INITIAL STUDY

Housing Incentive Program Expansion and 788 San Antonio Road Mixed-Use Project

PREPARED BY

City of Palo Alto
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PREPARED WITH THE ASSISTANCE OF

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April 2020

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Housing Incentive Program Expansion and 788 San Antonio Road Mixed-Use Project

2. LEAD AGENCY NAME AND ADDRESS

City of Palo Alto
250 Hamilton Avenue
Palo Alto, California 94301

3. CONTACT PERSON AND PHONE NUMBER

Sheldon S. Ah Sing, AICP, Project Planner
(408) 340-5642 ext. 109

4. PROJECT LOCATION

The proposed Housing Incentive Program (HIP) expansion area ("program area") includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road in the City of Palo Alto. The eastern boundary of the program area is the boundary between the City of Palo Alto and the City of Mountain View. With the exception of one parcel, 705 San Antonio Road, all of the parcels in the program area are located on the east side of San Antonio Road. The parcels encompass 9.64 acres (420,031 square feet). Table 1 provides the address, lot area, Assessor's Parcel Number, and existing use for each parcel within the area. Figure 1 shows the regional location of the program area and Figure 2 shows an aerial view of the program area and the immediate surroundings.

As described in Section 9, *Description of The Project*, the proposed project also involves a new development on two of the parcels within the program area. Those parcels are located on the northeast corner of the intersection of San Antonio Road and Leghorn Street at 788, 790, and 796 San Antonio Road (the "788 San Antonio Road project site" or "project site"). Figure 2 shows an aerial view of the project site in relation to the program area.

5. PROJECT APPPLICANT'S NAME AND ADDRESS

Ted O'Hanlon on behalf of 788 SA, LLC
2625 Middlefield Road, #101
Palo Alto, CA 94306

Table 1 Parcels within the Program Area

Address	APN	Lot Size (square feet)	Existing Use
840 San Antonio	147-03-064	23,065	Service Station
910 E. Charleston	147-03-065	22,270	Fast food drive-thru
824 San Antonio	147-03-040	19,905	Car Rental
816 San Antonio	147-03-039	20,021	Car Rental
808 - 814 San Antonio	147-03-043	19,787	Day Spa
800 San Antonio	147-03-038	18,870	Tutoring
796 San Antonio	147-03-042	21,223	Martial Arts
788 – 790 San Antonio	147-03-041	22,718	Contractor
780 San Antonio	147-05-092	20,293	Oil Change
762 San Antonio	147-05-102	39,880	Truck sales
760 San Antonio	147-05-091	29,082	Office equipment repair
744 - 750 San Antonio	147-05-089, 147-05-088	83,441	Hotel
720 San Antonio	147-05-087	20,000	Light manufacturing
708 - 710 San Antonio	147-05-090	10,422	Automobile repair
705 San Antonio	127-15-045	25,493	Service Station
4201 Middlefield	147-05-086	2,720	Oil Change
4227 Middlefield	147-05-068	10,845	Office Supply
4233 Middlefield	147-05-069	9,996	Bicycle Shop

Figure 1 Regional Setting

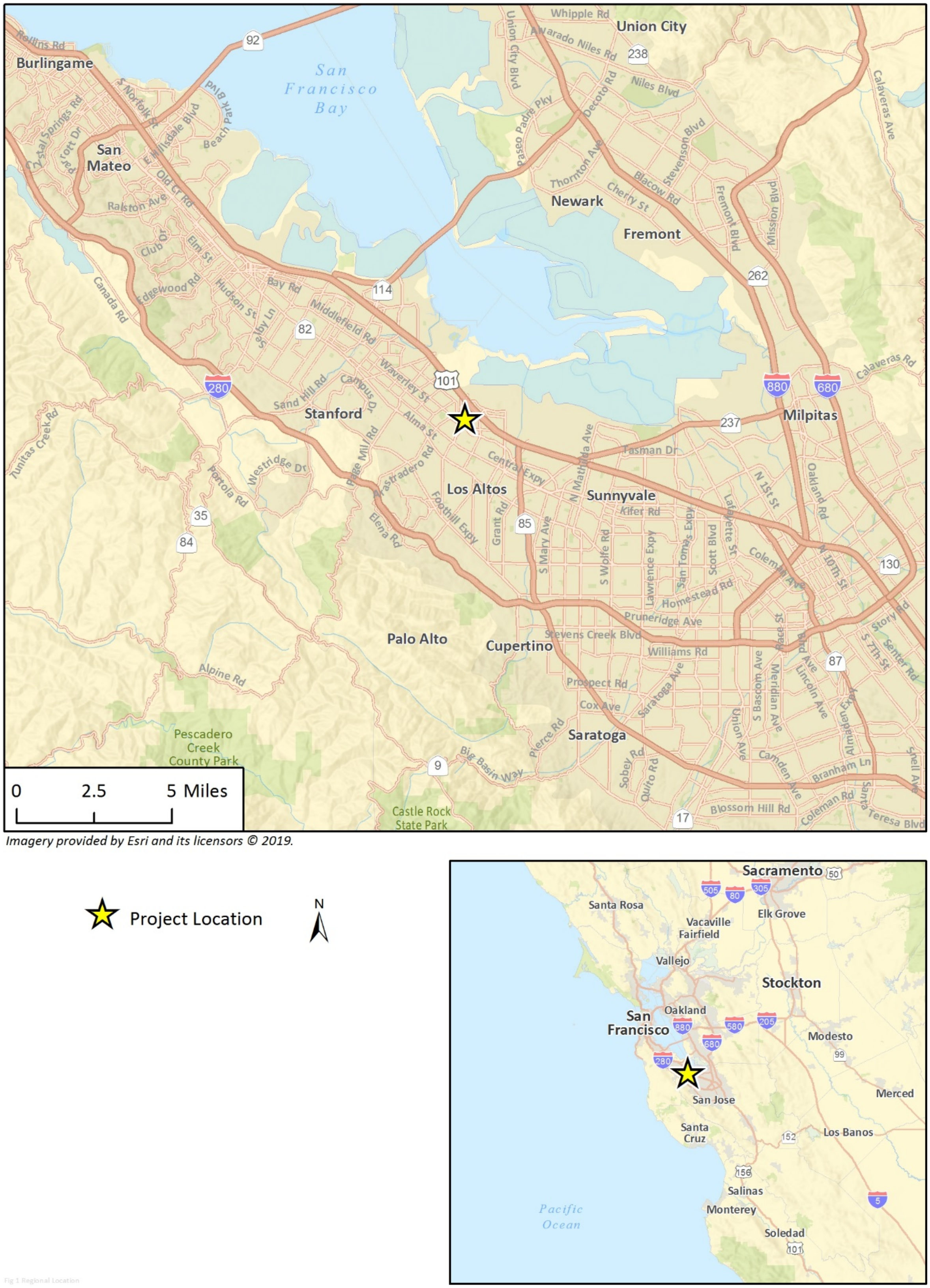

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Figure 2 Project Location

Imagery provided by Esri and its licensors © 2020.

6. COMPREHENSIVE PLAN DESIGNATION

All parcels within the program area have a 2030 Comprehensive Plan designation of Service Commercial**.** The City of Palo Alto's Comprehensive Plan 2030 (Comprehensive Plan) Land Use and Community Design Element defines the Service Commercial category as follows:

> facilities providing citywide and regional services and relying on customers arriving by car… Typical uses include auto services and dealerships, motels, lumberyards, appliance stores and restaurants, including fast service types. In almost all cases, these uses require good automobile and service access so that customers can safely load and unload without impeding traffic. In some locations, residential and mixed-use projects may be appropriate in this land use category. Examples of Service Commercial areas in Palo Alto include San Antonio Road, El Camino Real and Embarcadero Road northeast of the Bayshore Freeway. Consistent with the Comprehensive Plan's encouragement of housing near transit centers, higher density multi-family housing may be allowed in specific locations (City of Palo Alto 2017a).

7. ZONING

All parcels within the program area are zoned Service Commercial (CS). In addition, parcels at 762 San Antonio Road, 708 San Antonio Road 4227 Middlefield Road, and 4233 Middlefield Road are designated Service Commercial with the Automobile Dealership combining district (CS(AD)).

Service Commercial (CS). The Palo Alto Municipal Code (PAMC) defines the CS district as "intended to create and maintain areas accommodating citywide and regional services that may be inappropriate in neighborhood or pedestrian-oriented shopping areas, and which generally require automotive access for customer convenience, servicing of vehicles or equipment, loading or unloading, or parking of commercial service vehicles." (PAMC Section 18.16.010).

Automobile Dealership (AD) Combining District. The PAMC defines the AD combining district as "intended to modify the regulations of the service commercial (CS) and general manufacturing (GM or GM(B)) districts to create and maintain areas accommodating automobile dealerships primarily engaged in new and used automobile sales and service on a citywide and regional basis. Such uses generally require special parking, access, and outdoor display provisions for customer convenience, servicing of vehicles or equipment, loading or unloading, or parking of commercial service vehicles" (PAMC Section 18.30(F).010).

8. SURROUNDING LAND USES AND EXISTING SETTING

The program area is in a neighborhood characterized by a mix of uses, including residential, retail, office, and commercial. A residential development with several with several three-story multi-unit buildings is west of the area, across San Antonio Road, near the intersection with Leghorn Street. Other surrounding uses north, west, east, and immediately south of the program area are primarily low-density commercial uses, including another service station, automobile repair and service businesses, office buildings, and print shops. Multi-family residential buildings and schools are located further south of the program area.

The program area includes 18 parcels along San Antonio Road between East Charleston Road and Middlefield Road. With the exception of one parcel, 705 San Antonio Road, all of the parcels are located on the east side of San Antonio Road, and their eastern edges mark the boundary between the City of Palo Alto and the City of Mountain View. As Table 1 above indicates, all the parcels within the program area are currently developed with commercial uses, including many automobile-oriented businesses. The program area includes three service stations, two car rental and sales businesses, three car repair and oil change businesses. The other parcels within the area house other commercial and service uses, including a hotel, a fast food restaurant, and a light manufacturing business. The existing buildings within the program area are one- to two-stories, with parking lots, drive aisles, and some perimeter landscaping surrounding them. Figure 3 and Figure 4 show photographs of the program area.

The 788 San Antonio Road project site is located towards the center of the program area, on the northeast corner of San Antonio Road and Leghorn Street. The project site is currently developed with two structures and surface parking lots. A concrete and construction company uses one existing structure, and the other is used as a storage company and martial arts and fitness studio. The site is rhombus shaped, is generally flat, and is almost entirely paved, with limited landscaping along its perimeter. There are three trees on the site, one at its southeastern corner and two near the southwest corner, and there are street trees adjacent along San Antonio Road and Leghorn Street. Figure 5, Figure 6, and Figure 7 show photographs of the project site.

Figure 3 Photographs of Program Area — Photos 1 and 2

Photo 1: View of 840 San Antonio Road, taken from San Antonio Road looking northeast

Photo 2: View of 824 and 816 San Antonio Road, taken from San Antonio Road looking southeast

Figure 4 Photographs of Program Area — Photos 3 and 4

Photo 3: View of 816 San Antonio Road, taken from San Antonio Road looking east.

Photo 4: View of 728 and 720 San Antonio Road, taken from San Antonio Road looking southeast.

Figure 5 Project Site Photographs — Photos 5 and 6

Photo 5: View of the 796 San Antonio Road, taken from San Antonio Road looking northeast

Photo 6: View of 796 and 788 San Antonio Road, taken from San Antonio Road looking southeast.

Figure 6 Project Site Photographs — Photos 7 and 8

Photo 7: Intersection of San Antonio Road and Leghorn Street with The Greenhouse apartments in the background, looking across San Antonio Road to the west.

Photo 8: The eastern portion of 788 San Antonio Road, looking south.

Figure 7 Project Site Photographs — Photos 9 and 10

Photo 9: View of the existing concrete and construction building and parking lot at 788 San Antonio Road, taken from San Antonio Road looking southeast.

Photo 10: View of the existing concrete and construction building at 788 San Antonio Road, taken from Leghorn Street looking northwest.

9. DESCRIPTION OF THE PROJECT

PROPOSED ZONING CODE AMENDMENT TO EXPAND THE HOUSING INCENTIVE PROGRAM

The project would involve an amendment to Section 18 of the Palo Alto Municipal Code (PAMC) to allow the application of the Housing Incentive Program (HIP) to the 18 parcels within the program area. This would allow for increased density of multi-family residential development along San Antonio Road corridor.

The proposed text amendment to the Zoning Ordinance, outlined in Title 18 of the Palo Alto Municipal Code, would result in the following changes to the zoning regulations that apply to these properties:

- Allow a waiver for housing projects to exceed maximum Floor Area Ratio (FAR), up to 2.0
- Allow a waiver to exceed maximum site coverage
- Eliminate maximum housing density requirements
- Allow rooftop gardens to count towards required open space
- Exclude retail area from parking requirements
- Exempt certain area in subterranean garages from counting towards FAR
- Allow a waiver to reduce requirements related to preservation of existing retail space to allow for housing projects

Table 2 identifies the properties that would be affected by the proposed text amendment and, based on their lot size, provides the maximum number of dwelling units that would be allowed under the HIP program. As shown in the table, the proposed HIP expansion could add up to an estimated 818 residential units in the program area.

