respectively. Short term measurement locations were chosen to determine how the noise level changed at the various property lines bordering the site. A summary of the long-term and short-term acoustical measurement locations are listed below in Table 1, and shown in the attached Figure 1.

A traffic study has not been provided for this project. For our calculations, we have added 1 decibel to the expected noise levels to account for future traffic increases.[2]

[2] Caltrans assumes a traffic volume increase of three-percent per year, which corresponds to a 1 dB increase over ten years. In the absence of City data, we have used this same formula for the local roads.

Table 1: Existing Ambient Noise Measurements				
Monitor	**Location**	**Height above grade**	**Date / Time**	**Measured Noise Levels**
L1	Approximately 20 feet from the center of East Mozart Avenue	12-feet	25 to 27 June 2019	63 dB DNL
L2	Approximately 350 feet from the center of East Mozart Avenue, 710 feet from the centerline of Highway 17, and 870 feet from the centerline of Highway 85			60 dB DNL
S1L*	East Property Line: Approximately 920 feet from the centerline of Highway 17, and 755 feet from the centerline of Highway 85	5-feet	27 June 2019 3:45 – 4:00 pm	58 dB DNL
S1H*		16-feet		59 dB DNL
S2L*	North Property Line: Approximately 800 feet from the centerline of Highway 17, and 915 feet from the centerline of Highway 85	5-feet	27 June 2019 4:11-4:24 pm	53 dB DNL
S2H*		16-feet		60 dB DNL
S3L*	West Property Line: Approximately 600 feet from the centerline of Highway 17, and 830 feet from the centerline of Highway 85	5-feet	27 June 2019 4:35-4:50 pm	52 dB DNL
S3H*		16-feet		56 dB DNL

*Calculated using 15-minute offsets from the long-term monitors

The dominant noise source at the site is traffic from Highways 17 and 85. During our measurements, there was activity on site from West Valley Arborists' trucks currently occupying the space, as well as Geotech performing environmental measurements. These activities have been removed from our measurements.

INTERIOR NOISE

Based on the Progress Plans dated 8 July 2019, which show floor plans and the proposed building elevations, and the Site Plan dated 25 June 2019, interior noise levels may exceed the State Building Code and City of Campbell General Plan requirements. To reduce interior noise levels to meet these requirements, the following should be incorporated.

Window and exterior door STC[3] ratings needed to meet the interior DNL 45 dB criteria should be as shown in Figures 2 through 4. Our calculations are based on the following assumptions:

- All rooms will have hard-surfaced flooring
- Ceilings will be minimum 8-feet high throughout the residences

[3] STC (Sound Transmission Class) – A single-number rating defined in ASTM E90 that quantifies the airborne sound insulating performance of a partition under laboratory conditions. Increasing STC ratings correspond to improved airborne sound insulation.

- Exterior walls will be equivalent to 3-coat stucco over wood sheathing, wood studs with batt insulation in stud cavities, with at least 1 layer of gypsum board on the interior (approximately STC 45)

STC ratings for selected assemblies should be based on laboratory testing performed in accordance with ASTM E-90 and comprise the entire window or door assembly, including the frame. If non-tested assemblies are to be used, an acoustical consultant must review the glazing and frame submittals, and the STC rating of the glass may need to be increased. For reference purposes, a typical one-inch insulated, dual-pane window achieves an STC rating of approximately 28 to 30. Where STC ratings above STC 34 are required, typically at least one pane will need to be laminated, however, this depends on the specific window manufacturer.

Because windows must be closed to achieve the interior noise criteria, an alternate means of providing outside air (e.g., fresh-air exchange units, HVAC, Z-ducts, etc.) to habitable residential spaces should be considered for building facades exposed to an exterior DNL of 60 dB or greater. Operable windows are still acceptable provided they are not being relied upon to provide fresh air to the units. This applies to all facades.

EXTERIOR NOISE

The City of Campbell General Plan policies state that exterior noise levels are to be reduced to CNEL 60 dB at primary outdoor-use areas. Where the outdoor-use areas are completely shielded acoustically from the roadways by the building structures, we estimate that noise levels will be at or below CNEL 60 dB.

The project includes a outdoor activity area and tot lot in the middle of the project, which would be considered a "noise sensitive outdoor activity area" per the City's General Plan. Noise levels at this area are expected to DNL 60 dB or below and no further mitigation is needed.

* * *

This concludes our current comments, let us know if you have any questions or comments.

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16179 E MOZART AVENUE
MEASUREMENT LOCATIONS AND MEASURED NOISE LEVELS

FIGURE 1

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19-0412	09.09.20

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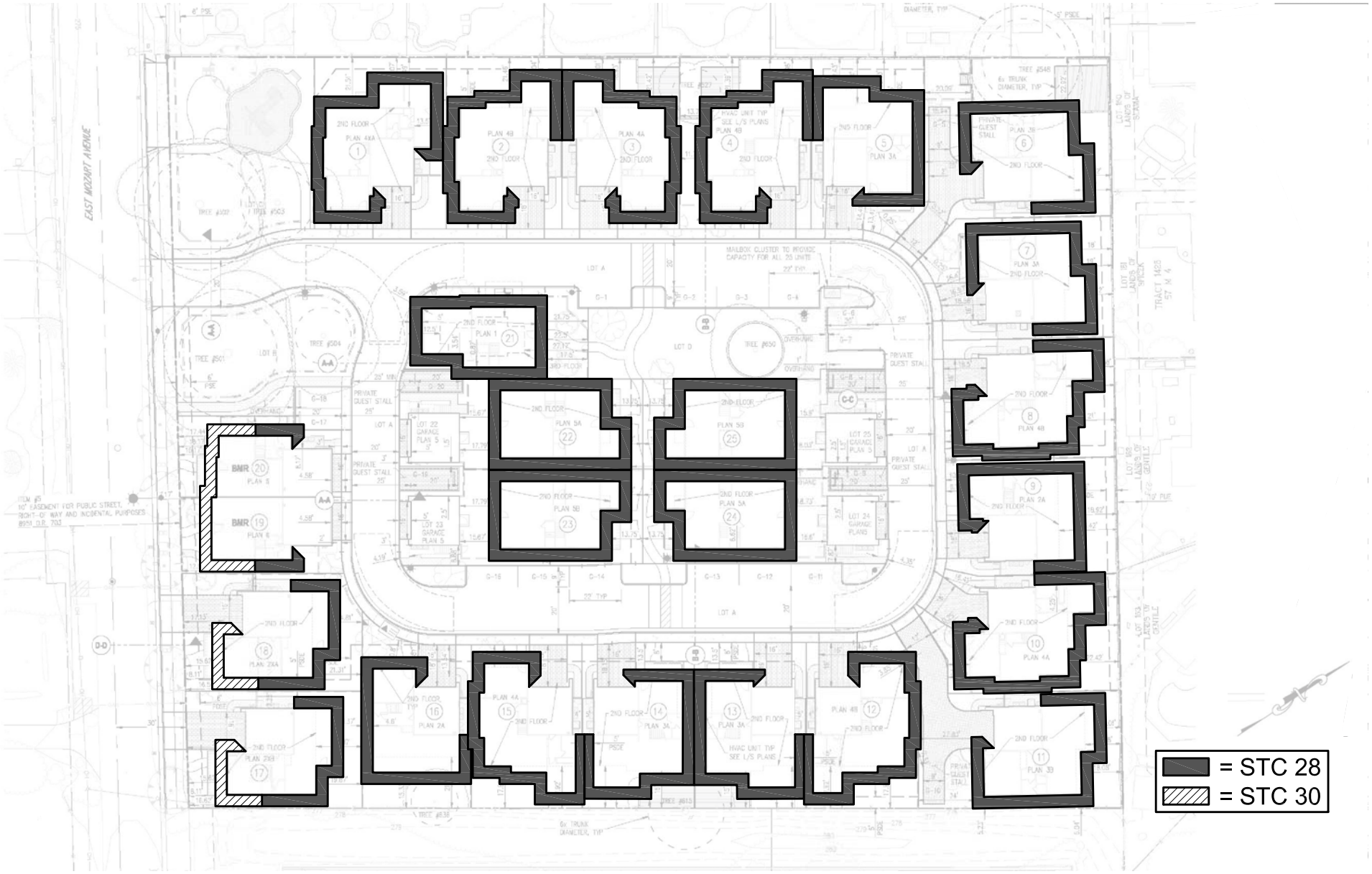

NOTES: 1. STC RATINGS ARE FOR THE COMPLETE ASSEMBLY (E.G., GLASS, FRAME, AND OPERABLE SECTIONS) BASED ON TEST REPORTS FROM AN NVLAP-ACCREDITED LAB

2. WHERE NO STC RATING SHOWN, SOUND-RATED WINDOWS AND DOORS ARE NOT REQUIRED

16179 E MOZART AVENUE
MINIMUM CODE–REQUIRED STC RATINGS FOR WINDOWS AND EXTERIOR DOORS (FLOOR 1)

FIGURE 2

Salter # 19–0412

AKS 09.09.20

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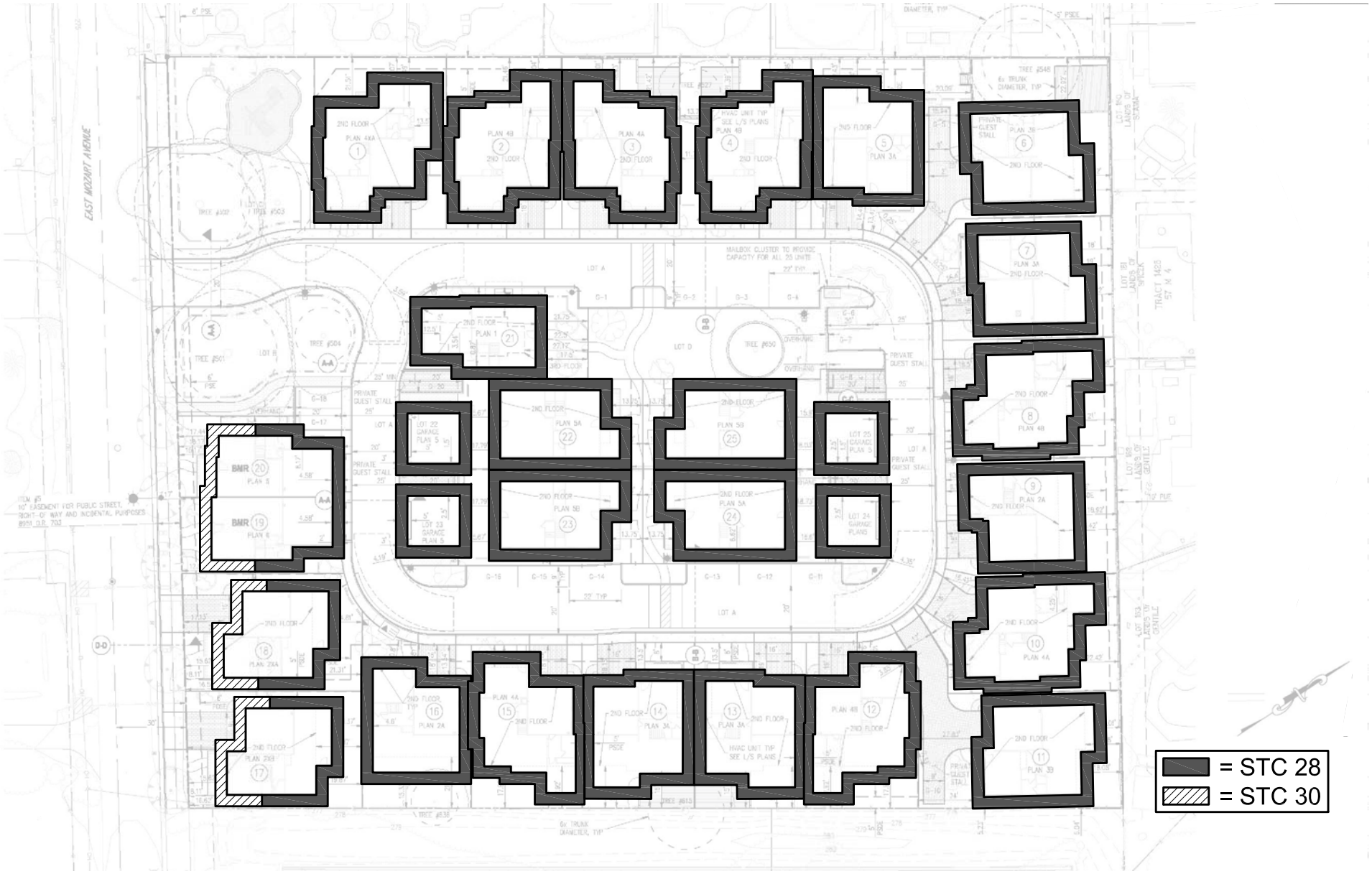