Table 2 Maximum Density with Proposed Zoning Code Amendment

Address	Lot Size (square feet)	Maximum Floor Area (square feet)	Maximum Number of Units
840 San Antonio	23,065	46,130	56.05
910 E. Charleston	22,270	44,540	54.12
824 San Antonio	19,905	39,810	48.37
816 San Antonio	20,021	400,42	48.65
808 - 814 San Antonio	19,787	39,574	48.09
800 San Antonio	18,870	37,740	45.86
796 San Antonio	21,223	42,446	51.57
788 San Antonio	22,718	45,436	55.21
780 San Antonio	20,293	40,586	49.31
762 San Antonio	39,880	79,760	96.91
760 San Antonio	29,082	58,164	70.67
744 - 750 San Antonio	83,441	166,882	0.00
720 San Antonio	20,000	40,000	48.60
708 - 710 San Antonio	10,422	20,844	25.33
705 San Antonio	25,493	50,986	61.95
4201 Middlefield	2,720	5,440	6.61
4227 Middlefield	10,845	21,690	26.35
4233 Middlefield	9,996	19,992	24.29
		Total Number of Units Allowed:	**818**

PROPOSED DEVELOPMENT AT 788 SAN ANTONIO ROAD

In addition to the proposed amendment to the PAMC, the project would also involve development of two of the 18 parcels within the program area, at 788, 790, and 796 San Antonio Road. This development would involve the demolition of the two existing on-site one-story commercial structures and the construction of a four-story mixed-use structure with one retail tenant space, 102 dwelling units, and a two-level subterranean parking garage. Each floor would be arranged according to the same general footprint, with an empty rectangular space in the center to allow solar access to a proposed central courtyard at the first floor. Uses on the first floor would include a 1,803 square-foot retail space at the southwestern corner of the site and common areas along San Antonio Road, including a main entrance and lobby, mail room, bicycle parking rooms, and a bicycle repair room, and dwelling units arranged around the north, east, and south portions of the site. The floors above the first would include residential units arranged around the central courtyard space. Most units would include attached private outdoor balconies with views either towards the central courtyard or out towards the perimeters of the site. A communal landscaped roof garden would be located at the fourth floor at the western portion of the building along San Antonio Road. Table 3 provides a summary of the proposed development. Figure 5 shows the proposed site plan, and Figure 6 shows the proposed project elevations.

Table 3 Proposed 788 San Antonio Road Development Summary

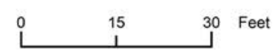
Feature	Details
Lot Area	
Square feet	43,414
Acres	0.997
Proposed Building Uses	
Residential	83,466 square feet (sf)
Retail	1,803 sf
Garage Floor Area	1,346 sf
Total gross square feet	**86,615 sf**
Proposed Dwelling Units	
Studio	32
One Bedroom	67
Two Bedroom	3
Total Units	**102**
Proposed Parking	
Retail Parking	20
Residential Parking	106
Total Stalls	**126**
Total Bicycle Parking Spaces	**114 (102 long-term and 12 short-term)**
Proposed Building Dimensions	
Parapet Height	49 feet, 5 inches
Total Lot Coverage	29,467 sf (67 percent)
Open Space Calculations	
Private Open Space (private unit balconies)	8,788 sf
Common Open Space (podium courtyard + roof top)	6,559 sf
Proposed Setbacks	
Front (Leghorn Street)	25 feet, 3 inches
Side – Right (east)	10 feet, 3 inches
Side – Left (west) (San Antonio Road)	26 feet, 1 inch
Rear	10 feet, 1 inches

Figure 8 Proposed 788 San Antonio Road Development Site Plan

Source: Studio S Squared, 2020.

Figure 9 Rendering of Proposed 788 San Antonio Road Development Elevation

Source: Studio S Squared, 2020.



CIRCULATION, ACCESS, AND PARKING

Access to the proposed underground garage would be available from Leghorn Street. The project would include 126 parking spaces, including 20 spaces designated for the retail space, within two garage levels.

Pedestrian and bicycle access to the building would be provided via a landscaped entrance adjacent to San Antonio Road. The project would include 116 bicycle parking spaces, with 102 long-term spaces located in two storage areas on the first floor and 12 short-term spaces located at-grade.

LANDSCAPING AND OPEN SPACE

According to the Arborist Report prepared for the project, there are sixteen existing trees at or near the project site. Three trees are on the project site, three are on neighboring properties, and ten are street trees. On-site trees include twoChinese Pistache and one Raywood Ash tree. Street trees include Live Oak trees, two American Elm trees, one Modesto Ash, one Flowering Ash, and two Chinese Pistache trees. In addition, one Weeping Blue Atlas Cedar, one Raywood Ash, and one Laurel Fig tree are located on neighboring properties, within approximately 10 feet of the subject site property lines. Six trees within and near the site would be removed during project construction, including three protected trees: a Modesto Ash tree near the southeast corner of the site, a Flowering Ash, and a Chinese Pistache near the southwestern corner of the site (Kielty 2020, Appendix A).

Proposed landscaping would include new plantings throughout the open spaces, including the central courtyard at the first floor, at the setbacks along San Antonio Road and Leghorn Street, and at the fourth-floor roof garden.

CONSTRUCTION

To complete the construction of the project, including the subterranean parking garage, grading would take place over most of the site, and approximately 20,170 cubic yards of soil would be exported. Excavation for the subterranean parking garage would reach a maximum depth of approximately 20 feet six inches. Construction is expected to occur over 22 months.

UTILITIES

The City of Palo Alto Utilities department (CPAU) provides electric, natural gas, refuse, recycled water, storm drain, and wastewater collection, treatment, and disposal. Water would be provided by the San Francisco Public Utilities Commission (SFPUC). Police and fire protection services would be provided by the City of Palo Alto.

PALO ALTO GREEN BUILDING CHECKLIST

In addition to California Building Code (CBC) requirements, the City of Palo Alto has adopted more stringent green building regulations. The Palo Alto Green Building Ordinance (Ord. 5393, 2017) requires applicants to incorporate sustainable design, construction, and operational requirements into most single-family residential, multi-family residential, and non-residential projects. For residential development, the City has adopted California Green Building Standards Code (CALGreen) Tier 1 for additions and renovations over 1,000 square feet and CALGreen for Tier 2 for new construction (City of Palo Alto 2017b; City of Palo Alto 2017c). To achieve Tier 2 status, a project must comply with the requirements identified in CALGreen Appendix A4, Division A4.601.5 and be 10 percent more energy efficient than the base CALGreen code requirements. In accordance with the City's Green Building Ordinance, the proposed project would satisfy requirements for CALGreen Tier 2.

10. OTHER PUBLIC AGENGIES WHOSE APPROVAL IS REQUIRED

The proposed development of the 788 San Antonio Road project would require a recommendation from the Planning and Transportation Commission and City Council approval of a Zoning Code Text Amendment to apply the HIP expansion to program area, including the project site. The development of the 788 San Antonio site also requires approval of a Major Architectural Review application, a variance to a special setback, a partial waiver of required retail space preservation, and a one-lot subdivision for condominium purposes. These applications will also be subject to City Council approval.

No approvals from other public agencies would be required on either the HIP program expansion or proposed development.

11. HAVE CALIFORNIA NATIVE AMERICAN TRIBES TRADITIONALLY AND CULTURALLY AFFILIATED WITH THE PROJECT AREA REQUESTED CONUSLTATION PURSUANT TO PUBLIC RESOURCES CODE SECTION 21080.3.1? IF SO, IS THERE A PLAN FOR CONSULTATION THAT INCLUDES, FOR EXAMPLE, THE DETERMINIATION OF SIGNIFICANCE OF IMPACTS TO TRIBAL CULTURAL RESOURCES, PROCEDURES REGARDING CONFIDENTIALITY, ETC?

No California Native American Tribes have requested consultation pursuant to Public Resources Code Section 21080.3.1.

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ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry Resources	■	Air Quality
■	Biological Resources	■	Cultural Resources	■	Energy
■	Geology/Soils	■	Greenhouse Gas Emissions	■	Hazards & Hazardous Materials
☐	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
■	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	■	Transportation	■	Tribal Cultural Resources
☐	Utilities/Service Systems	☐	Wildfire	■	Mandatory Findings of Significance

DETERMINATION

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

■ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Sheldon S. Ah Sing
Signature

24 July 2020
Date

Sheldon S. Ah Sing
Printed Name

Contract Planner
Title

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ENVIRONMENTAL CHECKLIST

1 Aesthetics

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

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

The 2030 Palo Alto Comprehensive Plan identifies views of the baylands to the northeast and views of the foothills to the southwest as important in contributing to the City's visual character and identify. The Comprehensive Plan also identifies scenic routes and major view corridors that should be protected: Sand Hill Road, University Avenue, Embarcadero Road, Page Mill Road/Oregon Expressway, Interstate 280, Arastradero Road (west of Foothill Expressway), Junipero Serra Boulevard/Foothill Expressway, and Skyline Boulevard.

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is not located within a major view corridor or along a scenic route as identified by the City's Comprehensive Plan. Moreover, the program area is generally level and is surrounded by development. Therefore, scenic views are not available from or through the program area as views are limited to the immediate area.

The proposed HIP expansion would allow development of housing at higher densities than is currently allowed. However, HIP expansion would not allow housing to exceed the 50 foot maximum height allowed in the CS district, including all the parcels within the program area. In addition, the program area's location in a relatively flat, urbanized area of the City and its distance from scenic resources would ensure that such development would not adversely affect a scenic vista. Therefore, no impact would occur, and further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As noted above, the project site, which is within the program area, is not located within a major view corridor or along a scenic route, and views from the site are limited to the immediate area. While the proposed mixed-use building would be taller than other buildings in its immediate neighborhood, its location in a relatively flat, urbanized area of the City and its distance from scenic resources would ensure that it would not adversely affect a scenic vista. Therefore, no impact would occur, and further analysis of this issue in an EIR is not warranted.

NO IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is not located along or in proximity to a California State Officially Designated Scenic Highway (Caltrans 2011). The topography of the area is generally flat and there are no scenic views available from or through the program area, including views of hillsides to the southwest or the Baylands to the northeast. Moreover, according to Policy Program L-71 from the Land Use and Design Chapter of the Comprehensive Plan, roads with high scenic value are Sand Hill Road, University Avenue, Embarcadero Road, Page Mill Road/Oregon Expressway, Interstate 280, Arastradero Road (west of Foothill Expressway), Junipero Serra Boulevard/Foothill Expressway, and Skyline Boulevard. The program area is not located near these listed roads nor a designated scenic highway, and development allowed by the HIP expansion would therefore not damage scenic resources within a state scenic highway or other scenic route. No impact would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with the program area, the project site is not located along or in proximity to a California State Officially Designated Scenic Highway (Caltrans 2011). The project site is not located near roads with high scenic value as defined in the Comprehensive Plan nor a designated scenic highway. The proposed development at the project site would therefore not damage scenic resources within a state scenic highway or other scenic route. No impact would occur and further analysis in an EIR is not warranted.

NO IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is in a fully urbanized area. The visual character of the surrounding area includes one- to three-story commercial and residential buildings with a mixture of architectural styles and ornamental landscaping primarily at the perimeters of parcels. Existing building materials include wood framing, painted brick, and stucco. The existing visual quality of the program area is moderate.

The project would involve the application of the HIP program to all 18 parcels within the program area, which would allow the development of multi-family residential buildings at higher densities than are currently allowed in the CS zoning district. The project could therefore result in a substantial change in the visual character of the program area through increased massing and density and new architectural styles. However, new residential development in the program area under the HIP expansion would be subject to Major Architectural Review, which, per PAMC Section 18.76.020, applies to new buildings, additions greater than 5,000 square feet, and any multiple-family residential project that contains three or more units. Approval of such project is subject to review by the Architectural Review Board and the findings in PAMC Section 18.76.020, including the following:

1. The design is consistent with applicable provisions of the Palo Alto Comprehensive Plan, Zoning Code, coordinated area plans (including compatibility requirements), and any relevant design guides.
2. The project has a unified and coherent design.
3. The design is of high aesthetic quality, using high quality, integrated materials and appropriate construction techniques, and incorporating textures, colors, and other details that are compatible with and enhance the surrounding area.

These findings would ensure that new development under the proposed HIP expansion is reviewed for consistency with applicable regulations governing scenic quality. Therefore, given required compliance with applicable findings related to visual quality and consistency with applicable zoning standards and regulations, new development allowed by the proposed project would not conflict with applicable zoning and other regulations governing scenic quality. Impacts would be less than significant, and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with the program area, the project site is in a fully urbanized area, and the existing visual quality of the project site is moderate.

In addition to the HIP expansion, the project would involve the construction of a new four-story, mixed-use building and landscaping. Given existing conditions, the project would increase the massing and intensity of development on the project site and introduce a building with a different architectural style. As such, the project would represent a substantial change in the visual character of the project site. However, as described in Section 10, *Land Use and Planning*, the project would be consistent with the City's Comprehensive Plan and PAMC floor area ratio (FAR), lot coverage, setbacks, and height requirements, all of which govern the appearance and massing of new development. Further, as shown on Figure 5 and Figure 6, the project would introduce a building of higher visual quality with a contemporary design and several landscaping elements along the project frontage.

Furthermore, as with any new development subject to the HIP expansion and as described above, the proposed project would be subject to Major Architectural Review, approval of which is subject to the findings in PAMC Section 18.76.020. These findings would ensure that the project is reviewed for consistency with applicable regulations governing scenic quality. Therefore, given the project's required compliance with applicable findings related to visual quality and its consistency with applicable zoning standards and regulations, it would not conflict with applicable zoning and other regulations governing scenic quality. Impacts would be less than significant, and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is in an urbanized area with relatively high levels of existing lighting. The adjacent residential, commercial, and roadway uses generate light and glare along all sides of the area. Primary adjacent sources of light include lighting associated with the existing residential and commercial buildings, including building-mounted and perimeter lighting as well as interior lighting visible through windows; streetlights; and headlights from vehicles on nearby streets. Sources of light within the program area include interior lighting visible through windows, headlights from vehicles, and exterior building lights to illuminate signage and parking areas. The primary source of glare adjacent to the program area is the sun's reflection from metallic and glass surfaces on buildings and on vehicles parked on adjacent streets and in adjacent parking areas. Vehicles parked within the program are the primary source of daytime glare within the program area.