NOTES: 1. STC RATINGS ARE FOR THE COMPLETE ASSEMBLY (E.G., GLASS, FRAME, AND OPERABLE SECTIONS) BASED ON TEST REPORTS FROM AN NVLAP-ACCREDITED LAB

2. WHERE NO STC RATING SHOWN, SOUND-RATED WINDOWS AND DOORS ARE NOT REQUIRED

16179 E MOZART AVENUE
MINIMUM CODE–REQUIRED STC RATINGS FOR WINDOWS AND EXTERIOR DOORS (FLOOR 2)

FIGURE 3

Salter # 19–0412

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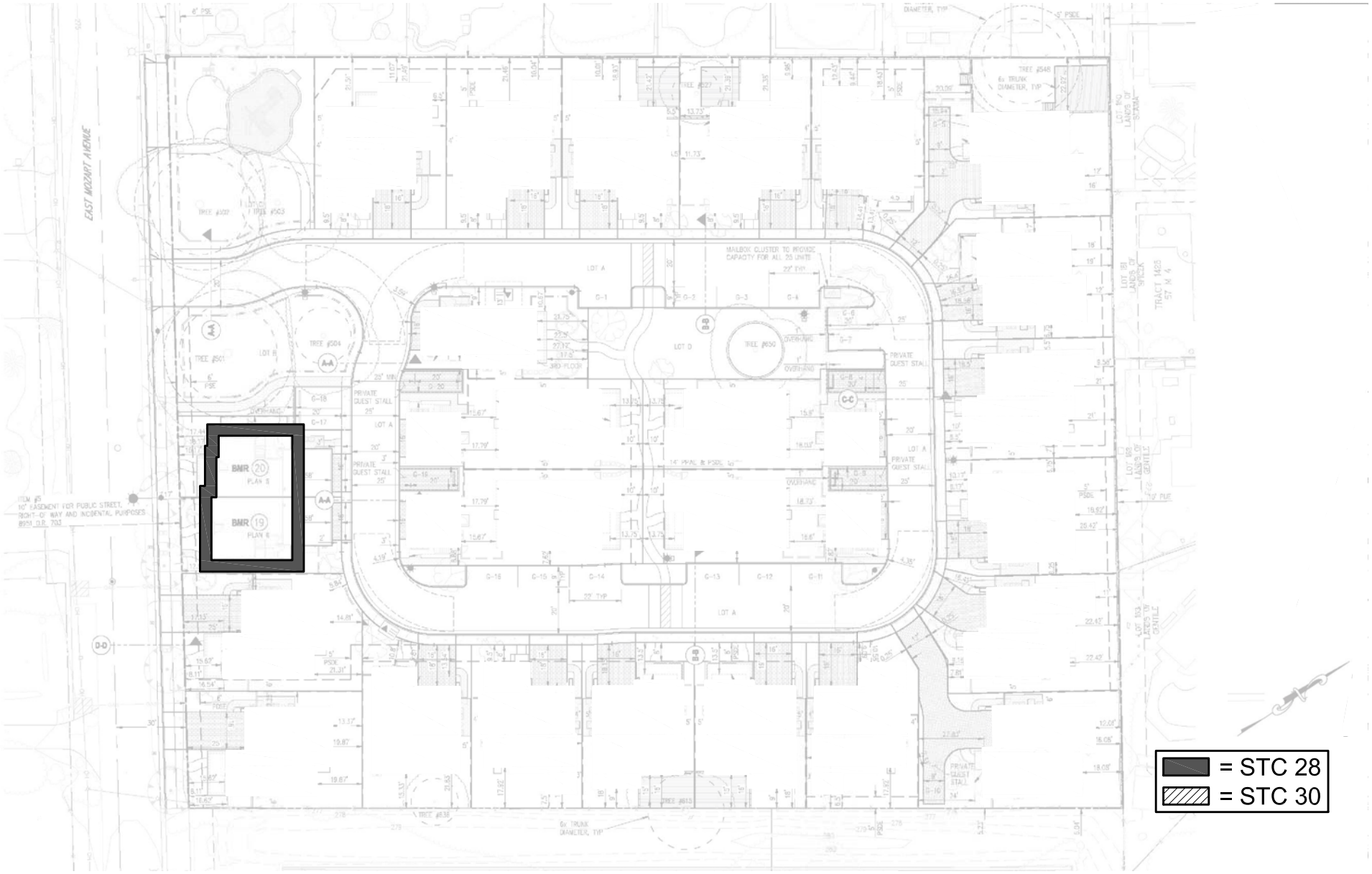


NOTES: 1. STC RATINGS ARE FOR THE COMPLETE ASSEMBLY (E.G., GLASS, FRAME, AND OPERABLE SECTIONS) BASED ON TEST REPORTS FROM AN NVLAP-ACCREDITED LAB

2. WHERE NO STC RATING SHOWN, SOUND-RATED WINDOWS AND DOORS ARE NOT REQUIRED

16179 E MOZART AVENUE
MINIMUM CODE–REQUIRED STC RATINGS FOR WINDOWS AND EXTERIOR DOORS (FLOOR 3)

FIGURE 4

Salter # 19–0412

AKS 09.09.20

APPENDIX

CEQA ANALYSIS

As required by the City of Campbell, the California Environmental Quality Act (CEQA) contains guidelines to evaluate the significance of noise attributable to a proposed project. This would include added traffic noise, mechanical equipment noise, and construction noise. CEQA asks the following applicable questions. Would the project:

a) Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies;
b) Expose people to or generate excessive groundborne vibration or groundborne noise levels;
c) Create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
d) Create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
e) For projects within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public-use airport, would the project expose people residing or working in the project area to excessive noise levels;
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

CEQA does not define the noise level increase that is considered substantial. Typically, an increase in the day-night average noise level[4] (DNL) of 3 dB[5] or greater at noise-sensitive receptors would be considered significant when projected noise levels would exceed those considered satisfactory for the affected land use. An increase of 5 dB or greater would be considered significant when projected noise levels would continue to meet those considered satisfactory for the affected land use. Local guidelines (e.g., City Municipal Codes and General Plan would also apply).

Items b, e, and f do not apply to the project as vibration is not a significant concern, and there is no airport or airstrip within the vicinity. Furthermore, noise exposure related to future residents of the project pursuant to item a) has been addressed in the main portion of the report above. Remaining items are addressed as follows.

Mechanical Noise

The air conditioners in each lot will generate sound power levels of approximately 72 dB[6] each, and are shielded by 6-foot tall wooden fencing around each lot's perimeter. Including a sound power to sound

---

[4] DNL (Day-Night Average Sound Level) – A descriptor for a 24-hour A-weighted average noise level. DNL accounts for the increased acoustical sensitivity of people to noise during the nighttime hours. DNL penalizes sound levels by 10 dB during the hours from 10 PM to 7 AM. For practical purposes, the DNL and CNEL are usually interchangeable. DNL is sometimes written as L_{dn}.

[5] dB (Decibel) – A unit that describes the magnitude of a sound with respect to a reference sound level near the threshold of hearing. Decibels are based on a logarithmic scale and therefore cannot be added arithmetically.

[6] Sound rating for Carrier Comfort™ Series Air Conditioner <https://www.utcccs-cdn.com/hvac/docs/1010/Public/09/01-824-106-25.pdf>

pressure conversion factor of 15 dB[7] at 7 feet, the estimated noise level due to these heat pumps is 57 dB at the nearest property planes, which is 7 feet to the south (commercial), and 7 feet to the north (residential). This is not expected to result in a substantial permanent increase in ambient noise levels and complies with the City of Campbell exterior Noise Ordinance of not exceeding 65 dBA.

Mitigation Measures Required: None

Construction Noise

The construction phasing of the job will include demolition, site preparation, excavating and grading, building construction, paving, and architectural coating. Construction equipment could include tractors, loaders, and backhoes during demolition and site preparation, excavators during demolition, excavation, and grading, a rubber tired dozer and scraper during excavation and grading, large equipment such as lifts, saws, and pumps during building construction, and surfacing and paving equipment during paving.

Due to the close proximity of adjacent residential properties, construction noise may be audible and create temporary increases in noise levels. Since, noise levels will vary significantly depending on the location and duration of specific construction activities, it is difficult to accurately estimate future construction noise levels that would impact the nearby residences. Therefore, noise measurements can be conducted as needed based on complaints during construction to confirm noise levels and determine if mitigation is required in line with the City's General Plan Strategy CNR-10.1e.

The following construction noise mitigation measures could be implemented to reduce this noise at nearby residential receivers if noise levels prove to exceed the following.

> Section 21.16.070.E.1 of the City Municipal Code - 65 dBA at the property line
>
> Section 18.04.052 of the City Municipal Code – 50 dBA at the property line for air compressors without mufflers, continuously running motors or generators, loud playing musical instruments or radios
>
> Increase in the DNL by 3 dB where noise levels would be at or above DNL 60 dB; increase in DNL by 5 dB, where noise levels remain below DNL 60 dB.

Potential Mitigation Measures:

1. **Schedule and Hours**: Per section 18.04.052 of the City Municipal Code, construction is limited to between the hours of 8am and 5pm, Monday through Friday, and between 9am and 4pm on Saturdays. Demolition and loud activities should be limited to Monday through Friday.

2. **Site Perimeter Barriers:** If needed, provided sound-rated barriers should be constructed around the northwest and northeast property lines, as shown in Figure 1. Since many of the neighboring residences are two-stories and close to the property line, it is impractical to provide barriers tall enough to shield second story windows. We recommend barriers be 8-ft tall and constructed with either two layers of ½-inch thick plywood (joints staggered) and K-rail or other support; or a limp mass barrier material weighing two pounds per square foot such as Kinetics KNM-200B or equivalent. The construction team should work closely with the neighboring residences to monitor any noise complaints received, and incorporate additional measures as feasible on a case by case basis.

---

[7] Laymon Miller – Noise Control for Buildings and Manufacturing Plants, Table 6-3

3. **Stationary Equipment Local Barriers**: If needed, provide localized barriers around stationary equipment such as air compressors that break line-of-sight to neighboring properties.

4. **Generators**: Locate generators far away from noise-sensitive receivers, as feasible. If necessary, generator noise could be reduced by providing sound-rated enclosures and exhaust mufflers or by providing a local noise barrier.

5. **Construction Equipment:** Where necessary, provide exhaust mufflers on pneumatic tools. All equipment should be properly maintained.

6. **Truck Traffic**: Minimize truck idling and require trucks to load and unload materials in the construction areas, as opposed to idling on local streets. If truck staging is required, locate the staging area along major roadways with higher traffic noise levels or away from the noise-sensitive receivers such as East Mozart Avenue. Trucks should be shut off when waiting to enter the site.

7. **Methods:** Consider means to reduce the use of heavy impact tools and locate these activities away from the property line as feasible. Other methods, including drilling, could be employed if noise levels are found to be excessive.

8. **Notification and Confirmation**: Notify neighbors of extreme noise generating activities including the estimated duration of the activity, construction hours, and contact information.

Project-Generated Traffic Noise

The project traffic study indicates that up to 27 new PM peak hour trips will be generated by the project. This corresponds to a DNL of approximately 51 dBA at a distance of 20-feet from the roadway centerline[8]. Existing measured noise levels along E Mozart Avenue at a similar setback are 63 dBA, which is significantly higher. Therefore, project generated traffic noise would not result in a significant increase as compared to existing conditions.

Mitigation Measures Required: None

[8] Noise level assumes a maximum speed of 25 mph.