The proposed project would involve the application of the HIP program to all 18 parcels within the program area, which would allow development of housing at higher densities than are currently allowed in the CS zoning district. Such projects could result in new exterior and interior lighting. However, these light sources would not have a significant impact on the night sky, because they would only incrementally add to the existing light levels already present as a result of the existing development within the program area and the surrounding street lighting and urban development. In other words, development of new buildings is not expected to substantially alter the existing lighting conditions. In addition, existing requirements would reduce impacts from new light sources. PAMC Section 18.16.060 requires that all new uses in the CS zoning district be conducted in such a manner as to not create nuisances, which could include excessive light. Therefore, impacts related to lighting would be less than significant.

New buildings allowed under the HIP expansion would include new building materials, such as glass railings and windows that may create glare. However, code requirements, including PAMC Section 18.16.060 noted above and the required Major Architectural Review, would help ensure that new development would not create a substantial source of glare that would adversely affect day or nighttime views. Impacts related to glare would be less than significant and further analysis in an EIR is not warranted.

788 San Antonio Road Mixed-Use Project

The project site is in an urbanized area with relatively high levels of existing lighting. The adjacent residential, commercial, and roadway uses generate light and glare along all sides of the property. Primary sources of light adjacent to the project site include lighting associated with the existing residential and commercial buildings, including building-mounted and perimeter lighting as well as interior lighting visible through windows; streetlights; and headlights from vehicles on nearby streets. Sources of light on the project site include interior lighting visible through windows, headlights from vehicles, and exterior building lights to illuminate signage and parking areas. The primary source of glare adjacent to the project site is the sun's reflection from metallic and glass surfaces on buildings and on vehicles parked on adjacent streets and in adjacent parking areas. Vehicles parked on the project site are the primary source of daytime glare on the project site.

The proposed project would incorporate exterior lighting in the form of pedestrian walkway lighting and other safety-related lighting. Additionally, interior lighting would be visible through the proposed building's windows. These light sources would not have a significant impact on the night sky, as they would only incrementally add to the existing background light levels already present as a result of the surrounding street lighting and urban development. Because of the existing relatively high ambient lighting levels in the vicinity of the project site, project development would not substantially alter this condition. Sheet A0.4b of the project plans notes that, prior to building permit approval, the applicant will be required to submit photometric diagrams to ensure there would be no spillover impacts into windows or openings of adjacent properties. Therefore, impacts related to lighting would be less than significant.

PAMC Section 18.16.060 requires all uses in the CS zone to be conducted in such a manner as not to create nuisances such as glare. The proposed project would include building materials, such as glass railings and windows that may create some glare. However, because the project involves minimal surface parking and parking areas would be shielded with landscaping, glare from vehicles parked in project parking lots would be reduced compared to existing conditions. Overall, the proposed project would not create a substantial source of glare that would adversely affect day or nighttime views. Impacts related to glare would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■

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

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

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

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

The parcels within the program area are not identified as a farmland type under the Farmland Mapping and Monitoring Program, are not enrolled in Williamson Act contracts, and do not support forest land or resources (California Department of Conservation 2014). The area is not located on or adjacent to agricultural land or forest land, and thus the proposed HIP expansion would not involve the conversion of farmland to non-agricultural uses. For these reasons, the project would have no impact with respect to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; conflict with existing agricultural zoning or Williamson Act contract; result in the loss of forest land or conversion of forest land to non-forest use; or other conversion of farmland to non-agricultural use and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

Because they are located within the program area, the project site and adjacent properties are not identified as a farmland type under the Farmland Mapping and Monitoring Program, are not enrolled in Williamson Act contracts, and do not support forest land or resources (California Department of Conservation 2014). The project site is not located on or adjacent to agricultural land or forest land, and thus the proposed development project would not involve cause the conversion of farmland to non-agricultural uses. For these reasons, the project would have no impact with respect to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; conflict with existing agricultural zoning or Williamson Act contract; result in the loss of forest land or conversion of forest land to non-forest use; or other conversion of farmland to non-agricultural use and further analysis in an EIR is not warranted.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	■	□	□	□
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	■	□	□	□
c. Expose sensitive receptors to substantial pollutant concentrations?	■	□	□	□
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	□	□	■	□

AIR QUALITY SETTING

The program area and project site are located within the San Francisco Bay Area Air Basin (the Basin), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). As the local air quality management agency, the BAAQMD is required to monitor air pollutant levels to ensure that state and federal air quality standards are met, and, if they are not met, to develop strategies to meet standards.

Depending on whether the standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. The BAAQMD is in non-attainment for the state and federal ozone standards, the state and federal $PM_{2.5}$ (particulate matter up to 2.5 microns in size) standards and the state PM_{10} (particulate matter up to 10 microns in size) standards and is required to prepare a plan for improvement (BAAQMD 2017a).

IMPACT ANALYSIS

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

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

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

Construction of the housing developments allowed by the HIP expansion would generate temporary construction emissions (direct emissions), long-term operational emissions (indirect emissions), and odors. Temporary air pollutant emissions generated by construction are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to reactive organic gases (ROG) that would be released during the drying phase following application of architectural coatings. Long-term emissions associated with operation of the housing developments would include emissions from vehicle trips (mobile sources); natural gas and electricity use (energy sources); odors from the potential restaurant use, and landscape maintenance equipment, consumer products and architectural coating associated with on-site development (area sources). Impacts related to consistency with the applicable Clean Air Plan, odors, air pollutant emissions and their exposure to sensitive receptors are potentially significant and will be analyzed further in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

Construction of the proposed 788 San Antonio Road project would generate temporary construction emissions (direct emissions), long-term operational emissions (indirect emissions), and odors. Temporary air pollutant emissions generated by construction are associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction vehicles, in addition to reactive organic gases (ROG) that would be released during the drying phase following application of architectural coatings. Long-term emissions associated with project operation would include emissions from vehicle trips (mobile sources); natural gas and electricity use (energy sources); odors from the potential restaurant use, and landscape maintenance equipment, consumer products and architectural coating associated with on-site development (area sources). Impacts related to consistency with the applicable Clean Air Plan, odors, air pollutant emissions and their exposure to sensitive receptors are potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

4 Biological Resources

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

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

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is in an urbanized area of Palo Alto and is currently developed with one- to three-story commercial buildings, surface parking lots, roadways, and landscaping, including trees. The area does not contain riparian habitat or sensitive natural communities (USFWS 2017a) and is not located within a known regional wildlife movement corridor or other sensitive biological area as indicated by the USFWS Critical Habitat portal or CDFW BIOS (USFWS 2017b; CDFW 2017). Based on the developed nature of the area and lack of native or riparian habitat located on within it, no federal-or state-listed endangered, threatened, rare, or otherwise sensitive flora or fauna are anticipated to be located within the program area. However, existing trees on and around the parcels within the area could contain bird nests and birds that are protected under the Migratory Bird Treaty Act (MBTA). Protected birds include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others, including their body parts (feathers, plumes etc.), nests, and eggs. The proposed HIP expansion would allow new residential development within the program area at higher densities than are currently allowed. Construction of this housing could result in the removal of some of the existing trees within the program area. Moreover, general construction activity involved in the development of such housing may affect protected nesting birds in existing trees. Therefore, impacts would be potentially significant without mitigation. The following mitigation measure is required to protect nesting birds.

MITIGATION MEASURES

The following mitigation measures would be required to avoid or reduce the program’s potentially significant impacts to nesting birds and special status wildlife.

BIO-1 Nesting Bird Surveys and Avoidance. Construction, grading, site preparation and other ground-disturbing activities required for development allowed by the proposed HIP expansion that would involve vegetation or tree removal shall be prohibited during the general avian nesting season (February 1 – August 31), if feasible. If nesting season avoidance is not feasible, the applicant shall retain a qualified biologist, as approved by the City of Palo Alto, to conduct a preconstruction nesting bird survey to determine the presence/absence, location, and activity status of any active nests on or adjacent to the development site. The extent of the survey buffer area surrounding the site shall be established by the qualified biologist to ensure that direct and indirect effects to nesting birds are avoided. To avoid the destruction of active nests and to protect the reproductive success of birds protected by the MBTA and CFGC, nesting bird surveys shall be performed not more than 14 days prior to scheduled vegetation clearance and structure demolition. In the event that active nests are discovered, a suitable buffer (typically a minimum buffer of 50 feet for passerines and a minimum buffer of 250 feet for raptors) shall be established around such active nests and no construction shall be allowed within the buffer areas until a qualified biologist has determined that the nest is no longer active (*i.e.*, the nestlings have fledged and are no longer reliant on the nest). No ground disturbing activities shall occur within this buffer until the qualified biologist has confirmed that breeding/nesting is completed and the young have fledged the nest. Nesting bird surveys are not required for construction activities occurring between August 31 and February 1.

SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measure BIO-1 would ensure protection of nesting birds that may be present on the site during construction activities. This would reduce the potentially significant impact to special status species to a less than significant level and will be included in the EIR's executive summary and mitigation monitoring and reporting program. Further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As discussed above, the project site is in an urbanized area of Palo Alto and is currently developed with two commercial buildings, surface parking lots, and landscaping. There are sixteen existing trees on or near the project site, including four Flowering Ash trees, four Chinese Pistache trees, one fig tree, two Elm trees, one Cedar, and four Live Oak trees. The project site does not contain riparian habitat or sensitive natural communities (USFWS 2017a) and is not located within a known regional wildlife movement corridor or other sensitive biological area as indicated by the USFWS Critical Habitat portal or CDFW BIOS (USFWS 2017b; CDFW 2017). Based on the developed nature of the site and lack of native or riparian habitat located on the site, no federal-or state-listed endangered, threatened, rare, or otherwise sensitive flora or fauna are anticipated to be located on site. However, trees at or near the project site could contain bird nests and birds that are protected under the Migratory Bird Treaty Act (MBTA). Although the proposed landscaping includes planting additional trees to replace the trees to be removed and additional on-site landscaping trees along the project site boundary, the removal of the existing trees and general construction activity may affect protected nesting birds. Therefore, impacts would be potentially significant without mitigation.

However, given that the proposed project would be allowed by the HIP Expansion, it would be subject to Mitigation Measure BIO-1 above, which would ensure protection of nesting birds and reduce potentially the potentially significant impact to special status species to a less than significant level. Further analysis of this issue in an EIR is not warranted.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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

HOUSING INCENTIVE PROGRAM EXPANSION

The National Wetlands Inventory (NWI) was reviewed to determine if wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the program area (U.S. Fish and Wildlife Service, 2017). No such features occur on or adjacent to the program area. There is one potential jurisdictional water or wetland that is in the vicinity of the program area. Adobe Creek, a riverine wetland resource, is located approximately 0.4 miles northwest of the program area. Implementation of the proposed HIP expansion would not involve or require the direct removal, filling, hydrological interruption, or other means to the bed, bank, channel, or adjacent upland area of Adobe Creek. No impact would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As described above, the National Wetlands Inventory (NWI) was reviewed to determine if wetland and/or non-wetland waters had been previously documented and mapped on or in the vicinity of the proposed survey area (U.S. Fish and Wildlife Service, 2017). No such features occur on or adjacent to the project site. The proposed development would not involve the direct removal, filling, hydrological interruption, or other means to the bed, bank, channel, or adjacent upland area of Adobe Creek, which is approximately 0.4 miles northwest of the site. No impact would occur and further analysis in an EIR is not warranted.

NO IMPACT

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

According to Map N-2 of the Natural Environment Element of the Palo Alto Comprehensive Plan, the program area and project site are within an area identified as Urban Forest (City of Palo Alto 2017a). Palo Alto's goals and policies related to the Urban Forest are compiled in the City's Urban Forest Master Plan, which primarily provides guidance for the City's Urban Forestry Division in the management of trees on private and public land (City of Palo Alto 2019a). The Urban Forest Master Plan in turn provides support for the regulations and requirements in the Tree Preservation Ordinance.

The purpose of the City of Palo Alto Tree Preservation and Management Ordinance (Ordinance, PAMC Chapter 8.10) is to promote the health, safety, welfare, and quality of life of the residents of the city through the protection of specified trees located on private property within the city, and the establishment of standards for removal, maintenance, and planting of trees.

Under the Ordinance, discretionary development approvals for property containing regulated trees must include appropriate conditions providing for the protection of such trees during construction and for maintenance of the trees thereafter or requires replacement of regulated trees in accordance with the prescribed ratios outlined in the Tree Technical Manual. "Protected tree" is defined as any tree of the species coast live oak (Quercus agrifoliai) or valley oak (Quercus lobate) 11.5 inches in diameter (36 inches in circumference) or more when measured 4.5 feet (54 inches) above natural grade and any Redwood tree (Sequoia sempervirens) 18 inches in diameter (57 inches in circumference) or more when measured 4.5 feet (54 inches) above natural grade (PAMC Section 8.10.020). According to Section 1.00 Definitions of the Tree Technical Manual, all street trees are protected. "Street trees" are defined as any publicly owned tree, shrub or plant growing within the street right-of-way, outside of private property. In some cases, property lines lie several feet behind the sidewalks (City of Palo Alto 2001).

No other local policies or ordinances protecting biological resources apply to the program area and project site.