ATTACHMENT 11

TRAFFIC IMPACT ANALYSIS

Traffic Impact Analysis Report

16179 East Mozart Avenue

Residential Development

Campbell, California

August 20, 2020

TJKM

Contents

Tables

Figures

Appendices

EXECUTIVE SUMMARY

This report summarizes the results of the Focused Traffic Impact Analysis (FTIA) conducted for the proposed 25 single-family homes with 5 Accessory Dwelling Units (ADUs) located at 16179 Mozart Avenue in the City of Campbell. The study area is located in southeast Campbell, bordering the Town of Los Gatos and City of San Jose.

The report also includes evaluations and recommendations concerning project site access and on-site circulation for vehicles, bicycles, and pedestrians. Additional analysis includes signal warrant analysis and Traffic Infusion on Residential Environment (TIRE) Index.

To evaluate the impacts on the transportation infrastructure due to the addition of traffic from the proposed project, multiple planned developments were reviewed to determine the growth that is likely to occur along Bascom Avenue. TJKM evaluated two intersection alternatives for E. Mozart Avenue/Bascom Avenue that would allow left-turns from E. Mozart Avenue onto Bascom Avenue.

Project Trip Generation

The proposed project is expected to generate approximately 16 weekday a.m. peak hour trips (4 inbound trips, 12 outbound trips), and 23 weekday p.m. peak hour trips (15 inbound trips, 8 outbound trips).

Existing Conditions Signal Warrant Analysis

The results of the signal warrant analysis shows that the intersection of E. Mozart Avenue/Bascom Avenue does not meet the MUTCD peak hour warrant during the a.m. or p.m. peak hour.

Existing plus Project Conditions Signal Warrant Analysis

The results of the signal warrant analysis shows that the intersection of E. Mozart Avenue/Bascom Avenue does not meet the MUTCD peak hour warrant during the a.m. or p.m. peak hour.

E. Mozart Avenue/Bascom Avenue Alternatives

One alternative to modify E. Mozart Avenue/Bascom Avenue is to signalize the intersection and modify the median to allow left-turns from E. Mozart onto Bascom Avenue. Coordination with the City of San Jose and Caltrans would be required in order to coordinate the signals along the SR 85 ramps. However, signalization may be unlikely due to the limited storage length between the existing southbound stop bar at Bascom Avenue/SR 85 NB Ramps and E. Mozart Avenue.

Another alternative would be to keep the existing intersection control and just modify the median to allow left-turns onto Bascom Avenue from E. Mozart Avenue. However, the potential queue from southbound Bascom Avenue/SR 85 NB Ramps may overflow into E. Mozart Avenue/Bascom Avenue and prevent vehicles from making the left-turn onto Bascom Avenue.

TJKM recommends not signalizing the intersection nor modifying the median; instead keep the existing intersection configuration of E. Mozart Avenue/Bascom Avenue due to safety hazards and the close proximity to the Bascom Avenue/SR 85 NB Ramps.

Parking

The proposed parking supply of 71 spaces is expected to satisfy the anticipated demand of 55 parking spaces. The project would also install a curb and sidewalk that would allow for parking along E. Mozart Avenue. However, to establish adequate sight distance, TJKM recommends installing 15 feet of red curb on both sides of the project driveway.

Site Access and On-Site Circulation

The proposed vehicular access to the project site is via a 20 foot wide driveway located along E. Mozart Avenue. Sidewalks will be constructed along the project frontage to allow for pedestrian access. Based on a preliminary review of the project site plan, the site access and on-site circulation is considered adequate.

Pedestrian Impacts

The proposed project will also provide internal walkways and striped crosswalks. The proposed project does not conflict with existing and planned pedestrian facilities; therefore, the impact to pedestrian facilities is ***less than significant***.

Bicycle Impacts

The project is does not conflict with existing and planned bicycle facilities; therefore, the impact to bicycle facilities is ***less than significant***.

Transit Impacts

The project site is within walking distance to two VTA bus stops, which can connect users to local and regional locations. Impacts to transit service are expected to be ***less than significant.***

Traffic Infusion on Residential Environment (TIRE) Index

Based on the initial TIRE Index analysis, the project is expected increase the existing TIRE index by 0.3, resulting in traffic volume increases that will be noticeable to five residences on E. Mozart Avenue. Even with the additional project traffic, E. Mozart Avenue will have sufficient capacity to accommodate existing and project traffic.

Potential Cut-Through at Medical Office Complex

Motorists can cut through a nearby medical office complex parking lot to save time. TJKM determined this to be a minor problem. However, the following measures could be considered;

1. Install signage that prohibits left-turns into the driveway and right-turns from the driveway, or
2. Close the driveway with traffic barricades or a gate so that vehicles would have to use E. Mozart Avenue to enter or exit the neighborhood.

Vehicle Miles Traveled (VMT)

To lessen the significance of VMT impacts, the following proposed mitigations can be implemented.

1. Install wayfinding signs for the existing nearby bike and pedestrian facility
2. Install bike route signs and sharrows along E. Mozart Avenue
3. Construct sidewalks along the project frontage
4. Install a Bus Shelter on Bascom Avenue near the project
5. Provide introductory VTA Transit Passes for initial residents
6. Provide Fair Share contributions for recently completed bike lanes and pedestrian improvements on Bascom Avenue.

1.0 INTRODUCTION

This report summarizes the results of the FTIA for the proposed residential development located at 16179 E. Mozart Avenue in the City of Campbell.

1.1 Project Description

The project proposes to develop 25 single-family dwelling units and 5 ADUs on an approximately 3 acre lot. The project also proposed to construct a paved sidewalk along the project frontage on E. Mozart Avenue. The new single-family dwelling units will be constructed after 5 existing homes have been demolished.

The project entrance will consist of one 20 foot driveway along E. Mozart Avenue. The project site is located in the southeast Campbell, bordering the Town of Los Gatos and City of San Jose. E. Mozart Avenue is the only access road to the project site, which is located approximately 100 feet north of the signalized intersection of Bascom Avenue/SR 85 NB On/Off Ramps.

The following section discusses the FTIA Purpose, study intersections, and analysis scenarios.

1.2 Project Purpose

The purpose of the FTIA is to evaluate the impacts on the transportation infrastructure due to the addition of the traffic from the proposed project. The report also includes evaluations and recommendations concerning project site access and on-site circulation for vehicles, bicycles, and pedestrians, parking supply, and Vehicle Miles Traveled (VMT) analysis.

1.3 Study Area

The study area is located at 16179 E. Mozart Avenue in City of Campbell. The impacts of the proposed project were evaluated for the intersection discussed below.

1.3.1 Study Intersections

TJKM evaluated traffic conditions at one study intersection during the a.m. and p.m. peak hours for a typical weekday. The study intersection was selected in consultation with the City of Campbell staff. The peak periods were between 7-9 a.m. and 4-6 p.m. The study intersection and associated traffic control is as follows:

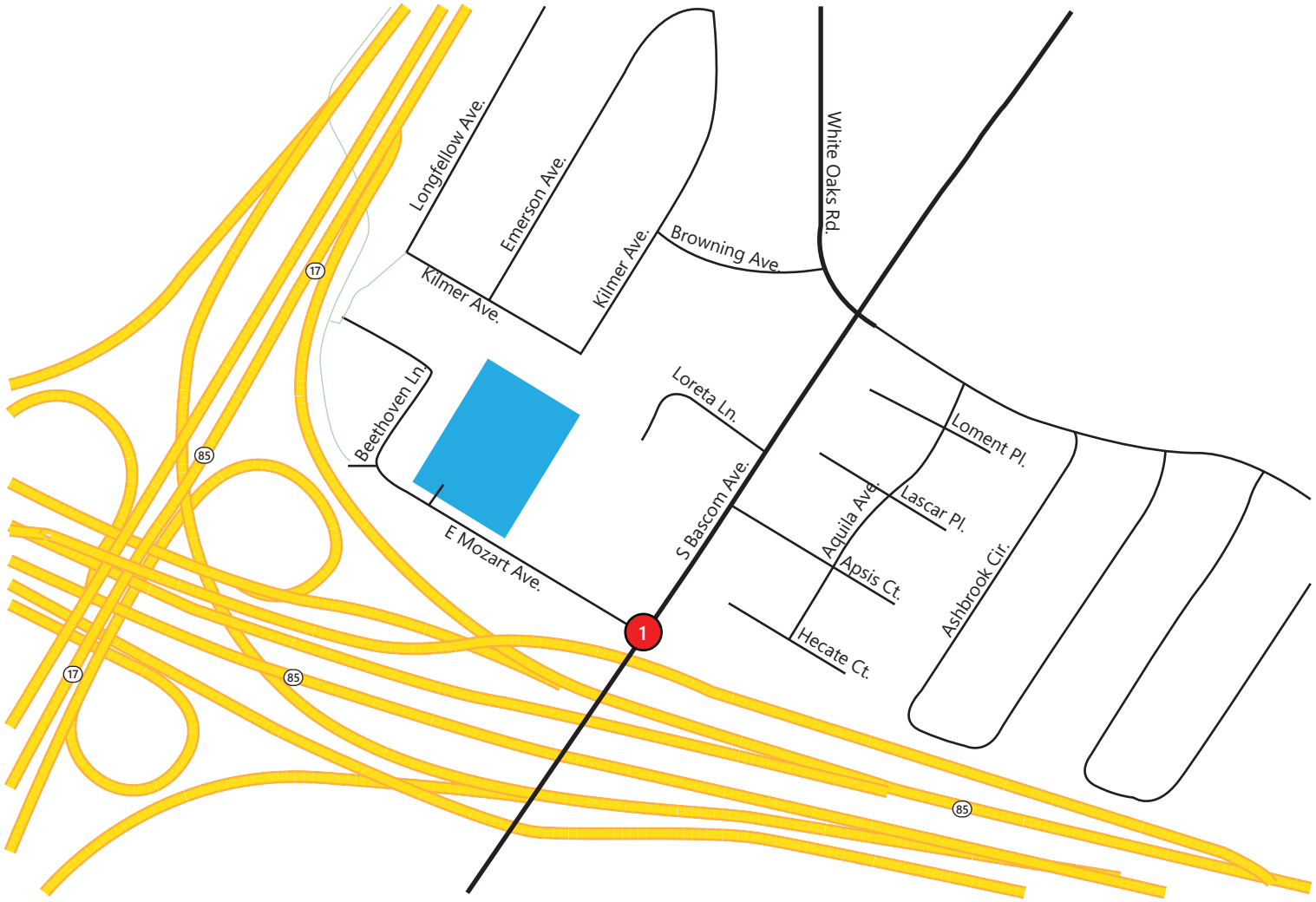
1. Bascom Avenue/E. Mozart Avenue (One-Way Stop)

Figure 1 illustrates the study intersection and the vicinity map of the proposed project. **Figure 2** shows the proposed project site plan.

1.4 Analysis Scenarios

TJKM evaluated the following planned developments and improvements within the Town of Los Gatos and cities of San Jose and Campbell to determine what level of peak hour traffic growth is likely to occur along Bascom Avenue and how that traffic would affect the recommendations for both E. Mozart Avenue and the SR 85 Ramp intersections. TJKM evaluated potential improvements to the intersection of E. Mozart Avenue/Bascom Avenue. Additional analysis included signal warrant analysis and TIRE Index.