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is fully developed with a mix of one- to three-story commercial buildings, asphalt parking areas, and perimeter landscape. The existing landscape in the program area includes trees, including street trees and trees on private property. The proposed HIP expansion would allow discretionary approval of housing developments in the program areas at higher densities than currently allowed. Construction activities associated with this housing could result in the removal of some of the existing trees. In such a case, the Tree Preservation and Management Ordinance requires that the project applicant for a new development replace those removed trees with trees of equal value in the same location, or, in circumstances where physical constraints make it impossible or undesirable to replace a tree, determine the value of the removed tree and use the sum of money to add trees and other landscaping as approved by the Director of the Public Works Department. Prior to removal of each protected tree, the applicant would also be required to obtain a Tree Removal Permit, which would require that the regulations of the Ordinance be followed.

In addition, the proposed HIP expansion would allow construction activities that could occur within the tree protection zone of protected trees within and near the program area. Therefore, the project has the potential to damage protected trees. However, the regulations in the Tree Technical Manual would ensure that such trees are properly protected. The Manual requires that a Tree Protection and Preservation Report be completed by a certified arborist and approved by the City's Urban Forestry Division prior to approval of planning or building permits for development that would involve construction within the tree protection zone of a protected tree. This Report would also be required to identify construction guidelines to be followed through all phases of construction, including preconstruction measures (such as protective fencing), during-construction measures (such as avoidance of soil compaction), and maintenance activities (such as maintaining normal irrigation.

Given that construction activities associated with development under the HIP expansion, including the removal of trees and construction near protected trees, would be required to comply with all regulations in the Tree Technical Manual and Tree Preservation and Management Ordinance, impacts related to conflicts with ordinances would be less than significant.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As described in the *Description of the Project*, sixteen trees are located on or adjacent to the project site. According to the Arborist Report prepared for the site as part of the project plans, ten of the existing trees are protected under the Tree Preservation and Management Ordinance (Appendix A). The project plans indicate that three of the protected trees near the southern boundary of the site would be removed and replaced. As described above, the Tree Preservation Management Ordinance requires that the project applicant obtain a Tree Removal Permit prior to removal and replace the removed trees.

The project plans also indicate that construction activities would occur within the tree protection zone of several of the protected trees that would be retained, including four coast live oak, two Elm, and one Flowering Ash street along San Antonio Road. Therefore, the project has the potential to damage protected trees and would be subject to the protection regulations in the Tree Technical Manual. As described above, the Tree Technical Manual includes requirements for protecting trees during construction activities, including preparation of a Tree Protection and Preservation Report and identification of construction guidelines intended to protect the trees during all phases of project implementation.

Given that the proposed project at 788 San Antonio Road would be required to comply with all regulations in the Tree Technical Manual and Tree Preservation and Management Ordinance, impacts related to conflicts with ordinances would be less than significant.

LESS THAN SIGNIFICANT IMPACT

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

HOUSING INCENTIVE PROGRAM EXPANSION

According to the Natural Environment Element in the City's Comprehensive Plan (City of Palo Alto 2017a), the program area is not located within an approved Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

According to the Natural Environment Element in the City's Comprehensive Plan (City of Palo Alto 2017a), the project site is not located within an approved Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur and further analysis in an EIR is not warranted.

NO IMPACT

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5 Cultural Resources

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

CULTURAL RESOURCES BACKGROUND

The California Environmental Quality Act (CEQA) requires a lead agency determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) and tribal cultural resources (PRC Section 21074 [a][1][A]-[B]). A historical resource is a resource listed in, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources, or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource is considered historically significant if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC, Section 21083.2[a], [b]).

PRC, Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

IMPACT ANALYSIS

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow multi-family housing within the program area at higher densities than are currently allowed. Construction activities associated with this housing could involve partial or complete demolition of buildings that are historical resources. Impacts related to historic resources are potentially significant and will be analyzed further in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

A Historical and Architectural Assessment of the existing building proposed for demolition was prepared by Page & Turnbull in 2019 (Appendix D of the EIR). The assessment concludes that 788 San Antonio Road is eligible for individual listing in the California Register of Historical Resources because of its association with the long-term operation of the California Chrysanthemum Growers Association, a Japanese flower growers' cooperative that commissioned construction of the building in 1953. Therefore, the proposed project may result in a substantial adverse change in the significance of a historical resource. Impacts related to historic resources are potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

b. Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?

HOUSING INCENTIVE PROGRAM EXPANSION

Future development in the program area could include ground disturbance below the level of past disturbance and therefore there is the possibility of encountering undisturbed subsurface archaeological resources that may be considered important examples of California history or prehistory. As described in the discussion for the 788 San Antonio Road project below, that project site within the program area is not considered archaeologically sensitive. A California

Historical Resources Information System records search at the Northwest Information Center within a 0.5-mile radius of the project site, which includes the entire program area, identified one potential resource, but it is thought to be destroyed. In the event that archaeological resources are unearthed during construction, applicable regulatory requirements pertaining to the handling and treatment of such resources would apply. If archaeological resources are identified, as defined by Section 21083.2 of the Public Resources Code, the site would be required to be treated in accordance with the provisions of Section 21083.2 of the Public Resources Code as appropriate. In addition, mitigation measures CR-1 and CR-2 are required to ensure that impacts would be less than significant.

MITIGATION MEASURES

The following mitigation measures would be required to avoid or reduce the project's potentially significant impacts to archaeological resources.

CR-1 Worker's Environmental Awareness Program (WEAP). For all development subject to the proposed HIP expansion, a qualified archaeologist shall be retained who meets the Secretary of the Interior's Professional Qualifications Standards for archaeology to conduct WEAP training for archaeological sensitivity for all construction personnel prior to the commencement of ground disturbing activities. Archaeological sensitivity training should include a description of the types of cultural resources that may be encountered, cultural sensitivity issues, regulatory issues, and the proper protocol for treatment of the materials in the event of a find.

CR-2 Unanticipated Discovery of Cultural Resources. For all development subject to the proposed HIP expansion, in the event that archaeological resources are unearthed during project construction, all earth-disturbing work near the find must be temporarily suspended or redirected until an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (NPS 1983) has evaluated the nature and significance of the find. If the discovery proves to be significant under CEQA, additional work, such as preservation in place or archaeological data recovery, shall occur as required by the archeologist in coordination with City staff and descendants and/or stakeholder groups, as warranted. Once the resource has been properly treated or protected, work in the area may resume. A Native American representative shall be retained to monitor mitigation work associated with Native American cultural material.

SIGNIFICANCE AFTER MITIGATION

Implementation of mitigation measures CR-1 and CR-2 would ensure that cultural resources are properly identified and preserved in the event they are uncovered during construction and would reduce impacts regarding disrupting intact archaeological resources to a less than significant level. These measures will be included in the EIR's executive summary and mitigation monitoring and reporting program. Further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site is located in an urbanized area of Palo Alto and is developed with two single-story commercial buildings and associated surface parking lots.

A California Historical Resources Information System records search at the Northwest Information Center resulted in the identification of one archaeological resource (P-43-000441, a prehistoric shell midden) within a 0.5-mile radius of the project site. Upon its most recent update in 2008, no remains of the site were identified, and it is thought to be destroyed. No archaeological resources were identified within the project site. A records search of the Native American Heritage Commission Scared Lands File was also performed for the project site by Rincon on August 16, 2019; results were negative. Since the proposed mixed-use project would involve excavation for foundations and the proposed subterranean parking garage, previously unrecorded resources could be encountered during excavation activities. However, the project would be subject to mitigation measures CR-1 and CR-2 above, which would ensure that cultural resources are properly identified and preserved in the event they are uncovered during construction and would reduce impacts regarding disrupting intact archaeological resources to a less than significant level. Further analysis of this issue in an EIR is not warranted.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

HOUSING INCENTIVE PROGRAM EXPANSION

The discovery of human remains is always a possibility during ground disturbing activities. If human remains are found during future construction activities in the program area, the State of California Health and Safety Code Section 7050.5 states that no further disturbance may occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the county coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendant (MLD). The MLD would complete the inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access. With adherence to these existing regulations, impacts to human remains will be less than significant.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As described above, there is a possibility for discovering human remains during ground disturbing activities associated with the project. However, compliance with existing regulations would ensure impacts to human remains would be less than significant.

LESS THAN SIGNIFICANT IMPACT

6 Energy

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

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow the development of multi-family housing at higher densities than currently allowed within the program area. Energy use during construction would be in the form of fuel consumption (e.g. gasoline and diesel fuel) to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. In addition, temporary grid power may also be provided to temporary construction trailers or electric construction equipment. Long-term operation of the developments would require permanent grid connections for electricity and natural gas service to power internal and exterior building lighting, and heating and cooling systems. In addition, the increase in vehicle trips associated with new housing would increase fuel consumption within the City. Impacts due to wasteful, inefficient, or unnecessary consumption of energy resources would be potentially significant and will be analyzed further in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with the housing allowed under the HIP expansion, the proposed project at 788 San Antonio Road would involve the use of energy during the construction and operational phases of the project. Energy use during the construction phase would be primarily in the form of fuel consumption. Long-term operation of the proposed project would require permanent grid connections for electricity and natural gas service to power internal and exterior building lighting, and heating and cooling systems. In addition, the increase in vehicle trips associated with the project would increase fuel consumption within the City.

The proposed project would be subject to the energy conservation requirements of the California Energy Code (Title 24 of the California Code of Regulations, Part 6) and the California Green Building Standards Code (24 CCR part 11) as well as the City's green building ordinance (PAMC Section 16.14.). Impacts due to wasteful, inefficient, or unnecessary consumption of energy resources would be potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

7 Geology and Soils

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

a.1. Directly or indirectly cause potential adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is not located within an identified earthquake fault zone as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map (California Department of Conservation 2016). No known fault lines are located within the program area. The closest active fault is the San Andreas Fault, which is located approximately 7 miles southwest of the area. Thus, the likelihood of surface rupture occurring from active faulting at the site is remote. No impact would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site is not located within an identified earthquake fault zone as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map (California Department of Conservation 2016). No known fault lines are located on the site. The closest active fault is the San Andreas Fault, which is located approximately 7.3 miles southwest of the site. Thus, the likelihood of surface rupture occurring from active faulting at the site is remote. No impact would occur and further analysis in an EIR is not warranted.

NO IMPACT

a.2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

HOUSING INCENTIVE PROGRAM EXPANSION

As with any site in the Bay Area region, the program area is susceptible to strong seismic ground shaking in the event of a major earthquake. Nearby active faults include the San Andreas Fault, the Stanford Fault, the Monte Vista Fault, and the Hayward Fault (State of California Department of Conservation 2015). These faults are capable of producing strong seismic ground shaking within the program area. However, the Seismic Hazards Identification Program of Chapter 16.42 of the PAMC addresses public safety by identifying those buildings in Palo Alto which exhibit structural deficiencies and by accurately determining the severity and extent of those deficiencies in relation to their potential for causing loss of life or injury (City of Palo Alto 2017b). Such a seismic hazards identification program is consistent with California Health and Safety Code Sections 19160 - 19169 and is necessary to implement the Palo Alto Comprehensive Plan's Safety Policy S2.7.3 (City of Palo Alto 2017a). Additionally, with modern construction and adherence to the geology and soil provisions of the California Building Code (CBC), which sets forth seismic design standards (Chapters 16, 18) and geohazard study requirements (Chapter 18), impacts would be less than significant and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with the program area, the project site is susceptible to strong seismic ground shaking in the event of a major earthquake, and nearby faults, including the San Andreas Fault, the Stanford Fault, the Monte Vista Fault, and the Hayward Fault are capable of producing strong seismic ground shaking at the project site. However, given required compliance with the Seismic Hazards Identification Program of Chapter 16.42 of the PAMC, modern construction and adherence to the geology and soil provisions of the California Building Code (CBC), impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

HOUSING INCENTIVE PROGRAM EXPANSION

Liquefaction is a condition that occurs when unconsolidated, saturated soils change to a near-liquid state during ground shaking. While site-specific geotechnical investigations were not available for all the parcels within the program area, one study was completed for the 788 San Antonio development project site, described in further detail below. That study found that site is in an area that may be underlain by soils potentially susceptible to liquefaction during a major earthquake (appendix B to this Initial Study). Given these findings, similar risk may be present at all the parcels within the program area. Therefore, impacts related to liquefaction are potentially significant. To reduce liquefaction impacts related to the development in the program area allowed by the proposed HIP expansion, the following mitigation measure is required.

MITIGATION MEASURE

The following mitigation measure shall be implemented prior to and during construction of projects proposed under the proposed HIP expansion to avoid or reduce the project's potentially significant effects related to liquefaction.

GEO-1 Geotechnical Investigation. Prior to approval of grading permits for a building or structure associated with the development allowed by the HIP expansion, a detailed final geotechnical investigation shall be performed to identify significant geotechnical constraints on the proposed development. The report shall develop formal recommendations for project design and construction, including site grading/soil preparation and foundation design. Among other components, the report shall include a quantitative evaluation of liquefaction susceptibility, including projected levels of post-liquefaction settlement; an evaluation of soil shrink-swell potential; and an investigation of compressible soils that may be prone to settlement/subsidence. The report shall be stamped and signed by a professional engineer (PE) or geotechnical engineer and provided by the applicant to the City of Palo Alto for review to ensure that foundations designed for all proposed structures are appropriate and meet code requirements. The PE or geotechnical engineer of record shall also review the final grading, drainage, and foundation plans to confirm incorporation of the report recommendations. Field monitoring during project construction shall be performed to verify that the work is performed as recommended.