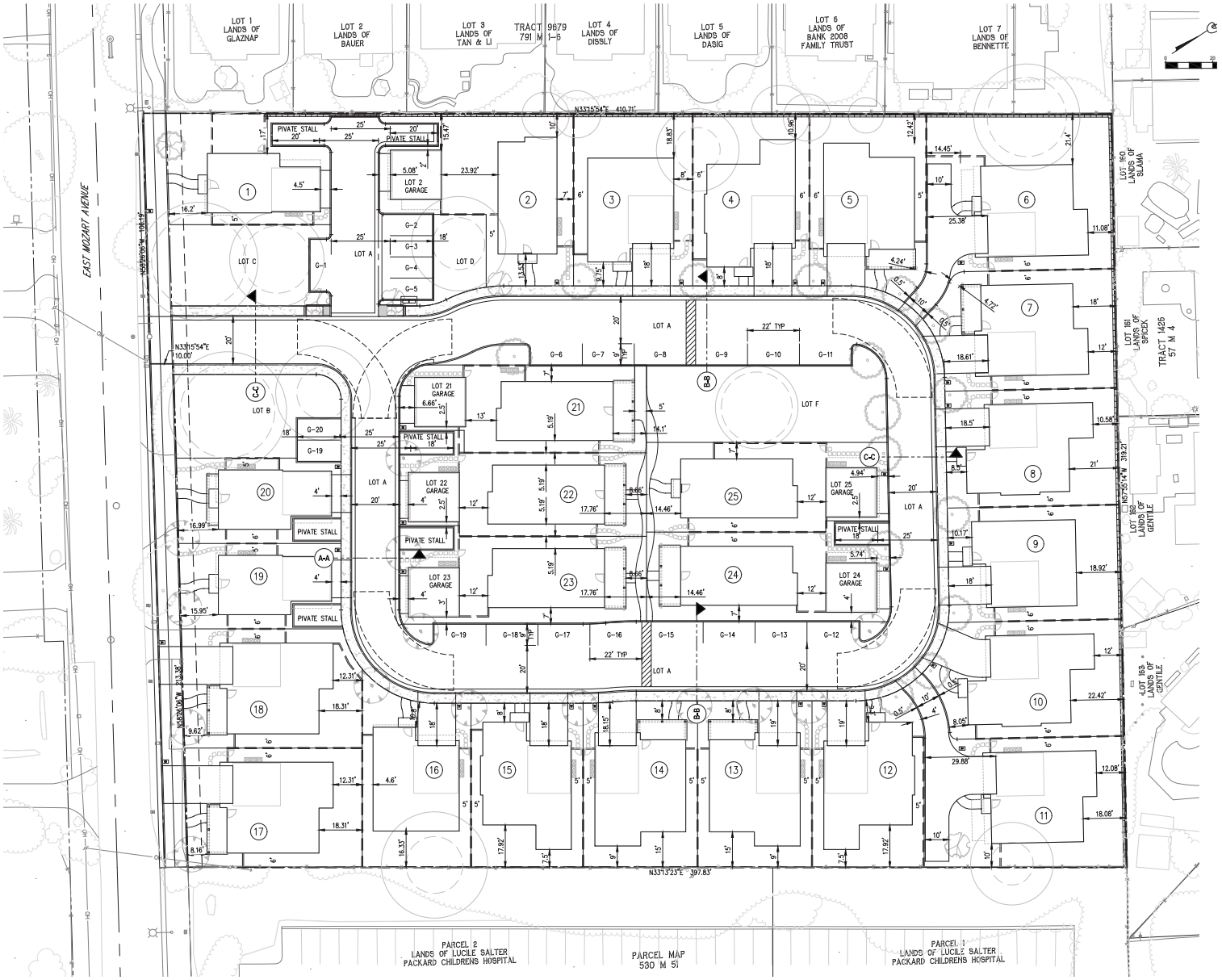
Figure 1: Vicinity Map



LEGEND

- Project Site
- Study Intersection
- Project Access

Figure 2: Site Plan



2.0 PLANNING CONTEXT

This chapter discusses relevant planned developments and improvements within the Town of Los Gatos, City of San Jose, and City of Campbell. The following is a list of planned major developments near the project site:

- North 40 Development (Town of Los Gatos)
- Good Samaritan Hospital Expansion (City of San Jose)
- Bascom Avenue Complete Streets Study (VTA)
- Pruneyard Shopping Center Expansion (City of Campbell)

TJKM used the information provided in these studies to determine what level of peak hour traffic growth is likely to occur along Bascom Avenue and if there are any planned improvements to Bascom Avenue and the SR 85 Ramps near the project site.

2.1 North 40 Development

The North 40 development plans to develop 44 acres of land in the Town of Los Gatos. The project area is bounded by Highway 85, Lark Avenue, Highway 17, and Los Gatos Boulevard. The project site is divided into 3 districts: Lark District, Transition District, and Northern District. The project consists of single-family homes, apartment units, condominium units, a shopping center, a hotel, and medical and general office space. The project is expected to be built in various phases. When the development is built-out, the project will add approximately 58 trips to E. Mozart Avenue/Bascom Avenue during the a.m. peak hour, which is a 3% increase in peak hour trips to the intersection. During the p.m. peak hour, the project will add 144 trips to the study intersection, equal to a 6% increase. Based on the North 40 Specific Plan TIA (Fehr & Peers, March 2014), there are no significant impacts nor recommended improvements to the intersections of Bascom Avenue and SR 85 Ramps.

2.2 Good Samaritan Hospital Expansion

The Good Samaritan Hospital Expansion Project proposes a total of 475,250 square feet of medical office space to be built on two sites along Samaritan Drive. Project access will be provided by Samaritan Court/Samaritan Drive and various existing driveways. When the hospital expansion is built-out, the project will add 95 peak hour trips to E. Mozart Avenue/Bascom Avenue during the a.m. peak hour, which is equal to 5% increase in peak hour trips. In the p.m. peak hour, the project will add 160 trips to the intersection, which is a 7% increase in peak hour trips. Based on the Samaritan Medical Campus Development Plan (Hexagon Transportation Consultants, May 2016), there are no significant impacts nor recommended improvements to the intersections of Bascom Avenue and the SR 85 Ramps.

2.3 Bascom Avenue Complete Streets Study

The Bascom Avenue Complete Streets Study is joint effort among VTA, the City of San Jose, the City of Campbell, and the County of Santa Clara to identify roadways to implement complete street elements along Bascom Avenue. The study area is the entire length of Bascom Avenue, from SR-85 in the south to Interstate 880 in the north. The project goals are to:

1. Transform Bascom Avenue into a high-quality multimodal corridor that serves all users.
2. Address user needs related to multimodal access, safety and connectivity.
3. Evaluate opportunities to improve transit travel times and amenities
4. Develop conceptual designs for short-and-long-term improvements along the corridor.
5. Coordinate analysis and designs with previous studies and initiatives
6. Help local agencies acquire funding for individual Complete Streets projects.

While the Final Plan has not been made publicly available, bike lanes have been installed along both sides of Bascom Avenue near the project vicinity.

2.4 Pruneyard Shopping Center Expansion

The Pruneyard Shopping Center Expansion Project proposed to develop the following additions to the already existing land uses within The Pruneyard:

- 18,600 square feet of retail
- 12,000 square feet of retail/office (Option A) or 30,000 square foot fitness center (Option B)
- 100,000 square feet of office space with 2-levels of underground parking
- Expansion of the existing parking structure
- The conversion of 3,000 square feet of retail space into restaurant space

The proposed project is not expected to generate trips near the project vicinity, therefore there were no significant impacts nor were improvements recommended for Bascom Avenue and SR 85 Ramp intersections.

3.0 EXISTING CONDITIONS

This section describes existing conditions in the immediate project site vicinity, including roadway facilities, bicycle and pedestrian facilities, and available transit service. In addition, existing site conditions were discussed, including the results of the signal warrant analysis.

3.1 Existing Setting and Roadway System

Regional roadway facilities providing access to the proposed residential development is provided via Highway 17 and Highway 85. Local access to the proposed project is provided via Bascom Avenue and E. Mozart Avenue.

Highway 17 is generally a four to six-lane north-south regional state highway that connects San Jose and Santa Cruz. The speed limit is 65 miles per hour (mph). In the project vicinity, Highway 17 primarily consists of mixed-flow lanes.

Highway 85 is generally a six-lane east-west regional state highway in Santa Clara County that connects South San Jose to Mountain View. The speed limit is 65 mph. Roadway geometry consists of 2 mixed-flow lanes and 1 carpool lane in both directions in the project vicinity.

Bascom Avenue is generally a six-lane north-south city connector street that extends from Samaritan Drive in South San Jose to Interstate 880 near the City limits of San Jose and Santa Clara. Bascom Avenue provides regional access to office complexes, shopping centers, and residential land uses. The speed limit in the study area is 40 mph.

E. Mozart Avenue is a two-lane east-west residential street that provides access to southbound Bascom Avenue. The primary land uses along E. Mozart Avenue is a medical office complex and single-family homes. The speed limit is 25 mph.

3.2 Existing Pedestrian Facilities

Walkability is defined as the ability to travel easily and safely between various origins and destinations without having to rely on automobiles or other motorized travel. The ideal "walkable" community includes wide sidewalks, a mix of land uses such as residential, employment, and shopping opportunities, a limited number of conflict points with vehicle traffic, easy access to transit facilities and services and a network of pedestrian facilities.

Pedestrian facilities are comprised of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access the destinations such as institutions, businesses, public transportation, and recreation facilities. Currently, there is no existing paved sidewalk along the project frontage. From the project site plan, it appears that the project will construct a new sidewalk to improve the pedestrian facility network. Within the project site, the project will provide a paved walkway. At the intersection of E. Mozart Avenue and South Bascom Avenue, there is a striped crosswalk available. The signalized intersection of Bascom Avenue/SR 85 NB On/Off Ramp has striped crosswalks and pedestrian signal heads. The north leg provides a pedestrian median-island refuge for crossing Bascom Avenue. Both sides of Bascom Avenue provide paved sidewalks.

The existing pedestrian facilities in the study area are shown in **Figure 3**.

3.3 Existing Bicycle Facilities

The 2018 Santa Clara Valley Transportation Authority (VTA) Countywide Bicycle Plan outlines policies and objectives to improve the current active transportation system that includes walking and biking. The various bicycle facilities throughout the county are described below. Existing bicycle facilities are illustrated in **Figure 3.**

- **Class I Bike Path**: Class I Bike Paths are a completely separate right-of-way designed for the exclusive use of cyclists and pedestrians, with minimal crossings for motorists. In the project vicinity, there is a pedestrian-bicycle overpass that connects E. Mozart Avenue to the Los Gatos Creek County Park.
- **Class II Bike Lanes**: Class II Bicycle Lanes provide dedicated roadway space for bicyclists. Bike lanes are designated using pavement markings, striping, and signs. Class II Bike Lanes are currently present along both sides of Bascom Avenue near the project vicinity.
- **Class III Bikeways/Bike Routes**: Class III Bicycle Routes are streets specifically designated for bicyclists to share with motor vehicle traffic. Bike routes are typically designated using signage and pavement markings.
- **Class IV Cycle Tracks**: Cycle tracks are bike lanes physically separated from motor vehicle traffic by a vertical barrier. The vertical barriers can include an adjacent parking lane, median or raised curb. Cycle tracks can be one-way or two-way.