SIGNIFICANCE AFTER MITIGATION

With implementation of Mitigation Measure GEO-1, the potentially significant impact associated with liquefaction would be reduced to a less than significant level. This measure will be included in the EIR's executive summary and mitigation monitoring and reporting program. Further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As noted above, a geotechnical investigation was completed for the project site by Stevens, Ferrone & Bailey Engineering Company Inc. (Stevens, Ferrone & Bailey Engineering Company Inc 2018) (Appendix B to this Initial Study). Boring that occurred as part of the investigation encountered sand lens with a high potential for liquefying when subjected to certain seismic activity on the project site at depths of 45 feet. Based on the results of this analysis, a total settlement of about 1.5-inches could occur at the ground surface due to severe ground shaking caused by a major earthquake. To reduce liquefaction effects on the building's foundation, the Investigation recommends the foundation of the proposed building consist of a mat slab and be designed to resist 0.5 inch of differential settlement of the supporting soils. With implementation of these recommendations, the Investigation concludes that the site would be suitable for the proposed project. Without implementation of these recommendations, impacts would be potentially significant.

However, the project would be required to comply with Mitigation Measure GEO-1 above. In this case, the prepared geotechnical investigation would be required to be provided to the City of Palo Alto, and the PE would be required to ensure the final grading, drainage, and foundation plans incorporate the report recommendations, including the following:

- The foundation shall consist of a mat slab and be designed to resist 0.5 inch of differential settlement of the supporting soils.
- Underground pipelines shall be designed to compensate for the settlement caused by the liquefaction of the underlying supporting soils.
- A design groundwater table at 5 feet below existing ground surface shall be used for the project.

Given required compliance with Mitigation Measure GEO-1, impacts related to liquefaction-induced settlement would be reduced to a less than significant level. Further analysis of this issue in an EIR is not warranted.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

HOUSING INCENTIVE PROGRAM EXPANSION

Earthquakes can trigger landslides that may cause injuries and damage to many types of structures. However, landslides are typically a hazard on or near slopes or hillside areas, rather than generally level areas like the program area and vicinity. According to the California Seismic Hazard Zones map, the program area is not located in an earthquake-induced landslide hazard zone (California Department of Conservation 2006). The area is generally flat and is not surrounded by hillsides. Impacts would be less than significant and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

Given that the project site is located within the program area, it is not located in an earthquake-induced landslide hazard zone (California Department of Conservation 2006). Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The parcels within the program area are developed and generally level, which limits the potential for substantial soil erosion. However, the project would involve an expansion of the HIP program, which would allow higher-density housing development in the program area. Construction activities associated with these developments could result in erosion or loss of topsoil.

The grading and excavation phase, when soils are exposed, has the highest potential for erosion. However, new development would be required to comply with PAMC Chapter 16.28.070, which requires land-disturbing activities be undertaken in a manner designed to minimize surface runoff, erosion, and sedimentation, and PAMC Chapter 16.28.120, which requires the applicant implement interim erosion and sediment control measures. The applicant may propose the use of erosion and sediment control techniques in the interim plan, provided such techniques are proven to be as or more effective than the equivalent best management practices (BMPs) contained in the Manual of Standards.

In addition, new developments under the HIP expansion in the program area would be required to comply with erosion control standards administered by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) through the National Pollutant Discharge Elimination System (NPDES) permit process, which requires implementation of nonpoint source control of stormwater runoff. The California Stormwater Quality Association (CASQA) BMP Handbook for Construction (CASQA 2009) is typically used for guidance in drafting project-specific BMPs for erosion control, amongst other stormwater issues. For example, CASQA Measure WE-1 (Wind Erosion Control) identifies a variety of BMPs to stabilize exposed surfaces and minimize activities that suspend to track dust particles (CASQA 2009). This is commonly achieved by applying soil binders or water to disturbed surfaces.

Finally, the AQMD with jurisdiction over the program area, the BAAQMD, specifies measures that are aimed at air quality control but also address the minimization or avoidance of erosion and topsoil lost. The Conservation Element (Section 9.6.4) of the BAAQMD CEQA Guidelines includes the following BMPs relevant to the avoidance of erosion and topsoil degradation (BAAQMD 2017c):

- Include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits
- Require subdivision designs and site planning to minimize grading and use landform grading in hillside areas
- Condition grading permits to require that graded areas be stabilized from the completion of grading to the commencement of construction

Palo Alto Comprehensive Plan Natural Environmental Element Policy N5.1.2 also requires compliance with BAAQMD's construction emissions control measures and health risk assessment requirements (City of Palo Alto 2017a). Compliance with above listed BAAQMD requirements and Palo Alto Comprehensive Plan Policy would ensure that impacts of the development allowed by the proposed HIP expansion associated with soil erosion and the loss of topsoil would be less than significant. Further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with the program area, the project site is developed and generally level, which limits the potential for substantial soil erosion, but the grading and excavation phase of construction would have the highest potential for erosion. Ground-disturbing activities that would occur with implementation of the proposed project would include site-specific grading for foundations, subterranean parking, building pads, and utility trenches. Temporary erosion could occur during project construction. However, as described above, the project would be required to comply with PAMC Chapters 16.28.070 and 16.28.120, which require measures to minimize surface runoff, erosion, and sedimentation. In addition, the project would be required to comply with erosion control standards administered by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) through the National Pollutant Discharge Elimination System (NPDES) permit process, which requires implementation of nonpoint source control of stormwater runoff. Finally, the project would be required to comply with BAAQMD measures that address the minimization or avoidance of erosion and topsoil lost, including the BMPs in Section 9.6.4 of the BAAQMD CEQA Guidelines listed above. Compliance with these requirements and Palo Alto Comprehensive Plan Policy N5.1.2 would insure that impacts of the proposed development associated with soil erosion and the loss of topsoil would be less than significant. Further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

c. *Would the project be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?*

HOUSING INCENTIVE PROGRAM EXPANSION

According to the California Seismic Hazard Zones map, the program area is not located in an earthquake-induced landslide hazard zone (California Department of Conservation 2006). The area is generally flat and is not surrounded by hillsides. No impact would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with the program area, according to the California Seismic Hazard Zones map, the project site is not located in an earthquake-induced landslide hazard zone (California Department of Conservation 2006). The project site is generally flat and is not surrounded by hillsides. No impact would occur and further analysis in an EIR is not warranted.

NO IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The Geotechnical Investigation completed at the 788 San Antonio Road project site evaluated the soil conditions to determine potential geotechnical concerns associated with unstable or expansive soils (Appendix B). According to the study, the contents of soil sampling done at the site indicate that existing soils have a high plasticity and high to critical expansion potential. Expansive soils tend to expand due to increases in moisture content and shrink as they dry. This can result in some slab cracking and post-construction distress to new buildings approved under the proposed HIP expansion. The other 17 parcels within the program may have a similar soil composition. Therefore, impacts related to unstable and expansive soils are potentially significant. However, Mitigation Measure GEO-1 requires that, prior to approval of grading permits for any building associated with the proposed HIP expansion, a detailed final geotechnical investigation must be performed to identify geotechnical constraints on proposed projects allowed under the HIP expansion. The mitigation measure also requires the geotechnical investigations develop formal recommendations for project design and that it be reviewed by the City along with the proposed development to ensure that foundations and structures are appropriate. Therefore, with implementation of Mitigation Measure GEO-1, the potentially significant impact associated with unstable and expansive soils would be reduced to a less than significant level. This measure will be included in the EIR's executive summary and mitigation monitoring and reporting program, and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The Geotechnical Investigation evaluated the soil conditions to determine potential geotechnical concerns associated with unstable or expansive soils (Appendix B). According to the Geotechnical Investigation, near-surface soil consisted of clayey fills that extended to depths of about one to two feet below the existing ground surface. Near-surface soil materials that are clayey have a high plasticity and high to critical expansion potential. Expansive soils tend to expand due to increases in moisture content and shrink as they dry. This can result in some slab cracking and post-construction distress to the proposed building. Therefore, impacts related to unstable and expansive soils are potentially significant. However, the project would be subject to Mitigation Measure GEO-1, above, which requires that the Investigation be provided to the City of Palo Alto for review and that the PE ensure the final plans incorporate recommended construction measures. To reduce the potential for post-construction distress at the project site, the Investigation recommends that at-grade structures be supported on a foundation system that is designed to reduce the impact of expansive soils. Implementation of this recommendation would mitigate the potentially significant impact associated with unstable and expansive soils to a less than significant level. Further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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

HOUSING INCENTIVE PROGRAM EXPANSION

The higher-density housing allowed by the proposed HIP expansion would be developed to be connected to the local wastewater treatment systems and would not include septic tanks. No impact would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The proposed project would be connected to the local wastewater treatment system. Septic systems would not be used. No impact would occur and further analysis in an EIR is not warranted.

NO IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The paleontological sensitivity of the geologic units that underlie the program area was evaluated using the results of the paleontological locality search and review of existing information in the scientific literature concerning known fossils within those geologic units. Fossil collections records from the University of California Museum of Paleontology (UCMP) online database were reviewed, which contain known fossil localities in Santa Clara County (2019). In addition, a request for a list of known fossil localities from the program area and immediate vicinity (i.e., localities recorded on the United States Geological Survey Mountain View, 7.5-minute topographic quadrangle) was submitted to the Natural History Museum of Los Angeles County (NHMLAC).

Following the literature review and museum record search a paleontological sensitivity classification was assigned to the geologic units within the program. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The Society of Vertebrate Paleontology (SVP) has developed a system for assessing paleontological sensitivity and describes sedimentary rock units as having high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources (SVP 2010). This system is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

The program area is situated within the Santa Clara Valley, between the Santa Cruz Mountains to the west, the San Francisco Bay to the north, and the Diablo Range to the east. The Santa Clara Valley is located within the Coast Ranges geomorphic province of California, which extend about 600 miles from the Oregon border to the Santa Ynez River in Santa Barbara County and range in elevation from approximately 500 feet above mean sea level (amsl) to 7,581 feet amsl (California Geological Survey 2002; Norris and Webb 1990). According to the published geologic mapping by Dibblee and Minch (2007), the program area is entirely underlain by younger Quaternary alluvial deposits (Qac), derived primarily as silty clay and organic clay from the intra-fan areas in the southern portion of the San Francisco Bay. These Holocene deposits typically do not contain significant fossil vertebrate remains in the uppermost layers; however, invertebrate fossil localities were noted during the literature review and museum record search (McLeod 2019). Holocene silty clay interfingers with San Francisco Bay Mud deposits and preserves the remains of small marine fossils, such as clams and snails (Dibblee and Minch 2007). Intact Holocene deposits in the program area are too young to preserve significant paleontological resources and are determined to have a low paleontological resource potential according to SVP standards (SVP 2010). However, according to the City of Palo Alto’s Comprehensive Plan Environmental Impact Report (City of Palo Alto 2016a), the younger Quaternary (Holocene) sediments may grade into older deposits of late Pleistocene age (Qoa) that could preserve significant fossil remains at moderate depth.

A search of the paleontological locality records at the NHMLAC resulted in no previously recorded fossil localities on the program area; however, several vertebrate localities have been recorded north-northeast of the program area within older Quaternary (Pleistocene) alluvium. The closest vertebrate fossil locality, UCMP 1107, produced fossil specimens of horse (*Equus*) and bison (*Bison antiquus*) to the north-northeast of the project site and west of Livermore. Farther north-northeast, near the city of Martinez, LACM 4626 yielded a fossil specimen of horse (*Equus pacificus*) (McLeod 2019). Depth of recovery was not reported.

A supplemental review of the museum records maintained in the UCMP online collections database did not indicate vertebrate fossil localities within the program area; however, at least 12 vertebrate fossil localities, which produced specimens of Pleistocene age, were reported in Santa Clara County (UCMP 2019). Four of these localities occurred near Stanford University, which yielded fossil specimens of *Paleoparadoxia* (a hippopotamus-like mammal), *Allodesmus* (a seal-like mammal), as well as bone fragments of other marine mammals (UCMP 2019; City of Palo Alto 2016a).

The young Quaternary alluvial deposits in the Palo Alto area, which include Holocene silty clay and muds (Qac), are part of a series of alluvial fans emanating from the Santa Cruz Mountains. The Holocene alluvial fan deposits measure approximately 18 to 21 feet in thickness (City of Palo Alto 2016a).

The proposed HIP expansion would allow multi-family housing and mixed-use projects within the program area at higher densities than currently allowed in the CS zoning district. Construction activities associated with this development could involve ground disturbance and excavation that could result in the unanticipated discovery of paleontological resources. In addition, excavation at depths greater than 18 feet would involve removal of soils beyond the alluvial fan deposits and are more likely to result in the discovery of paleontological resources. Therefore, impacts are potentially significant, and Mitigation Measure GEO-2 is required in the event that fossil discoveries are unearthed during ground-disturbing activities.

MITIGATION MEASURE

GEO-2 Discovery of Paleontological Resources. Construction activities associated with the development allowed under the HIP expansion shall adhere to the following measures.

1. **Ground Disturbance.** Prior to ground-disturbing activities for projects associated with the HIP expansion, the applicant or its designee will retain a qualified paleontologist to provide on-call services in the event of an unanticipated discovery. A qualified professional paleontologist is defined by the SVP standards as an individual preferably with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least two years (SVP 2010). Prior to the start of construction, the qualified paleontologist or his or her designee shall conduct a Paleontological Worker Environmental Awareness Program (WEAP), a training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a Qualified Paleontologist shall attend.

   In accordance with SVP (2010) guidelines, in the event that undetected buried resources are encountered, all work shall halt in the immediate vicinity of the find and the qualified professional paleontologist shall be notified to evaluate the discovery. The qualified paleontologist shall determine the significance of the discovery and identify whether additional mitigation or treatment is warranted. Measures may include testing, data recovery, reburial, archival review and/or transfer to the appropriate museum or educational institution. All testing, data recovery, reburial, archival review or transfer to research institutions related to monitoring discoveries shall be determined by the qualified paleontologist and shall be reported to the City. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction work.