3.4 Existing Transit Facilities

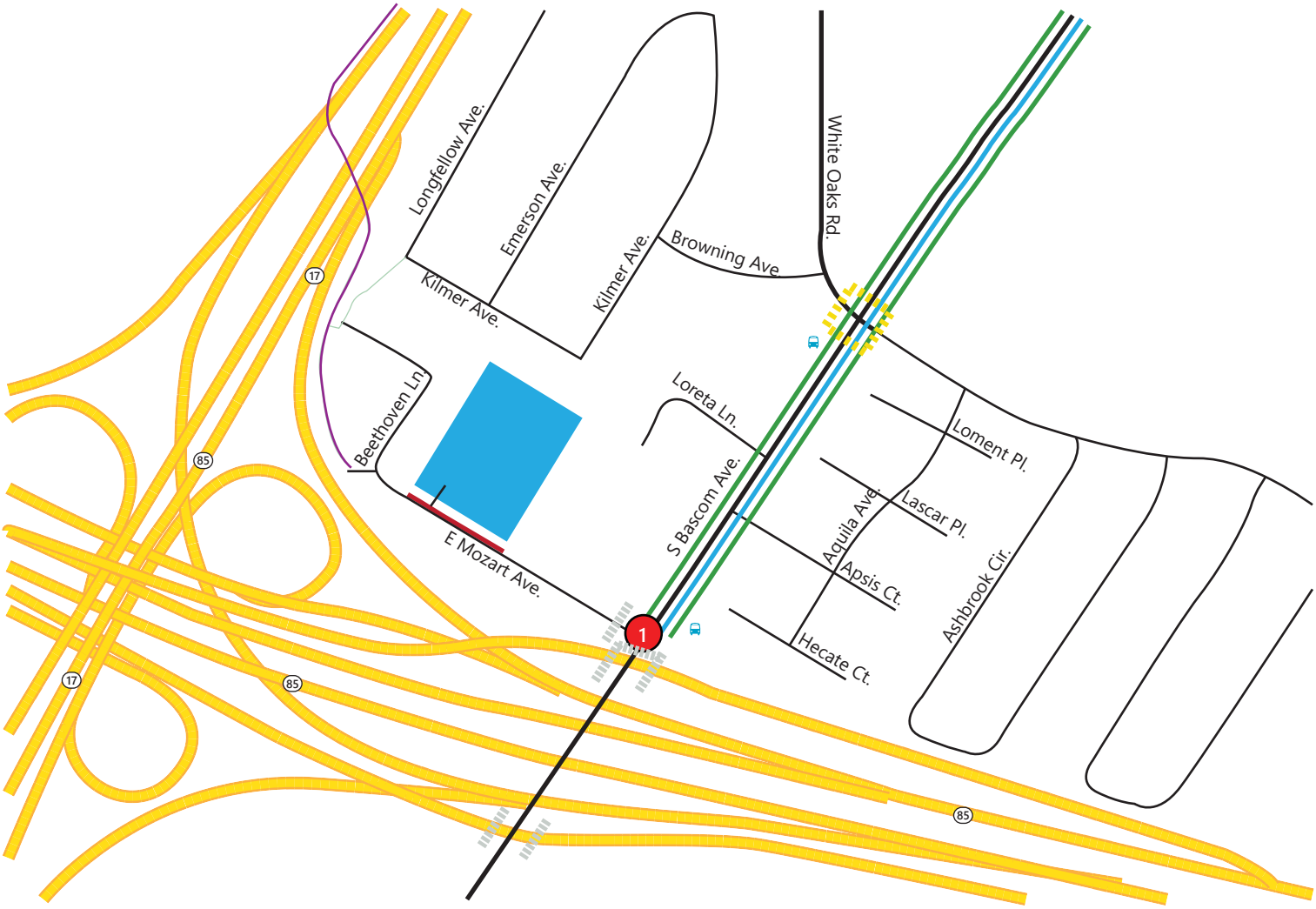
VTA provides transit service throughout Santa Clara County. The project site is located within walking distance to two bus stops. **Table 1** summarizes the existing VTA service and **Figure 3** illustrates the existing transit facilities in the study area.

Table 1: Existing VTA Service

			Weekdays		***Weekends***	
Route	***From***	***To***	***Operating Hours***	***Headway (minutes)***	***Operating Hours***	***Headway (minutes)***
61	Sierra & Piedmont	Good Samaritan Hospital	7:15 A.M. – 8:59 P.M.	20-51 minutes	7:15 A.M. – 8:59 P.M.	20-51 minutes

Source: VTA Website

Figure 3: Existing Pedestrian, Bicycle, and Transit Facilities



LEGEND

- Project Site
- Study Intersection
- Project Access
- Bus Stop
- Sidewalk Gap
- Pedestrian/Bicycle Overpass
- Route 61
- Existing Class II Bike Lane
- Marked Crosswalk
- Marked School Crosswalk

3.5 Existing Site Conditions

Currently, the intersection of Bascom Avenue/E. Mozart Avenue is a right-in/right-out roadway. **Figure 4** illustrates the existing intersection geometry. The intersection is immediately adjacent to the Bascom Avenue/SR 85 NB On/Off Ramp, resulting in space for one car to queue at the ramp before traffic backs up to E. Mozart Avenue. For vehicles wanting to travel northbound from E. Mozart Avenue, they would have to turn right onto Bascom Avenue and make a U-turn at the intersection of Bascom Avenue/SR 85 SB On/Off Ramp. Vehicles would have approximately 330 feet to merge from the number three lane to the number one lane so that they may be able to use the number one left-turn lane. This maneuver is possible, but it may be difficult during the a.m. or p.m. peak hour. If vehicles fail to U-turn at Bascom Avenue/SR 85 SB On/Off Ramp, the next signalized intersection that vehicles can legally U-turn would be at Los Gatos Boulevard/Enterprise Driveway about 1,500 feet further south.

Similarly, vehicles travelling northbound along Bascom Avenue wanting to turn left onto E. Mozart Avenue would have to U-turn at Bascom Avenue/White Oaks Road or U-turn anywhere prior to the intersection along the two-way left-turn lane (TWLTL) and proceed southbound to be able to turn right on E. Mozart Avenue.

During a public meeting about the project, a comment was made about vehicles cutting through the medical office complex, particularly from the outbound vehicles wanting to travel northbound on Bascom Avenue from E. Mozart Avenue and from the inbound vehicles travelling northbound on Bascom Avenue wanting to turn left onto E. Mozart Avenue. TJKM conducted a field observation during the a.m. and p.m. peak hour to observe the amount of cut-through traffic through the medical office complex. **Table 2** summarizes the amount of vehicle cut-through.

Table 2: Vehicle Cut-Through Traffic

Peak Hour	*Inbound to E. Mozart Avenue*	*Outbound from E. Mozart Avenue*
A.M.	0	3
P.M.	2	5

Existing parking supply along E. Mozart Avenue appears to be adequate as parking on both sides of E. Mozart Avenue is allowed.

3.6 Signal Warrant Analysis

Traffic signal warrants are a series of standards that provide guidelines for determining if a traffic signal is appropriate. Signal warrant analyses are typically conducted at intersections of uncontrolled major streets and stop sign-controlled minor streets. If one or more signal warrants are met, signalization of the intersection may be appropriate. However, a signal should not be installed if none of the warrants are met, since the installation of signals would increase delays on the previously uncontrolled major street, and may increase the occurrence of particular types of accidents.

As stated in the 2014 edition of the Manual on Uniform Traffic Control Devices (MUTCD), *"An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be*

performed to determine whether installation of a traffic control signal is justified at a particular location. The investigation of the need for a traffic control signal shall include an analysis of the applicable factors contained in the following traffic signal warrants and other factors related to existing operation and safety at the study location."

This Existing Condition analysis did not evaluate the full panoply of warrants for traffic signals, but instead focused on the peak hour warrant. The MUTCD states that*, "This (peak hour) signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time."* So the peak hour warrant is being used in this impact analysis study as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed the peak hour warrant are considered (for the purposes of this impact analysis) to be likely to meet one or more of the other signal warrants (such as the four-hour or eight-hour warrants). This peak hour analysis is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction.

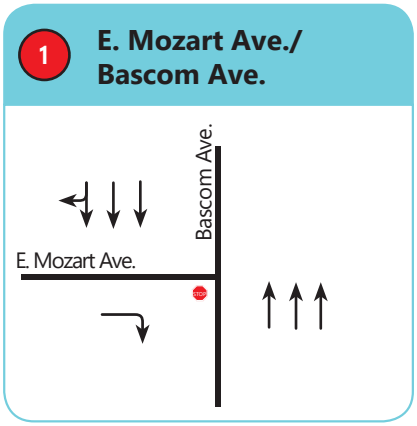
Even if the Peak Hour Volume Warrant is met, a more detailed signal warrant study is recommended before a signal is installed. The more detailed study should consider volumes during the daily peak hours of roadway traffic, pedestrian traffic, and accident histories.

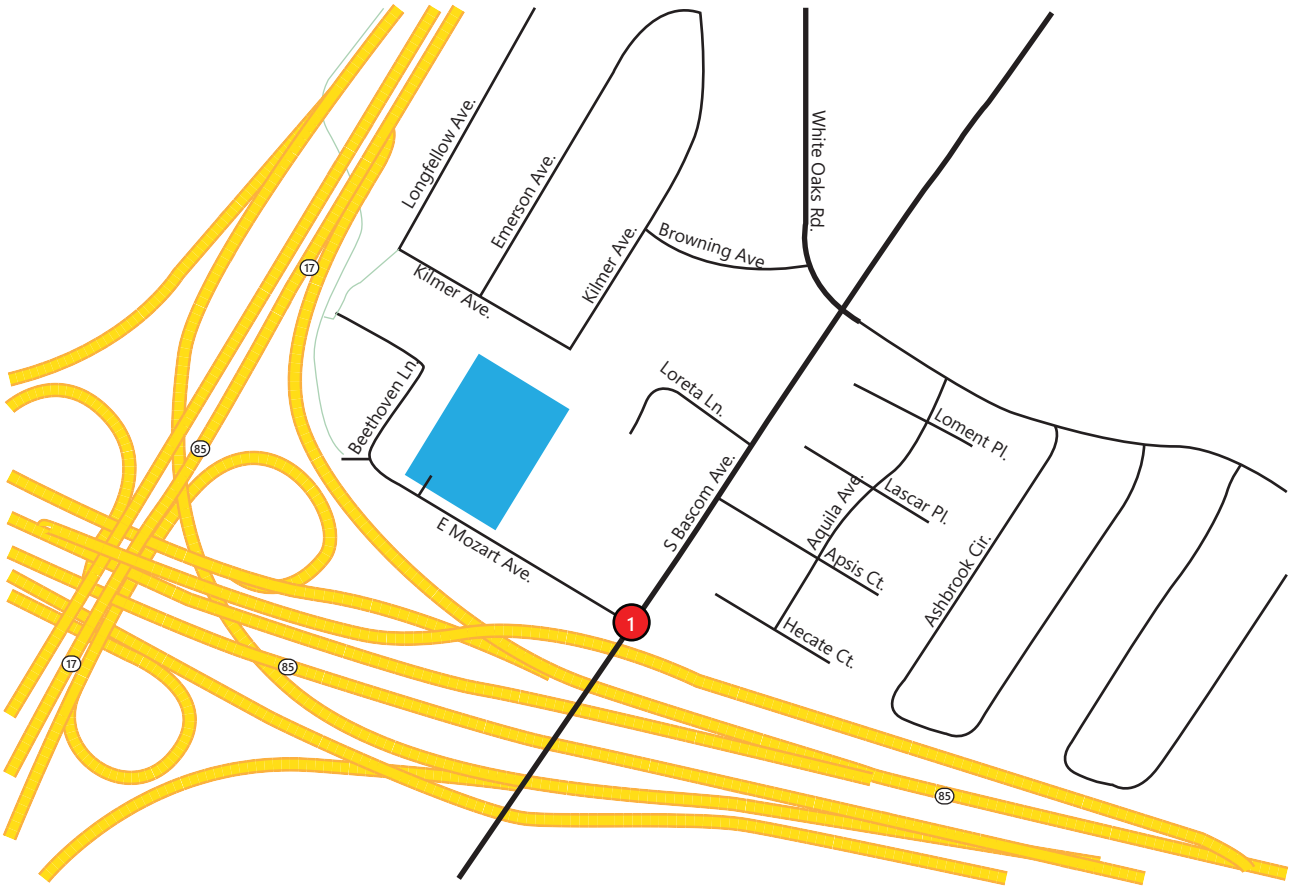
Using historical turning movement count data (2017) for E. Mozart Avenue/Bascom Avenue and the expected growth along Bascom Avenue determined from the various Traffic Studies mentioned in Chapter 2, TJKM projected 2020 turning movement volumes using a 1.3% and 1.2% annual growth rate for the a.m. and p.m. peak hour, respectively. The historical turning movement counts for E. Mozart Avenue/Bascom Avenue is located in **Appendix A.** The results of the peak hour warrant under existing conditions are summarized in **Table 3**. The results show that the study intersection does not meet the MUTCD Peak hour warrant during the a.m. or p.m. peak period. Existing Conditions peak hour signal warrant analysis work sheets are provided in **Appendix B.**

Table 3: Existing Conditions Signal Warrant Analysis

Intersection	***Control***	***Existing Conditions***	
		Meets AM Peak Hour?	***Meets PM Peak Hour?***
E. Mozart Avenue/Bascom Avenue	One-Way Stop	No	No

Figure 4: Existing Traffic Controls and Lane Geometry





LEGEND

- Project Site
- Study Intersection
- Project Access
- Stop Sign

4.0 PROJECT TRIP GENERATION, SIGNAL WARRANTS, AND ALTERNATIVES

The project trip generation, signal warrant analysis and potential alternatives for E. Mozart Avenue/Bascom Avenue are discussed in this chapter. First, the method used to estimate the amount of traffic generated by the project is described.

4.1 PROJECT TRIP GENERATION

TJKM developed estimated project trip generation for the proposed project based on published trip generation rates from the *Institute of Transportation Engineers' (ITE) publication Trip Generation (10th Edition).*

TJKM used published trip rates for the ITE land use Single-Family Detached Housing, General Urban/Suburban (ITE Code 210), as this land use most closely matches the proposed development project. For the five ADUs, TJKM used one-half of the trip rates from the Single-Family Detached Housing (ITE Code 210) to estimate trips for that specific land use. Trip credits were applied to the trip generation as 5 existing single-family homes are currently present on site.

Table 4 shows the trip generation expected to be generated by the proposed project.

The proposed project is expected to generate approximately 16 weekday a.m. peak hour trips (4 inbound trips, 12 outbound trips), and 23 weekday p.m. peak hour trips (15 inbound trips, 8 outbound trips).

Table 4: Project Trip Generation

Proposed Land Uses (ITE Code)	Units	Daily		AM Peak				PM Peak			
		Rate	*Trips*	*Rate*	*In/out %*	*In/out*	*Total*	*Rate*	*In/out %*	*In/out*	*Total*
Single-Family Detached Housing, General Urban/Suburban (ITE Code 210)[1]	25 DU	*9.44*	*236*	*0.74*	*25/75*	5/14	19	*0.99*	*63/37*	16/9	25
Accessory Dwelling Units	5 ADUs	*4.72*	*24*	*0.37*	*25/75*	0/1	1	*0.50*	*63/37*	2/1	3
Existing Single-Family Detached Housing, General Urban/Suburban (ITE Code 210)[1]	5 DU	*9.44*	*-47*	*0.74*	*25/75*	-1/-3	-4	*0.99*	*63/37*	-3/-2	-5
Total Net Trips			**213**			**4/12**	**16**			**15/8**	**23**

Source - ITE Trip Generation Manual, 10th Edition (2017).
[1]Single-Family Detached Housing, General Urban/Suburban (ITE Land Use Code 210) vehicle trip rates are based upon number of dwelling units.

4.2 Signal Warrant Analysis – Existing Plus Project

The results of the peak hour signal warrant under Existing Plus Project Conditions are summarized in **Table 5**. The results show that the intersection of E. Mozart Avenue/Bascom Avenue does not meet the peak hour warrant in the a.m. and p.m. peak hour. Existing Conditions peak hour signal warrant analysis work sheets are provided in **Appendix B.**

Table 5: Existing Plus Project Conditions Signal Warrant Analysis

Intersection	*Control*	*Existing Conditions*		*Existing Plus Project Conditions*	
		Meets AM Peak Hour?	*Meets PM Peak Hour?*	*Meets AM Peak Hour?*	*Meets PM Peak Hour?*
E. Mozart Avenue/Bascom Avenue	One-Way Stop	No	No	No	No

4.3 E. Mozart Avenue and Bascom Avenue Alternatives

Signalization of E. Mozart Avenue/Bascom Avenue with Median Modification

With the increase in trips originating from E. Mozart Avenue, there will be drivers whose destination requires them to travel northbound along Bascom Avenue. As previously mentioned under Existing Conditions, the quickest way to travel northbound on Bascom Avenue would be to make a U-turn at Bascom Avenue/SR 85 SB Ramps.

One potential alternative to decrease the travel time for drivers wanting to travel northbound would be signalize the intersection of E. Mozart Avenue/Bascom Avenue. It should be noted that the intersection did not meet the peak hour signal warrant under Existing or Existing Plus Project Conditions. Under this alternative, the existing median would need to be modified to allow left-turns from E. Mozart Avenue and left-turns from northbound Bascom Avenue onto E. Mozart Avenue would continue to be prohibited. Coordination with the City of San Jose and Caltrans would be required in order to coordinate the traffic signals between E. Mozart Avenue and the SR 85 NB/SB Ramps. The signalization of the study intersection may be unlikely due to the limited storage length between the existing southbound stop bar at Bascom Avenue/SR 85 NB Ramps and E. Mozart Avenue. The storage length is approximately one car length. TJKM does not recommend signalization of this intersection.

Existing Intersection Control with Median Modification

Another potential alternative would be to keep the existing intersection control and to only modify the median to allow left-turns onto northbound Bascom Avenue from E. Mozart Avenue. Vehicles turning from E. Mozart Avenue will be able to use the provided TWLTL to accelerate and merge into Bascom Avenue. However, the potential queue from southbound Bascom Avenue/SR 85 NB Ramps may overflow into E. Mozart Avenue/Bascom Avenue and prevent vehicles wanting to travel northbound along Bascom Avenue. Appropriate signage would be required to prohibit left-turns from Bascom Avenue onto E. Mozart Avenue. However due to the potential safety hazards with this alternative, TJKM does not

recommend modifying the median to allow left turns from E. Mozart Avenue. The existing intersection configuration should be maintained.

5.0 ADDITIONAL ANALYSES

The following sections provide additional analyses of other transportation issues associated with the project site, including:

- Parking Analysis
- Site access and onsite circulation
- Pedestrian, Bicycle, and Transit Impacts
- Traffic Infusion on Residential Environmental (TIRE) Index
- Reducing Cut-Through Traffic Through Medical Office Complex
- Vehicle Miles Traveled (VMT)

The analyses in these sections is based on professional judgment in accordance with the standards and methods employed by traffic engineers. Although operational issues are not considered CEQA impacts, they do describe traffic conditions that are relevant to the project environment.

5.1 Parking Analysis

The proposed project has proposed to construct 25 single-family homes and 5 ADUs. The City of Campbell parking requirement is 2 spaces for each single-family unit. The City parking requirement for the ADUs is one space per unit. The total amount of parking required for the proposed development is 55 parking spaces. Based on the site plan (dated July 26, 2019), 71 parking stalls will be provided.

The project would also install a curb and sidewalk that would also allow for parking along E. Mozart Avenue. However, to establish adequate sight distance for vehicles leaving the project's main driveway, TJKM recommends installing 15 feet of red curb on both sides of the driveway to increase sight distance to approaching traffic.

5.2 Site Access and On-Site Circulation

Site Access

The proposed vehicular access to the project site is via a 20 foot wide driveway located along E. Mozart Avenue. Sidewalks will be constructed along the project frontage to allow for pedestrian access.

On-Site Circulation

In terms of external access, the project conceptual plan shows the driveways that the proposed project would use. The driveways do not have any turning restrictions and appear to accommodate two-way travel. The proposed internal roadway width is 20 feet, which satisfies aisle width for two-way circulation on low volume private streets. The parking stalls within the project site are a combination of parallel and perpendicular stalls.

The project will also develop a paved sidewalk and crosswalks so that pedestrians may be able access the homes located on the inner parcel.

Fire Trucks will be able to access the project site through the proposed driveway and there is adequate room for them to circulate through the site. The project should verify that garbage trucks will have

sufficient room to circulate through the site. Based on a preliminary review of the project site plan, the site access and on-site circulation is considered adequate.

5.3 Pedestrian, Bicycle, and Transit Impacts

Pedestrian Access

Pedestrian access to the project site will be facilitated by existing sidewalks on E. Mozart Avenue and Bascom Avenue as well as proposed walkways within the project site. Pedestrians may also use the SR-17 overpass that connects E. Mozart Avenue and Los Gatos Creek County Park. There is existing street lighting that is adequate. The proposed development project does not conflict with existing and planned pedestrian facilities; therefore, the impact to pedestrian facilities is ***less than significant***.

Bicycle Access

In terms of bicycle access to the project site, there are currently existing Class II bicycle facilities along Bascom Avenue. E. Mozart Avenue does not have any existing bicycle facilities. Bicycles may also use the SR-17 overpass that connects E. Mozart Avenue and Los Gatos Creek County Park. The project does not conflict with existing and planned bicycle facilities; therefore, the impact to bicycle facilities is ***less than significant***

Transit Access

The project site is within walking distance to two VTA bus stops located on Bascom Avenue. The bus stops provide local access and can connect to regional transit stations. The existing pedestrian facilities in the project vicinity provide adequate connectivity for pedestrians to the transit stops. Impacts to transit service are expected to be ***less than significant.***

5.4 Traffic Infusion on Residential Environment (TIRE)

Residential areas tend to be especially sensitive to traffic because relatively small increases in traffic can impact the livability of the neighborhood. TIRE is the measure of traffic impact on residents along a roadway. The TIRE Index is derived from a theory by D.K. Goodrich, based on work by Professor Appleyard of the University of California at Berkeley, and by Buchanan of the Ministry of Transport, England. TIRE is based on the hypothesis that a given increase in traffic volume has a greater impact on the residential environment along a roadway with a low traffic volume, than along a roadway with a high pre-existing volume. TIRE represents the effect of traffic on the safety and comfort of human activities, such as walking, bicycling, and playing on or near a roadway, and on the freedom to maneuver personal autos in and out of residential driveways.

The TIRE index is based on daily traffic conditions and uses average daily traffic (ADT) volumes to determine the amount of daily traffic that could be added to a roadway before residents would perceive the increase in traffic. The amount of daily traffic that can be added before residents would notice directly correlates to the amount of daily traffic already present on the roadway. The TIRE Index scale ranges from 0.0 to 5.0, depending on daily traffic volume. An index of 0.0 represents the least infusion of traffic. An index of 5.0 represents the greatest traffic volume, and thereby the poorest residential environment. A roadway with a TIRE value of 3.0 or greater is considered to exhibit a significantly impaired residential environment, while roadways with a TIRE value below 3.0 are usually more suitable for residential

activities. The projected difference between a pre and post-project TIRE value is the predicted impact of the project on a residential environment. Any projected change of 0.1 or greater would be noticeable to residents. An increase in index of 0.1 corresponds to an approximate increase in ADT of between 20% and 30%. **Appendix C** contains a detailed description of the TIRE index methodology. **Table 6** provides an abbreviated list of the TIRE Index thresholds for different ADT ranges. The TIRE Index analysis is provided for informational purposes only.

Table 6: TIRE Index Thresholds based on ADT

Existing Volume Range (Vehicles Per Day)	*TIRE Index*	*Minimum Daily Traffic Volume Increase to Produce*	
		a 0.1 Change in the TIRE Index	*a 0.2 Change in the TIRE Index*
29-35	1.5	+6	+15
36-44	1.6	+8	+20
45-56	1.7	+10	+25
57-70	1.8	+13	+32
71-89	1.9	+17	+41
90-110	2.0	+22	+52
111-140	2.1	+29	+65
141-180	2.2	+40	+80
181-220	2.3	+52	+100
221-280	2.4	+65	+125
281-350	2.5	+79	+160
351-450	2.6	+97	+205
451-560	2.7	+114	+260
561-710	2.8	+140	+330
711-890	2.9	+170	+415
891-1,100	3.0	+220	+520

Source: Goodrich Traffic Group, based on curve shapes found in work by Donald Appleyard at the University of California, Berkeley and in consideration of earlier thoughts by Buchanan of the Ministry of Transport, England.

The existing ADT for E. Mozart Avenue was estimated using the *Institute of Transportation Engineers' (ITE) publication Trip Generation (10th Edition)* for the existing 28 homes near the project vicinity. It was determined that there would be 264 daily trips from the existing homes. The results of the TIRE Index analysis for the Existing plus Project are shown in **Table 7.**

Table 7: TIRE Analysis – Existing Plus Project

Segment	*Existing*		*Project Trips*[1]	*0.1 Change in TIRE Index*	
	ADT	*TIRE Index*		*Volume*	*Noticeable Change in Traffic*
E. Mozart Avenue	264	2.4	213	65	Yes

[1]Project trips are the total net trips generated from the proposed project.

Based on the initial TIRE analysis, the project is expected increase the existing volumes of 264 vehicles per day to 477 daily trips. This would change the TIRE index from 2.4 to 2.7, an increase of 0.3. However, the

resulting traffic volume increases will be noticeable only to five residences on E. Mozart Avenue. It should be noted that E. Mozart Avenue has sufficient capacity to accommodate the additional project traffic.

5.5 Potential Cut-Through at Medical Office Complex

As previously mentioned, there are a few vehicles that use the parking lot for the existing medical office complex as a short cut to travel northbound on Bascom Avenue from E. Mozart Avenue or by inbound vehicles travelling northbound on Bascom Avenue wanting to turn left onto E. Mozart Avenue. Even though cut-through volumes are very low, TJKM suggests consideration of two measures that may deter or prevent vehicles using the parking lot.