2. Excavation Below 18 Feet. Prior to the commencement of grading and excavation below a depth of 18 feet for any project associated with the HIP expansion, applicants shall retain a qualified paleontologist approved by the City of Palo Alto to monitor grading and excavation activities. Full-time monitoring onsite shall occur whenever excavation activities exceed 18 feet below ground surface. The duration and timing of the monitoring will be determined by the qualified paleontologist and the location and extent of proposed ground disturbance. If the qualified paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, he/she may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Any paleontological resources discovered by construction personnel or subcontractors shall be reported immediately to the paleontologist. In the event undetected buried resources are encountered during grading and excavation, all work in the immediate vicinity of the find shall cease and the paleontologist shall evaluate the resource and propose appropriate mitigation measures. Measures may include testing, data recovery, reburial, archival review and/or transfer to the appropriate museum or educational institution. All testing, data recovery, reburial, archival review or transfer to research institutions related to monitoring discoveries shall be determined by the qualified paleontologist and shall be reported to the City.

SIGNIFICANCE AFTER MITIGATION

Mitigation Measure GEO-2 would apply to all construction activities associated with housing allowed under the HIP expansion and would ensure that potential impacts to paleontological resources would be less than significant by providing for the recovery, identification and curation of previously unrecovered fossils. This measure will be included in the EIR's executive summary and mitigation monitoring and reporting program, and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site occurs within the program area, and therefore the same geologic units and fossil resources described above for the program area underlie it. As described above, the Holocene alluvial fan deposits measure approximately 18 to 21 feet in thickness (City of Palo Alto 2016a). As currently proposed, project ground disturbance would reach a maximum depth of approximately 20 feet six inches below ground surface during excavations associated with the subterranean parking component of the development. Given that the fossiliferous deposits are expected to occur at depths greater than 18 feet below ground, the potential for encountering fossil resources during project-related ground disturbance is low and impacts to paleontological resources are not anticipated. Moreover, the project would be subject to Mitigation Measure GEO-2 above, which outlines required steps in the event of unanticipated discovery of paleontological resources during ground disturbing activities and in the event that ground disturbance would occur below 18 feet. Compliance with Mitigation Measure GEO-2 would ensure impacts would be less than significant by providing for the recovery, identification and curation of previously unrecovered fossils. Further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	■	□	□	□
b. Conflict with any applicable plan, policy, or regulation adopted to reduce the emissions of greenhouse gases?	■	□	□	□

CLIMATE CHANGE AND GREENHOUSE GAS (GHG) EMISSIONS

Climate change is the observed increase in the average temperature of the earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHG), gases that trap heat in the atmosphere, analogous to the way in which a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases, and ozone (O_3). GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6) (California Environmental Protection Agency [Cal EPA] 2015).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHGs, Earth's surface would be about 34° C cooler (Cal EPA 2015). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

IMPACT ANALYSIS

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

Construction and operation of the higher-density housing allowed by the proposed HIP expansion would generate greenhouse gas (GHG) emissions through the burning of fossil fuels or other emissions of GHGs, thus potentially contributing to cumulative impacts related to global climate change. Emissions could potentially exceed locally adopted significance thresholds and the project could potentially conflict with local and regional plans adopted for the purpose of reduce GHG emissions, including the City's Climate Action and the regional Sustainable Communities Strategy (SCS). Impacts related to greenhouse gas emissions are potentially significant and will be analyzed further in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

Project construction and operation would generate GHG emissions through the burning of fossil fuels or other emissions of GHGs, thus potentially contributing to cumulative impacts related to global climate change. Impacts related to greenhouse gas emissions are potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

9 Hazards and Hazardous Materials

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

PROGRAM AREA HAZARDS AND HAZARDOUS MATERIALS SETTING

The following databases were checked, pursuant to Government Code Section 95962.5, on February 14, 2020 for known hazardous materials contamination at parcels within the program area:

United States Environmental Protection Agency

- Comprehensive Environmental Response, Compensation, and Liability Information System/ Superfund Enterprise Management System / Envirofacts database search

State Water Resources Control Board (SWRCB)

- GeoTracker search for leaking underground storage tanks and other cleanup sites

California Department of Toxic Substances Control

- EnviroStor search for hazardous facilities or known contamination sites
- Cortese List of Hazardous Waste and Substances Sites
- Cleanup Site and Hazardous Waste Facilities Database

Table 4 shows which parcels within the program area are listed on a list compiled pursuant to Section 65962.5 of the Government Code. While six addresses are listed, all cases associated with those cases have been closed.

Table 4 Cleanup Sites in the Plan Area

Address	Type	Status
840 San Antonio Road	LUST Cleanup Site	Case closed August 2010
780 San Antonio Road	LUST Cleanup Site	Case closed October 2001
762 San Antonio Road	LUST Cleanup Site	Case closed February 1996
705 San Antonio Road	LUST Cleanup Site	Case closed December 2008
4201 Middlefield Road	LUST Cleanup Site	Case closed December 1998
4227 Middlefield Road	Cleanup Program Site	Case closed October 2015; listed as 4225 Middlefield Road

Notes: LUST = Leaking Underground Storage Tank

PROJECT SITE HAZARDS AND HAZARDOUS MATERIALS SETTING

PHASE I ENVIRONMENTAL SITE ASSESSMENT

A Phase I Environmental Site Assessment (ESA) was prepared for the 788 San Antonio Road project site by Rosso Environmental, Inc. in July 2017 (Rosso Environmental Inc.), included in Appendix C to this Initial Study. As part of the 2017 Phase I ESA, Environmental Data Resources, Inc. (EDR) was contracted to provide a database search of public lists of sites that generate, store, treat, or dispose of hazardous materials or sites for which a release or incident has occurred for the project site and surrounding area. Federal, state, and county lists were reviewed as part of the research effort.

ADJACENT PROPERTIES

Two adjacent properties were listed in the databases searched by EDR:

- **780 San Antonio Road.** 780 San Antonio Road is located hydrologically upgradient and south of the site, across Leghorn Street. A file review of the property indicated that seven underground storage tanks (USTs) were installed in 1969: one 4,000-gallon diesel UST, four 4,000-gallon gasoline USTs, one 550-gallon waste oil UST, and one 10-gallon “waste” UST identified as a sump. Investigations completed in 1985 and 1991 found evidence that gasoline from the USTs was being released to soil and groundwater. However, a 2001 closure letter from the Santa Clara Valley Water District indicates that adequate remediation had occurred, and that the site no longer poses a continued threat to groundwater, human health, or the environment.
- **2594 Leghorn Street.** 2594 Leghorn Street abuts the project site to the east. A file review of the property indicated that the site formerly contained four USTs containing gasoline. While the site is listed as having a release to soil and groundwater in 1987, the case was closed in 1997 after successful remediation.

PROJECT SITE

Based on the EDR report and a review of available documents, the project site is listed in the EDR Historical Auto Repair Shops, Certified Unified Program Agency Listings, A California Department of Toxic Substances Control database that records annual hazardous waste shipments (HAZNET), and the Facility Index System (FINDS) databases. These listings relate to operation of the business as a vehicle service facility from at least 2004 to 2016 and do not indicate a release of hazardous materials to the soil or groundwater. This use has included the use and storage of automotive fluids, vehicle batteries and tires, and generation of associated liquid and solid wastes. The vehicle repair business associated with the site has recently closed. While it was open, it was subject to routine regulatory oversight from the Palo Alto Fire Department and Santa Clara County Department of Environmental Health. In addition, no indication of chlorinated solvent use was identified at the site, and the report notes that materials and wastes have been maintained indoors over concrete, with larger containers in containment. No underground features of significant concern were noted to be present.

The Phase I ESA also notes that the project site was used for agricultural purposes between 1939 and 1948. Although not documented, chemicals used for agriculture may have been used and could have affected the near-surface soil. Moreover, building permit records from 1966 indicate that two feet of fill material was placed on the site. Because the origin of the material is unknown, it is possible that it contains hazardous materials. Removal and disposal of soil could pose a health risk to users and workers.

The Phase I ESA concludes that the following recognized environmental conditions (RECs) are associated with the project site:

- Potential contamination of the project site associated with petroleum hydrocarbons and trichloroethylene (TCE) detection in groundwater from adjacent releases;
- Presence of fill material with no known investigation; and
- Historical agriculture uses with no known investigation.

LIMITED PHASE II SUBSURFACE INVESTIGATION

In addition to the Phase I ESA, a Phase II Subsurface Investigation was prepared by AEI Consultants in February 2018, included as Appendix D to this Initial Study. The Phase II ESA documents the results of sampling and analysis of soil, groundwater, and soil gas from five borings at the site. The borings were advanced to depths of twelve to sixteen feet below ground surface.

Results of the Phase II ESA indicate that petroleum hydrocarbons were detected in shallow soil (0.5 feet below ground surface) at the project site at concentrations below screening thresholds. According to the report, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), organochlorine pesticides (OCPs), and polychlorinated biphenyls (PCBs) were not detected in the soil samples collected and analyzed at the project site. Moreover, concentrations of metals detected in the soil samples analyzed were below screening levels or consistent with typical background concentrations in California soil, except for cobalt, which was detected at concentrations above residential screening levels but below commercial screening levels.

In addition, the report indicates that analysis of the groundwater samples collected at the project site showed the presence of petroleum hydrocarbons and select VOCs, including TCE, above screening levels. Analysis of soil gas samples collected from five feet below ground surface at the project site indicated that benzene was detected at concentrations above residential screening levels but below commercial screening levels. Finally, analysis of the soil gas sample collected from one boring (Soil Boring 4, or SB-4) at the project site revealed anomalously high concentrations of other VOCs that do not exceed the calculated screening levels or do not have established screening levels.

IMPACT ANALYSIS

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow the development of higher-density housing developments within the program area. Such developments would involve construction of new structures and could involve demolition of existing structures. Demolition and construction activities may include the temporary transport, storage, use, or disposal of potentially hazardous materials including fuels, lubricating fluids, cleaners, solvents, impacted groundwater, or contaminated soils. If spilled, these substances could pose a risk to the environment and to human health. However, the transport, storage, use, or disposal of hazardous materials is subject to various federal, state, and local regulations designed to reduce risks associated with hazardous materials, including potential risks associated with upset or accident conditions. Hazardous materials would be required to be transported under U.S. Department of Transportation (DOT) regulations (U.S. DOT Hazardous Materials Transport Act, 49 Code of Federal Regulations), which stipulate the types of containers, labeling, and other restrictions to be used in the movement of such material on interstate highways. In addition, the use, storage, and disposal of hazardous materials are regulated through the Resources Conservation and Recovery Act (RCRA). The California Department of Toxic Substances Control (DTSC) is responsible for implementing the RCRA program, as well as California's own hazardous waste laws. DTSC regulates hazardous waste, cleans up existing contamination, and looks for ways to control and reduce the hazardous waste produced in California. It does this primarily under the authority of RCRA and in accordance with the California Hazardous Waste Control Law (California H&SC Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (Title 22, California Code of Regulations, Divisions 4 and 4.5). DTSC also oversees permitting, inspection, compliance, and corrective action programs to ensure that hazardous waste managers follow federal and State requirements and other laws that affect hazardous waste specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning (City of Palo Alto 2016a). Compliance with existing regulations would reduce the risk of potential release of hazardous materials during demolition, dewatering, soil disturbance/grading, and construction.

In addition, existing structures within the program area may contain asbestos and/or lead-based paint (LBP) due to their age. Structures built before the 1970s were typically constructed with asbestos-containing materials (ACM). In addition, because many of the existing buildings were constructed before the time of the federal ban on the manufacture of PCBs, it is possible that light ballasts in the structures contain PCBs. Demolition the existing structures could therefore result in health hazard impacts to workers if not remediated prior to construction activities. However, demolition and construction activities would be required to adhere to BAAQMD Regulation 11, Rule 2, which governs the proper handling and disposal of ACM for demolition, renovation, and manufacturing activities in the Bay Area, and California Occupational Safety and Health Administration (CalOSHA) regulations regarding lead-based materials. The California Code of Regulations, §1532.1, requires testing, monitoring, containment, and disposal of lead-based materials, such that exposure levels do not exceed CalOSHA standards. DTSC has classified PCBs as a hazardous waste when concentrations exceed 50 parts per million in non-liquids, and the DTSC requires that materials containing those concentrations of PCBs be transported and disposed of as hazardous waste. Light ballasts to be removed would be evaluated for the presence of PCBs and managed appropriately. With required adherence to BAAQMD, CalOSHA, and DTSC regulations regarding ACM, LBP, and PCBs, impacts would be less than significant.

The HIP expansion would amend regulations for residential uses in the program area. Residential uses typically do not use or store large quantities of hazardous materials. Operation of new housing under the HIP expansion is not expected to involve the use, storage, transportation, or disposal of hazardous materials other than those typically used for household cleaning, maintenance and landscaping. Therefore, impacts would be less than significant and further analysis in an EIR is not warranted.

788 San Antonio Road Mixed-Use Project

The project would involve demolition of the existing structures and construction of a four-story mixed-use structure and a one-level subterranean parking garage. Demolition and construction activities may include the temporary transport, storage, use, or disposal of potentially hazardous materials including fuels, lubricating fluids, cleaners, solvents, impacted groundwater, or contaminated soils. If spilled, these substances could pose a risk to the environment and to human health. However, as described above, the transport, storage, use, or disposal of hazardous materials is subject to various federal, state, and local regulations designed to reduce risks associated with hazardous materials, including potential risks associated with upset or accident conditions. Hazardous materials would be required to be transported under DOT regulations, and the use, storage, and disposal of hazardous materials are regulated through the RCRA and DTSC. Compliance with these existing regulations would reduce the risk of potential release of hazardous materials during demolition, dewatering, soil disturbance/grading, and construction.