1. Installing Signing – The City of Campbell can install R3-1 (right-turn prohibited) and R3-2 (left-turn prohibited) to prohibit vehicles turning right from the parking lot onto E. Mozart Avenue and prohibit vehicles turning left into the parking lot from E. Mozart Avenue. The City may choose to only prohibit the turns during hours the medical offices are open. TJKM observed a low amount of existing residents that are driving through the parking lot. Enforcement of these signs will be necessary in order to deter vehicles from using the parking lot to exit the neighborhood. However, it should be noted that enforcement of such regulations would be a very low priority for enforcement personnel.
2. Closing the Driveway – Alternatively, the driveway along E. Mozart Avenue may be closed altogether with the placement of traffic barricades or a gate during business hours. It should be noted that the City wouldn't initiate the closure of a private driveway. The closure of the driveway would ensure that vehicles would use E. Mozart Avenue for ingress/egress during the a.m. and p.m. peak periods. Any full or partial closure would likely need to be initiated by the medical office building management. This driveway is very lightly used by the medical office users and employees, so another option is to convert it to emergency uses only.

5.6 Vehicle Miles Traveled (VMT)

Compliance with Senate Bill (SB) 743 will include replacement of LOS with Vehicle Miles Traveled (VMT) for purposes of assessing traffic impacts under CEQA beginning in July 2020.

Compliance with Senate Bill (SB) 743 will include replacement of LOS with VMT for purposes of assessing traffic impacts under CEQA described in new Section 15064.3 of the CEQA Guidelines that will be apply statewide beginning on July 1, 2020. Lead agencies will have discretion to choose the most appropriate methodology to evaluate a project's vehicles miles traveled, including whether to express the change in absolute terms, per capita, per household or any other measure. VMT refers to the amount and distance of automobile travel "attributable to a project".

The City of Campbell has a draft VMT Policy to comply with SB 743. For residential land use projects, "a proposed project exceeding a level of 15 percent below the existing Campbell citywide average VMT per Capita shall be presumed to cause a significant transportation impact." TJKM utilized the draft Campbell VMT Policy and determined that the project would require mitigation measures to lessen the significance of these impacts.

Mitigations

To substantially lessen VMT impacts caused by the proposed project, the following mitigations can be implemented.

1. Wayfinding Signs – Install wayfinding signs at E. Mozart Avenue/Bascom Avenue, at the west end of the Mozart Avenue cul-de-sac, and at the foot of the pedestrian-bicycle overpass. These signs would familiarize potential users with the existing pedestrian/bicycle network.
2. Bike Route Signs and Sharrows – Designate E. Mozart Avenue as a bike route and install signs and sharrows. These installations will close the gap between the existing bike lanes along Bascom Avenue and the pedestrian-bicycle overpass.
3. Sidewalks – Install sidewalks along the project frontage to close the existing gap on Mozart Avenue. This will promote walking by project residents and others.
4. Bus Shelter – Install a bus shelter at the bus stop along Bascom Avenue across from E. Mozart Avenue. This is subject to VTA approval but is consistent with VTA's Bascom Avenue Complete Streets Study. This will encourage new residents and others to use public transit by providing a bench and shade.
5. VTA Transit Passes – Provide introductory VTA Transit Passes to project residents. This can be administered by the Homeowner's Association (HOA). Providing VTA transit passes is intended to encourage residents to try transit and build a habit.
6. Fair Share Contribution – Contribute fair share funding to recently constructed bicycle and pedestrian improvements including the bike lanes on Bascom Avenue between Camden Avenue and SR 85 and ADA-compliant curb ramp upgrades between Camden Avenue and SR 85.

It is the opinion of TJKM that the implementation of these measures would substantially lessen the significant VMT impacts associated with this project.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Project Trip Generation

The proposed project is expected to generate approximately 16 weekday a.m. peak hour trips (4 inbound trips, 12 outbound trips), and 23 weekday p.m. peak hour trips (15 inbound trips, 8 outbound trips).

Existing Conditions Signal Warrant Analysis

The results of the signal warrant analysis shows that the intersection of E. Mozart Avenue/Bascom Avenue does not meet the MUTCD peak hour warrant during the a.m. or p.m. peak period.

Existing plus Project Conditions Signal Warrant Analysis

The results of the signal warrant analysis shows that the intersection of E. Mozart Avenue/Bascom Avenue does not meet the MUTCD peak hour warrant during the a.m. or p.m. peak period.

E. Mozart Avenue/Bascom Avenue Alternatives

One alternative to modify E. Mozart Avenue/Bascom Avenue is to signalize the intersection and modify the median to allow left-turns from E. Mozart onto Bascom Avenue. Coordination with the City of San Jose and Caltrans would be required in order to coordinate the signals along the SR 85 ramps. However, signalization may be unlikely due to the limited storage length between the existing southbound stop bar at Bascom Avenue/SR 85 NB Ramps and E. Mozart Avenue.

Another alternative would be to keep the existing intersection control and just modify the median to allow left-turns onto Bascom Avenue from E. Mozart Avenue. However, the potential queue from southbound Bascom Avenue/SR 85 NB Ramps may overflow into E. Mozart Avenue/Bascom Avenue and prevent vehicles from making the left-turn onto Bascom Avenue.

TJKM recommends not signalizing the intersection nor modifying the median and keeping the existing intersection configuration of E. Mozart Avenue/Bascom Avenue due to safety hazards and the close proximity Bascom Avenue/SR 85 NB Ramps.

Parking

The proposed parking supply of 71 spaces is expected to satisfy the anticipated demand of 55 parking spaces. The project would also install a curb and sidewalk that would allow for parking along E. Mozart Avenue. However, to establish adequate sight distance, TJKM recommends installing 15 feet of red curb on both sides of the project driveway.

Site Access and On-Site Circulation

The proposed vehicular access to the project site is via a 20 foot wide driveway located along E. Mozart Avenue. Sidewalks will be constructed along the project frontage to allow for pedestrian access. Based on a preliminary review of the project site plan, the site access and on-site circulation is considered adequate.

Pedestrian Impacts

The proposed project will also provide internal walkways and striped crosswalks. The proposed project does not conflict with existing and planned pedestrian facilities; therefore, the impact to pedestrian facilities is ***less than significant***.

Bicycle Impacts

The project is does not conflict with existing and planned bicycle facilities; therefore, the impact to bicycle facilities is ***less than significant***.

Transit Impacts

The project site is within walking distance to two VTA bus stops, which can connect users to local and regional locations. Impacts to transit service are expected to be ***less than significant.***

Traffic Infusion on Residential Environment (TIRE) Index

Based on the initial TIRE Index analysis, the project is expected increase the existing TIRE index by 0.3, resulting in traffic volume increases that will be noticeable to five residences on E. Mozart Avenue. Even with the additional project traffic, E. Mozart Avenue will have sufficient capacity to accommodate existing and project traffic.

Potential Cut-Through at Medical Office Complex

Motorists can cut through a nearby medical office complex parking lot to save time. TJKM determined this to be a minor problem. However, the following measures could be considered;

1. Install signage that prohibits left-turns into the driveway and right-turns from the driveway, or
2. Close the driveway with traffic barricades or a gate so that vehicles would have to use E. Mozart Avenue to enter or exit the neighborhood.

Vehicle Miles Traveled (VMT)

To lessen the significance of VMT impacts, the following proposed mitigations can be implemented.

1. Install Wayfinding Signs for the existing nearby bike and pedestrian facility
2. Install Bike Route Signs and Sharrows along E. Mozart Avenue
3. Construct Sidewalks along the project frontage
4. Install a Bus Shelter on Bascom Avenue near the project
5. Provide introductory VTA Transit Passes for initial residents
6. Provide Fair Share Contributions for recently completed bike lanes and pedestrian improvements on Bascom Avenue.