In addition, the existing structures, which were constructed in 1953, may contain asbestos and/or lead-based paint (LBP) due to their age. Demolition of the existing structure could result in health hazard impacts to workers if not remediated prior to construction activities. However, as with other housing allowed by the HIP expansion, demolition and construction activities would be required to adhere to BAAQMD Regulation 11, Rule 2, which governs the proper handling and disposal of ACM for demolition, renovation, and manufacturing activities in the Bay Area, CalOSHA regulations regarding lead-based materials. DTSC has classified PCBs as a hazardous waste when concentrations exceed 50 parts per million in non-liquids, and the DTSC requires that materials containing those concentrations of PCBs be transported and disposed of as hazardous waste. Light ballasts to be removed would be evaluated for the presence of PCBs and managed appropriately. With required adherence to BAAQMD, CalOSHA, and DTSC regulations regarding ACM, LBP, and PCBs, impacts would be less than significant.

The project would also involve the construction of a new building for residential and retail use. Residential and retail uses typically do not use or store large quantities of hazardous materials. Operation of the project would not involve the use, storage, transportation, or disposal of hazardous materials other than those typically used for household cleaning, maintenance and landscaping. Therefore, impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

Three schools occur within 0.25 miles of the program area, including Sequoia Academy, which is located within the program area at 800 San Antonio Road, Palo Alto Preparatory School, approximately 1,200 feet to the southeast of the southern edge of the program area, and Meira Academy, approximately 500 feet to the north. As described under criteria (a) and (b), operation of the new housing developments would not involve use, storage, or transport of hazardous materials within 0.25 miles of schools. However, as described in the *Setting* section above, several of the parcels within the program area are on a list compiled pursuant to Section 65962.5 of the Government Code. While all of those listed cleanup sites have been closed, it is possible that residual contamination exists at properties adjacent to the listed cleanup sites, as the Phase I and II studies indicate for the 788 San Antonio Road project site. Based on these existing conditions, construction activities associated with the higher-density housing allowed by the HIP expansion, including excavation to accommodate foundations and subterranean structures, could expose construction workers or nearby residents to potentially unacceptable health risks from contaminated soil. Moreover, hauling of such materials may occur within 0.25 mile of schools. Impacts are therefore potentially significant and the following mitigation measure is required to reduce impacts to a less than significant level.

MITIGATION MEASURES

HAZ-1 Site Risk Management Plan. Prior to issuance of permits allowing groundwater dewatering or earth-disturbing activity, the developer shall prepare a site risk management plan (SRMP). The SRMP will address known and unknown environmental issues that may be encountered during development. The plan shall identify appropriate measures to be followed when impacted soil and groundwater are encountered during demolition, excavation, dewatering, and construction. This includes health and safety measures to reduce exposure to potentially impacted soil and groundwater for construction workers and dust control measures to reduce exposure to contaminated dust particles for nearby residents.

Health and safety measures shall include the required personal protective equipment (PPE) to be used by site personnel, including action levels and decision criteria for upgrading the levels of PPE. The SRMP shall also identify personnel to be notified, emergency contacts, and a sampling protocol if impacted media is encountered. The excavation and demolition contractors shall be made aware of the possibility of encountering known and unknown hazardous materials including impacted soil and groundwater; and shall be provided with appropriate contact and notification information. The plan shall include a provision stating at what point it is safe to continue with the excavation or demolition, and identify the person authorized to make that determination. In addition, the SRMP shall include measures for the appropriate handling and profiling of impacted soil and groundwater to be removed from the project site and disposed offsite. Removal, transportation, and disposal of impacted soil and groundwater shall be performed in accordance with applicable federal, state, and local laws, regulations, and ordinances.

The SMRP shall be submitted to the City of Palo Alto for review and approval prior to issuance of a grading or building permit. If deemed necessary by City staff, the SRMP shall also be submitted to the Santa Clara County Department of Environmental Health for review and oversight.

SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measure HAZ-1 would ensure that impacts would be reduced to a less than significant level. This measure will be included in the EIR's executive summary and mitigation monitoring and reporting program. Further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As described in the *Setting* section above, soil and groundwater at the project site is impacted by VOCs, metals, and petroleum hydrocarbons. Moreover, the Phase II ESA concluded that soils slated to be removed should be appropriately profiled for disposal prior to initiating excavation activities and that additional data is needed to determine the source and extent of impacted soil and groundwater onsite. Additionally, because the groundwater is impacted by TPH and VOCs, sampling should be conducted to determine if special handling of groundwater onsite during grading/dewatering and or a waterproof vapor barrier will be necessary. The report also recommends that once the additional data is collected, the Santa Clara County Department of Environmental Health be contacted to provide review and oversight.

Three schools occur within 0.25 miles of the project site, including Sequoia Academy 250 feet to the immediate north, Palo Alto Preparatory School 1,250 feet to the southeast, and Meira Academy 1,400 feet to the north. As outlined above under items (a) and (b), demolition of the existing structures would require removal and movement of materials contaminated by asbestos and LBP, and excavation and construction activities could involve removal and movement of contaminated soils and impacted groundwater. Hauling of such materials may occur within 0.25 mile of schools. However, given required compliance with the rules and regulations described above under items (a) and (b), impacts to schools would be less than significant, and further analysis of this issue in an EIR is not warranted.

Based on these site conditions, the proposed demolition, dewatering, grading, and construction activities, including excavation to accommodate the proposed subterranean parking garage, could expose construction workers or nearby residents to potentially unacceptable health risks from contaminated soil or groundwater. Impacts are therefore potentially significant, and the following mitigation measure is required to reduce impacts to a less than significant level.

MITIGATION MEASURE

The following mitigation measure shall be implemented prior to and during project construction to avoid or reduce the project's potentially significant effects related to contaminated soil or groundwater. However, the project would be subject to Mitigation Measure HAZ-1, which requires preparation of a site risk management plan (SRMP). The SRMP would address known and unknown environmental issues that may be encountered during development, including the recommendations in the Phase II ESA prepared by AEI Consultants (Appendix D). The SRMP would also identify appropriate measures to be followed when impacted soil and groundwater are encountered during all construction activities. Since the plan would be subject to review and approval by the City and the County if deemed necessary, Mitigation Measure HAZ-1 would reduce impacts to a less than significant level. Further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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

HOUSING INCENTIVE PROGRAM EXPANSION

The Palo Alto Airport of Santa Clara County (PAO) is the closest airport to the program area. There are no private airstrips in the vicinity of the site. PAO is a 103-acre facility with a single runway, parallel taxiway, and a building area. The airport is located approximately 2.5 miles northwest of the program area. The airport primarily serves small general aviation aircraft. The area is located entirely outside of the airport safety and traffic pattern zones (City of Palo Alto 2006). Therefore, no impact related to airport safety would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The Palo Alto Airport of Santa Clara County (PAO) is the closest airport to the project site, approximately 2.5 miles northwest of the site. There are no private airstrips in the vicinity of the site. As with the program area, the project site is located entirely outside the airport safety and traffic pattern zones (City of Palo Alto 2006). Therefore, no impact related to airport safety would occur and further analysis in an EIR is not warranted.

NO IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow the development of higher-density housing on the 18 parcels within the program area. New housing under the zoning amendment would be on private property and would therefore not obstruct existing roadways or require the construction of new roadways or access points. In addition, local requirements and review procedures would ensure that new development under the HIP expansion would not interfere with emergency response or evacuation. Goal T-3 of the Comprehensive Plan Transportation Element requires that the City establish procedures for considering the effects of street design on emergency vehicle response time. Building permit applications for a new housing development allowed by the proposed zoning amendment would be reviewed by the Department of Public Works and the Palo Alto Fire and Police Departments for potential problems with emergency access within the City. The HIP expansion would not result in buildings that would block emergency response or evacuation routes or interfere with adopted emergency response and emergency evacuation plans. No impact would occur and further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project would involve the demolition of two existing buildings and the construction of a four-story mixed-use building on private property. The new building would not obstruct existing roadways or require the construction of new roadways or access points. Therefore, the proposed building would not block emergency response or evacuation routes or interfere with adopted emergency response and emergency evacuation plans. No impact would occur and further analysis of this issue in an EIR is not warranted.

NO IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is within an urban area in Palo Alto surrounded by various commercial, residential, and recreational uses. According to the City's Natural Environment Chapter of the Comprehensive Plan, the area is not adjacent to or within the vicinity of wildlands. As a result, there would be no risk of exposing people or structures to a significant risk of loss, injury or death involving wildland fires. No impact would occur and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site is within an urban area in Palo Alto. The site is bordered by existing multi-family residential, commercial, and recreational uses. According to the City's Natural Environment Chapter of the Comprehensive Plan, the project site is not adjacent to or within the vicinity of wildlands. As a result, there would be no risk of exposing people or structures to a significant risk of loss, injury or death involving wildland fires. No impact would occur and further analysis in an EIR is not warranted.

NO IMPACT

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10 Hydrology and Water Quality

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

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP program would allow housing within the program area at higher densities than currently allowed by the PAMC. Development of such housing would likely introduce heavy equipment during construction. This increase in heavy construction equipment could result in an increase in fuel, oil, and lubricants in stormwater runoff due to leaks or accidental releases. In addition, operation of the new housing, including use of impermeable surfaces like concrete and permeable landscaping, could also result in stormwater pollution. However, existing federal, state, and local requirements would ensure that ground water pollution would be controlled.

In terms of impacts during construction, new developments under the HIP expansion would be required to comply with Chapter 16.11 of the PAMC, which requires that permanent stormwater pollution prevention measures be incorporated into projects. These may include, but are not limited to, minimization of impervious surfaces, construction of sidewalks, walkways, and/or patios with permeable surfaces, and minimization of disturbances to natural drainages. In addition, under Chapter 16.11 of the PAMC, "significant redevelopment projects," which include projects that would result in the replacement of 10,000 square feet or more of impervious surface, must treat, either through capture, flow-through filtration, or a combination of capture and flow-through filtration, the volume of stormwater specified in the PAMC.

Additionally, as part of Section 402 of the CWA, the U.S. EPA has established regulations under the NPDES program to control both construction and operation (occupancy) stormwater discharges. In California, the State Water Resources Control Board administers the NPDES permitting program and is responsible for developing permitting requirements. Under the conditions of the County's NPDES Municipal Regional Stormwater Permit (MRP) (Order No. R2-2015-0049), the City of Palo Alto must implement a stormwater management plan as a means to control polluted discharges to the stormwater drainage system. NPDES permits generally identify effluent and receiving water limits on allowable connections and/or mass emissions of pollutants contained in the discharge, prohibitions on discharges not specifically allowed under the permit, and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities. The City of Palo Alto is a participating agency in the Santa Clara Valley Urban Runoff Pollution Prevention Program (Program). The City must meet the provisions of the Municipal Regional Stormwater Permit by ensuring that new development and redevelopment mitigate water quality impacts to stormwater runoff both during the construction and operation of projects. The Program's Permit Provision C.3 contains requirements for controlling the potential impacts of land development on stormwater quality and flow. Projects that create or replace 10,000 square feet or more of impervious surface must include appropriate site design measures, pollutant source controls, and treatment control measures. Projects that produce increases in runoff peak flows, volumes, and durations that may cause erosion or sedimentation in downstream receiving water must also include hydromodification control measures.

Construction of the housing developments allowed by the HIP expansion could involve excavation, which may result in encounters with groundwater and dewatering may be needed during construction. Moreover, dewatering may involve removal of contaminated groundwater. Runoff of contaminated water during dewatering could introduce pollutants to the stormwater system. However, dewatering is regulated by the City during the permitting process. According to the City's *Construction Dewatering System Policy and Plan Preparation Guidelines* (City of Palo Alto 2013), excavation activities that encounter groundwater are required to submit a Construction Dewatering Plan to the City's Public Works Department. The Public Works Department would review and permit the dewatering plan prior to commencement of dewatering as part of the Street Work Permit process. The Construction Dewatering Plan must comply with the City's *Guidelines,* which require that water is tested for contaminants prior to initial discharge and at intervals during dewatering. In the dewatering plan, the applicant must include provisions for keeping sediment and contaminated groundwater out of the storm drain system. With adherence to the City's policies regarding dewatering, contaminated groundwater would not enter the stormwater system.

Therefore, with adherence to requirements listed above, the housing allowed by the proposed HIP expansion would not violate water quality standards, waste discharge requirements, or degrade water quality. Impacts would be less than significant.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with the housing allowed under the HIP expansion, construction and operation of the proposed project at the 788 San Antonio Road project site could result in groundwater pollution. However, the existing federal, state, and local requirements described above would ensure that ground water pollution would be controlled.

In terms of impacts related to construction activities, the increase in heavy construction equipment and operational traffic could result in an increase in fuel, oil, and lubricants in stormwater runoff due to leaks or accidental releases. However, as described above, the project would be required to comply with the stormwater pollution prevention measures in PAMC Chapter 16.11. Under Chapter 16.11 of the PAMC, the project is considered a "significant redevelopment project" because it would result in the replacement of 10,000 square feet or more of impervious surface. Significant redevelopment projects must treat, either through capture, flow-through filtration, or a combination of capture and flow-through filtration, the volume of stormwater specified in the PAMC. The project proposes flow-through treatment of stormwater and therefore must treat ten percent of the 50-year peak flow rate, two times the 85th percentile hourly rainfall intensity for the applicable area, or the flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity. The project would achieve this flow-through treatment requirement using flow-through planters in the first-floor courtyard and downspout media filters or a manhole filter.