Appendix A – Historical Turning Movement Counts

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

S Bascom Ave and E Mozart Ave , Los Gatos

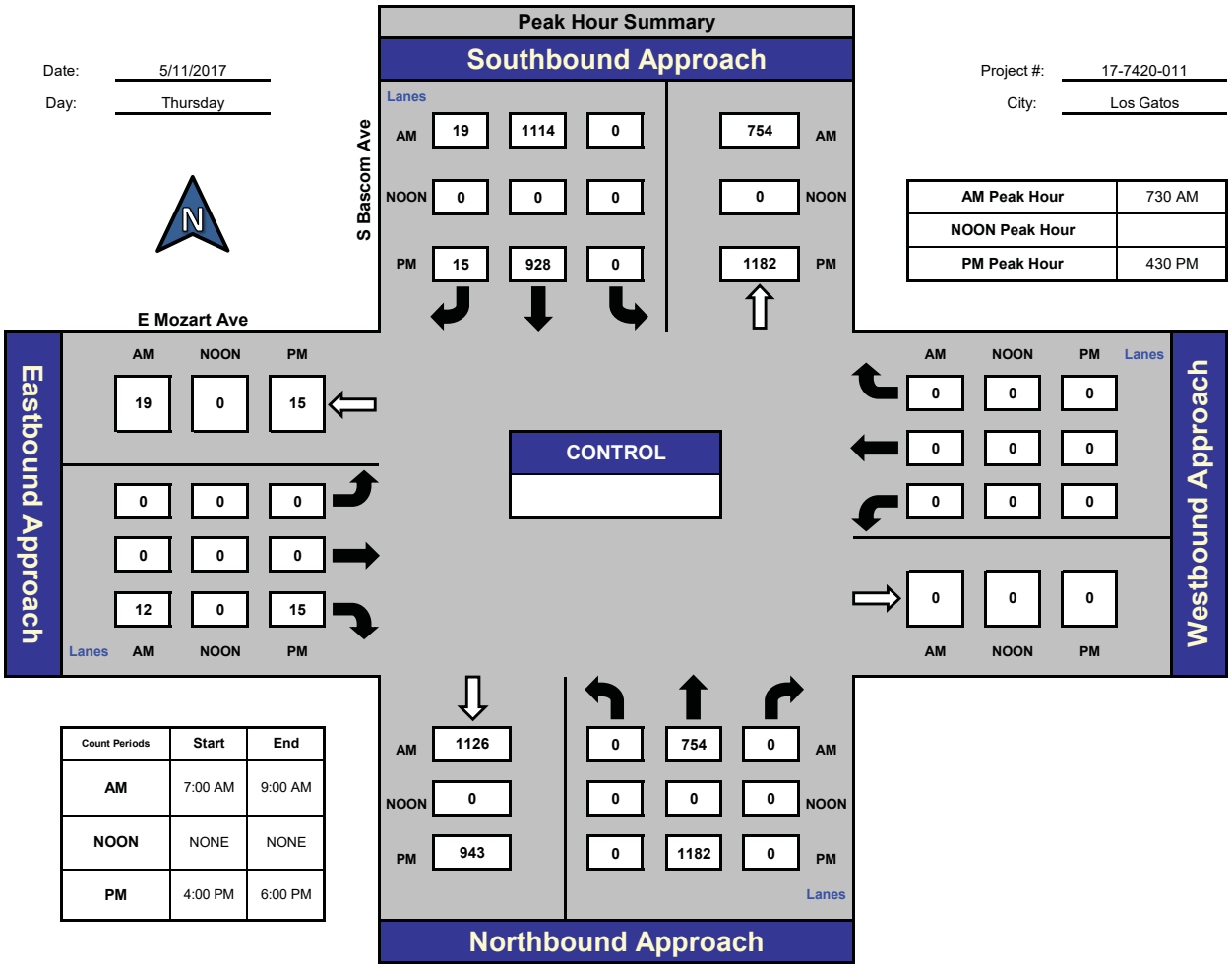
Date: 5/11/2017

Day: Thursday

Project #: 17-7420-011

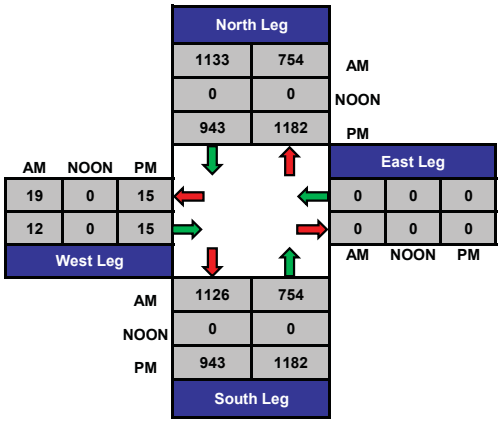
City: Los Gatos

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	430 PM

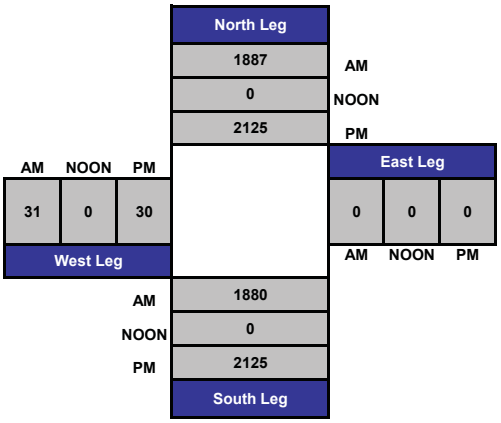


Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg

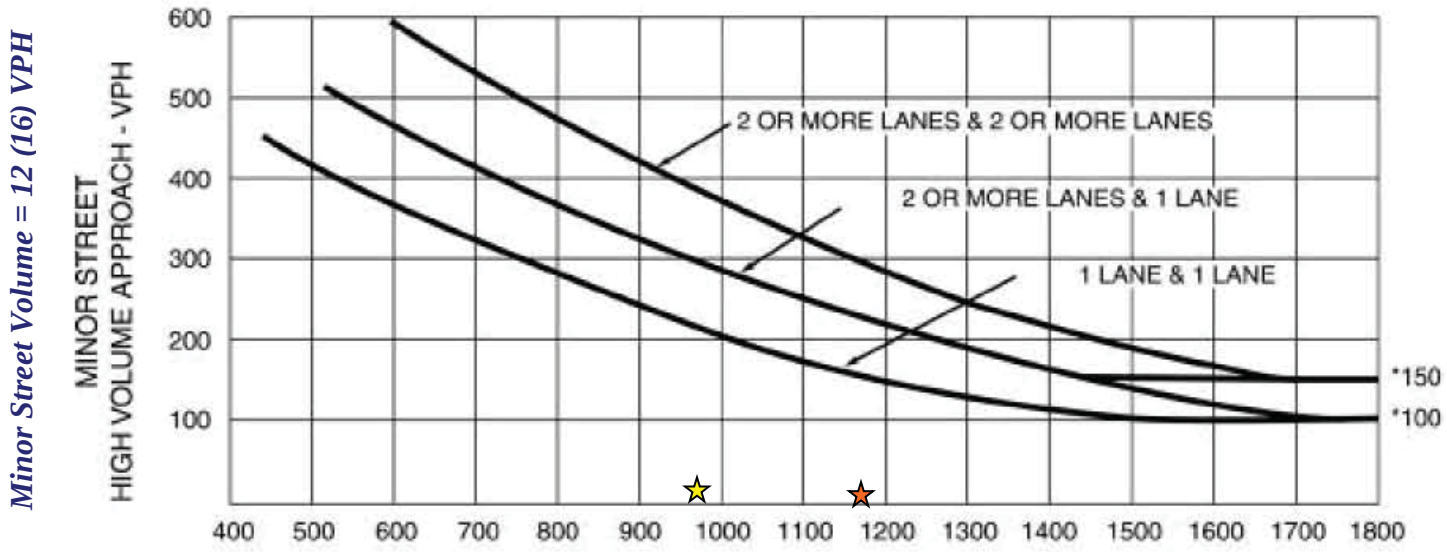


Appendix B – Existing Conditions and Existing Plus Project Peak Hour Signal Warrant

Peak Hour Warrant (Urban Areas)

Intersection: E. Mozart Avenue/Bascom Avenue, Campbell, CA
Scenario: Existing Conditions A.M. & P.M. Peak Hour

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Major Street Volume = 1,179 (977) VPH

Legend:
XX – AM Peak Volume
(XX) – PM Peak Volume
– A.M.
– P.M.

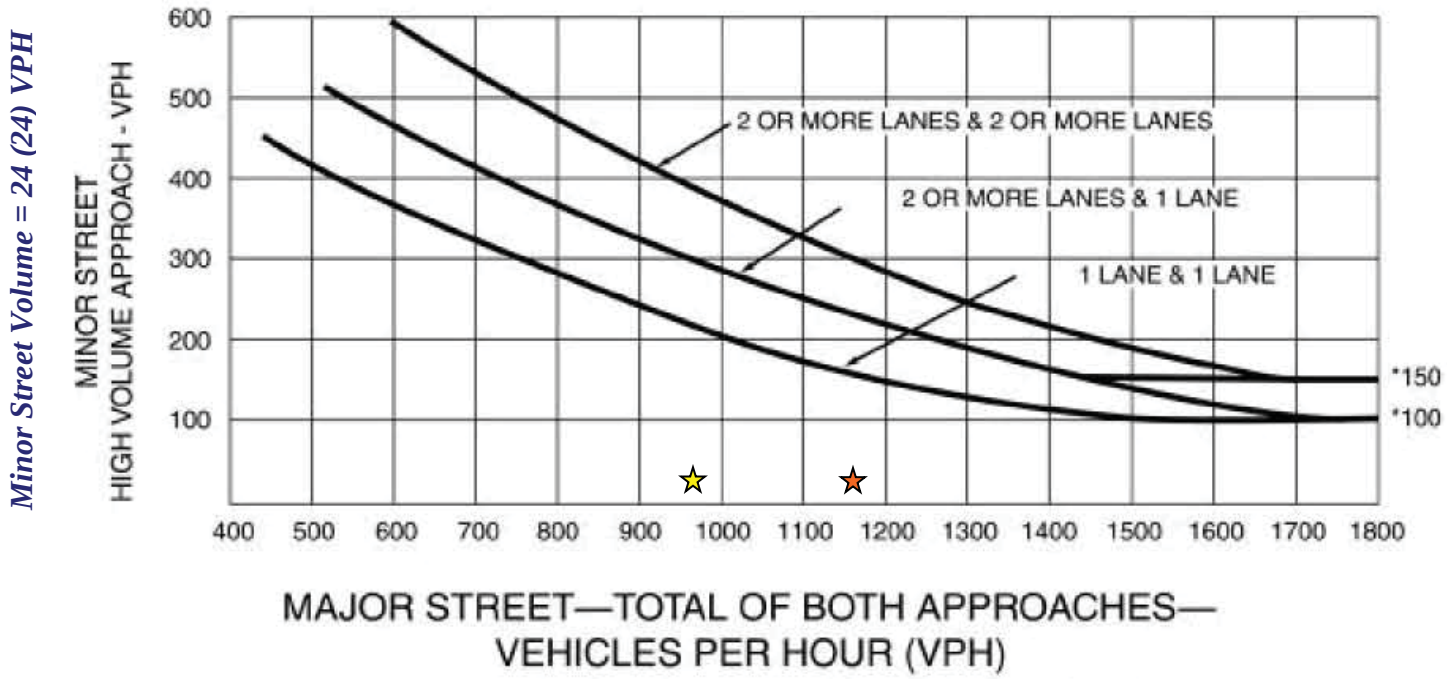
A signal is not warranted for the A.M. or P.M. Peak Hours

Source: CA MUTCD 2014, Chapter 4C – Traffic Control Signal Needs Studies, Part 4 - Highway Traffic Signals, Figure 4C-3

Peak Hour Warrant (Urban Areas)

Intersection: E. Mozart Avenue/Bascom Avenue, Campbell, CA
Scenario: Existing Plus Project Conditions A.M. & P.M. Peak Hour

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Major Street Volume = 1,183 (993) VPH

Legend:
XX – AM Peak Volume
(XX) – PM Peak Volume
– A.M.
– P.M.

A signal is not warranted for the A.M. or P.M. Peak Hours

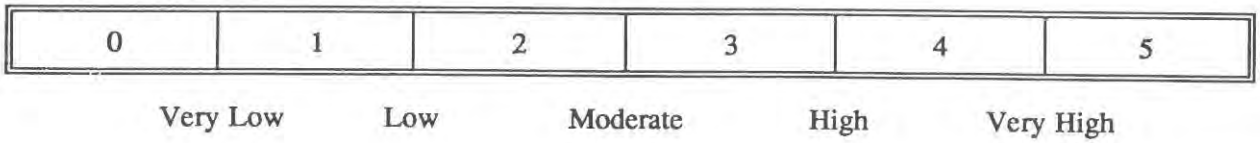
Source: CA MUTCD 2014, Chapter 4C – Traffic Control Signal Needs Studies, Part 4 - Highway Traffic Signals, Figure 4C-3

Appendix C – Traffic Infusion on Residential Environmental (TIRE) Index Methodology

TRAFFIC INFUSION ON RESIDENTIAL ENVIRONMENT (TIRE)

TIRE is a measure of the impact of traffic on residents along a street. The TIRE Index Scale ranges from 0 to 5 depending on daily traffic volume. An index of 0 represents the least infusion of traffic. An index of 5 represents the greatest traffic volume, and thereby the poorest residential environment.

TIRE Index Scale



Typical street types associates with the various index levels are shown below:

TIRE Index Levels

TIRE Index	Daily Traffic Volume	Residential Environment Typical of:
0	1	A cul-de-sac street with one home
1	10	A cul-de-sac street with two homes
2	100	A two-lane minor street
3	1,000	A two-lane collector or arterial street
4	10,000	A two to six-lane arterial street
5	100,000	

The TIRE Index is derived from a theory by D.K. Goodrich based on work by Appleyard of the University of California at Berkeley, and by Buchanan of the Ministry of Transport, England. TIRE is based on the hypothesis that a given increase in traffic volume has a greater impact on residential environment along a residential street with a low traffic volume than along a street with a high pre-existing volume. TIRE effects are separate from noise and air pollution impacts. TIRE represents the effect of traffic on the safety and comfort of human activities such as walking, bicycling and playing on or near a street and on the freedom to maneuver personal autos in and out of residential driveways.

The TIRE Index table gives TIRE values associated with various daily traffic volume ranges. The mathematical relationships are logarithmic. A street with a TIRE value of 3 or greater is considered to function primarily as a traffic street and to exhibit significantly impaired residential environment. The projected difference between a pre and post-project TIRE value is the predicted impact of the project on residential environment. Any projected change of 0.1 or greater would be noticeable to residents.

Table 1
TIRE Index

Existing Volume Range (Vehicles Per Day)	TIRE Index	Minimum Daily Traffic Volume Increase to Produce	
		a 0.1 Change in the TIRE Index	a 0.2 Change in the TIRE Index
29-35	1.5	+6	+15
36-44	1.6	+8	+20
45-56	1.7	+10	+25
57-70	1.8	+13	+32
71-89	1.9	+17	+41
90-110	2.0	+22	+52
111-140	2.1	+29	+65
141-180	2.2	+40	+80
181-220	2.3	+52	+100
221-280	2.4	+65	+125
281-350	2.5	+79	+160
351-450	2.6	+97	+205
451-560	2.7	+114	+260
561-710	2.8	+140	+330
711-890	2.9	+170	+415
891-1,100	3.0	+220	+520
1,101-1,400	3.1	+290	+650
1,401-1,800	3.2	+380	+800
1,801-2,200	3.3	+500	+1,000
2,201-2,800	3.4	+650	+1,300
2,801-3,500	3.5	+825	+1,700
3,501-4,500	3.6	+1,025	+2,200
4,501-5,600	3.7	+1,250	+2,800
5,601-7,100	3.8	+1,500	+3,500
7,101-8,900	3.9	+1,800	+4,300
8,901-11,000	4.0	+2,300	+5,300
11,001-14,000	4.1	+3,000	+6,500
14,001-18,000	4.2	+4,000	+8,000
18,001-22,00	4.3	+5,200	+10,000
22,001-28,000	4.4	+6,600	+13,000
28,001-35,000	4.5	+8,200	+17,000
35,000-45,000	4.6	+10,000	+22,000
45,001-56,000	4.7	+12,200	+28,000
56,001-71,000	4.8	+14,800	+35,000
71,001-89,000	4.9	+18,00	+43,000

Source: Goodrich Traffic Group, based on curve shapes found in work by Donald Appleyard at the University of California at Berkeley and consideration of earlier thoughts by Buchanan of the Ministry of Transport, England.