Additionally, since the project would involve replacing more than 10,000 square feet of impervious surfaces, it would be subject to the Program's C.3 requirements for controlling potential impacts of land development on stormwater quality and flow, including appropriate site design measures, pollutant source controls, and treatment control measures. The project would qualify as a Special Project under Category A and would receive LID reduction credits. Approximately 25 percent of the runoff from the project site would be treated using flow-through planters in the first-floor courtyard. The remaining 75 percent of the runoff would be treated using downspout media filters or manhole filters before connecting to the City's stormwater conveyance system.

The project would involve excavation up to approximately 14 feet below ground surface. According to the Geotechnical Investigation completed for the project (Appendix B), groundwater was measured in borings at depths of between eight and ten feet and is historically known to occur at depths of five feet. Therefore, excavation may result in encounters with groundwater and dewatering may be needed during construction. Moreover, as discussed in Section 8, *Hazards and Hazardous Materials,* groundwater contamination is known to exist beneath the project site. Therefore, dewatering may involve removal of contaminated groundwater. Runoff of contaminated water during dewatering could introduce pollutants to the stormwater system. However, as described above, dewatering is regulated by the City during the permitting process, including through the City's *Construction Dewatering System Policy and Plan Preparation Guidelines* (City of Palo Alto 2013). For this project, The Public Works Department would review and permit the required Construction Dewatering Plan prior to commencement of dewatering as part of the Street Work Permit process. Therefore, with adherence to the City's policies regarding dewatering, contaminated groundwater would not enter the stormwater system. The project would not violate water quality standards, waste discharge requirements, or degrade water quality. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. 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?

HOUSING INCENTIVE PROGRAM EXPANSION

As discussed in Section 17, *Utilities and Service Systems*, housing projects under the proposed HIP expansion would receive water from the San Francisco Public Utilities Commission (SFPUC). The Regional Water System collects water from the Tuolumne River in the Sierra Nevada and from protected local watersheds in the East Bay and Peninsula. Therefore, water supply to the project site would not rely on groundwater supplies. The HIP expansion would not involve installation of new groundwater wells or use of groundwater from existing wells. Temporary dewatering during construction of new housing would not substantially affect groundwater levels. Therefore, the proposed HIP expansion would not result in a net deficit in aquifer volume or a lowering of the groundwater table. Moreover, since much of the program area is already covered with impervious surfaces, including concrete surface parking lots, new housing developments are not likely to result in decreased groundwater infiltration. The HIP expansion would not result in an exceedance of safe yield or a significant depletion of groundwater supplies. Impacts related to groundwater would be less than significant.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As discussed in Section 17, *Utilities and Service Systems*, the proposed project would receive its water from the San Francisco Public Utilities Commission (SFPUC). The Regional Water System collects water from the Tuolumne River in the Sierra Nevada and from protected local watersheds in the East Bay and Peninsula. Therefore, water supply to the project site would not rely on groundwater supplies. Development under the proposed project would not include installation of new groundwater wells or use of groundwater from existing wells. Temporary dewatering during construction would not substantially affect groundwater levels; because of the relatively small area of the project site and proposed depth of excavation, near or only slightly below existing groundwater levels, the project would not result in a significant depletion of groundwater supply. Therefore, the proposed project would not result in a net deficit in aquifer volume or a lowering of the groundwater table. Moreover, since site is already covered with impervious surfaces, including concrete surface parking lots, the proposed project would not result in decreased groundwater infiltration. The project would not result in an exceedance of safe yield or a significant depletion of groundwater supplies. Impacts related to groundwater would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c.(i) Would the project 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?

c.(ii) Would the project substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

c.(iii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would 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?

c.(iv) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows?

HOUSING INCENTIVE PROGRAM EXPANSION

Adobe Creek, approximately 0.4 miles northwest of the program area, is the closest watercourse. The parcels within the program area are currently developed and construction of new housing under the HIP expansion would not alter the course of this creek or other stream or river. The parcels within the program area are connected to an existing stormwater drainage system located in the City of Palo Alto Matadero Creek Watershed. Stormwater runoff in the program area is currently flowing directly to Matadero Creek and eventually to the San Francisco Bay.

The parcels within the program area are almost entirely covered by existing buildings and concrete parking areas, with some landscaping near the edges of many of the parcels. Given existing conditions and open space and design requirements, new housing under the HIP expansion would not substantially increase total impervious area. Therefore, the new surfaces would not substantially increase runoff from the project site such that new or increased flooding would occur on- or off-site.

The proposed HIP expansion would not involve a change in the existing surface runoff system; configuration within the program area would be maintained and the proposed zoning amendment would not introduce new surface water discharges, would not substantially increase runoff volumes, result in substantial erosion or siltation, and would not result in flooding on- or off-site. The HIP expansion would also not alter the existing drainage pattern of the site or area. Impacts would be less than significant.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As described above, Adobe Creek is the closest watercourse to the site. The project site and surrounding areas are currently developed and construction of the proposed project would not alter the course of this creek or other stream or river (no other surface water features are identified in the project area). The project site is connected to an existing stormwater drainage system located in the City of Palo Alto Matadero Creek Watershed. Stormwater runoff in the project area is currently flowing directly to Matadero Creek and eventually to the San Francisco Bay.

According to the Santa Clara Valley Urban Runoff Pollution Prevention Program C.3 Data Form prepared by the project applicant, the site (43,141 square feet) is covered by approximately 42,323 square feet of impervious surfaces (Appendix E). The proposed project would reduce the total area of impervious surfaces to 34,839 square feet. Therefore, the new surfaces would not substantially increase runoff from the project site such that new or increased flooding would occur on- or off-site.

The project would involve retention of the existing surface runoff system and configuration at the site would be maintained and would not introduce new surface water discharges, would not substantially increase runoff volumes, result in substantial erosion or siltation, and would not result in flooding on- or off-site. The project would also not alter the existing drainage pattern of the site or area. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is located approximately two miles from the San Francisco Bay and approximately 20 miles from the coast of the Pacific Ocean. According to the State of California Tsunami Inundation Map for the Mountain View Quadrangle (CalEMA 2009), the area is not located within a tsunami inundation zone. According to the City of Palo Alto's Natural and Urban Environment and Safety Element, mudflows and seiches are not identified as issues for the city. In addition, the nearest body of water that could experience a seiche event is the San Francisco Bay, and it is not anticipated that a seiche in the Bay would have potential to affect the project site. The area is flat and surrounded by residential and commercial development away from crests and steep ridges. Therefore, the program area is located in a low hazard area for tsunami, seiche, and mudflow. Impacts would be less than significant.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site is located approximately two miles from the San Francisco Bay and approximately 20 miles from the coast of the Pacific Ocean. According to the State of California Tsunami Inundation Map for the Mountain View Quadrangle (CalEMA 2009), the site is not located within a tsunami inundation zone. According to the City of Palo Alto's Natural and Urban Environment and Safety Element, mudflows and seiches are not identified as issues for the city. In addition, the nearest body of water that could experience a seiche event is the San Francisco Bay, and it is not anticipated that a seiche in the Bay would have potential to affect the project site. The project site is flat and surrounded by residential and commercial development away from crests and steep ridges. Therefore, the project site is located in a low hazard area for tsunami, seiche, and mudflow. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

As discussed under criterion (a) above, higher-density housing allowed by the proposed HIP expansion would not violate water quality standards or degrade water quality during construction or operation.

The City of Palo Alto is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The San Francisco Bay RWQCB provides permits for projects that may affect surface waters and groundwater locally and is responsible for preparing the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). The Basin Plan designates beneficial uses of water in the region and establishes narrative and numerical water quality objectives. The Basin Plan serves as the basis for the San Francisco Bay RWQCB's regulatory programs and incorporates an implementation plan for achieving water quality objectives. The proposed zoning amendment would not interfere with the objectives and goals in the Basin Plan.

As described in Criterion (a) above, it is likely that groundwater would be encountered during excavation activities for new housing. In such a case, the development would be required to comply with local regulations. According to the City's *Construction Dewatering System Policy and Plan Preparation Guidelines* (City of Palo Alto 2013), excavation activities that encounter groundwater are required to submit a Construction Dewatering Plan to the City's Public Works Department. The Public Works Department would review and permit the dewatering plan prior to commencement of dewatering as part of the Street Work Permit process. The Construction Dewatering Plan must comply with the City's *Guidelines,* which require that water is tested for contaminants prior to initial discharge and at intervals during dewatering. In the dewatering plan, the applicant must include provisions for keeping sediment and contaminated groundwater out of the storm drain system. With adherence to the City's policies regarding dewatering, contaminated groundwater would not enter the stormwater system. Therefore, no impacts would occur and further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As discussed under criterion (a) above, the project would not violate water quality standards or degrade water quality during construction or operation. In addition, as with the HIP expansion, the proposed mixed-use project would not interfere with the objectives and goals of the Water Quality Control Plan for the San Francisco Bay Basin.

As described in Criterion (a) above, groundwater may be encountered during excavation activities. In such a case, the project would be required to comply with local regulations. According to the City's *Construction Dewatering System Policy and Plan Preparation Guidelines* (City of Palo Alto 2013), excavation activities that encounter groundwater are required to submit a Construction Dewatering Plan to the City's Public Works Department. The Public Works Department would review and permit the dewatering plan prior to commencement of dewatering as part of the Street Work Permit process. The Construction Dewatering Plan must comply with the City's *Guidelines,* which require that water is tested for contaminants prior to initial discharge and at intervals during dewatering. In the dewatering plan, the applicant must include provisions for keeping sediment and contaminated groundwater out of the storm drain system. With adherence to the City's policies regarding dewatering, contaminated groundwater would not enter the stormwater system. Therefore, no impacts would occur and further analysis of this issue in an EIR is not warranted.

NO IMPACT

11 Land Use and Planning

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

a. Would the project physically divide an established community?

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow higher-density housing development on individual parcels within the program area. New development allowed under the expansion would not separate connected neighborhoods or land uses from each other. The HIP expansion would not facilitate new development features, such as roads, that would divide an established community or limit movement, travel, or social interaction between established land uses. No impacts would occur, and further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The proposed 788 San Antonio Road project would involve the construction of a mixed-use building on two contiguous existing parcels in a fully urbanized area of Palo Alto. The project would not separate connected neighborhoods or land uses from each other. No new roads, linear infrastructure, or other development features are proposed that would divide an established community or limit movement, travel, or social interaction between established land uses. No impacts would occur, and further analysis of this issue in an EIR is not warranted.

NO IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

CONSISTENCY WITH THE PALO ALTO MUNICIPAL CODE

As described above in Section 7 of the introduction to this Initial Study, *Zoning*, all parcels within the program area are zoned Service Commercial (CS), and the parcels at 762 San Antonio Road, 708 San Antonio Road 4227 Middlefield Road, and 4233 Middlefield Road are designated Service Commercial with the Automobile Dealership combining district (CS(AD)). The CS district allows a variety of commercial uses including auto services and dealerships, motels, lumberyards, appliance stores and restaurants. Multi-family residential uses are permitted as part of a mixed-use development, pursuant to the provisions of PAMC Section 18.16.040(a)(1).

As described above in Section 9 of the introduction to this Initial Study, *Description of the Project*, the proposed HIP Expansion program would involve an amendment to the PAMC to apply the HIP program to all 18 parcels within the program area. Those changes are intended to allow higher densities for housing projects in the program area by changing several requirements. Amendments to the CS development standards would include increased FAR for housing projects, elimination of maximum density requirements, and allow applicants to apply for a waiver to reduce requirements related to the preservation of existing retail space. Other requirements, including height and setback development standards, and required approvals, including Major Architectural Review for new developments, would still apply to new housing developments in the program area. The proposed HIP expansion, if approved, would therefore provide amended zoning requirements with which future housing projects would be required to comply. The project would not result in conflicts with the PAMC. No impacts would occur, and further analysis of this issue in an EIR is not warranted.

CONSISTENCY WITH THE PALO ALTO COMPREHENSIVE PLAN

As described above in Section 6 of the introduction to this Initial Study, *Comprehensive Plan Designation*, all parcels within the program area are designated Service Commercial (CS) in the Comprehensive Plan. The CS designation is intended to allow various commercial businesses, including restaurants and auto services; it is also intended for residential uses, including higher density multi-family housing in specific locations. The proposed project would involve a zoning amendment to expand the HIP to all 18 parcels within the program area. This amendment would allow higher-density housing in a specific area of the CS designation, which is consistent with the uses envisioned in the Comprehensive Plan. In addition, the new housing under the HIP expansion would be required to comply with all other existing applicable zoning and land use requirements and policies in the Comprehensive Plan. The project would therefore be consistent with the Comprehensive Plan. No impacts would occur, and further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

CONSISTENCY WITH THE PALO ALTO MUNICIPAL CODE

The project site is zoned Service Commercial (CS), which allows a variety of commercial uses including auto services and dealerships, motels, lumberyards, appliance stores and restaurants. Multi-family residential uses are only permitted as part of a mixed-use development, pursuant to the provisions of PAMC Section 18.16.040(a)(1). The proposed development project is therefore consistent with the CS District because it would involve the provision of multi-family residential use in a mixed-use building. It would also be subject to required conformance with the PAMC through the following discretionary approvals:

- Major Architectural Review, which would be reviewed by the Architectural Review Board as described in PAMC Section 18.77.070;
- A parking reduction, approval of which would be subject to the requirements of PAMC Section 18.52.050, including the demonstrated reduction of off-street parking demand created by transportation and parking alternative programs; and
- A partial waiver of required retail space preservation, as described in PAMC Section18.40.180(c).

The proposed project would not conform to several other existing PAMC requirements, including the CS development standards for maximum floor area ratio (FAR), site coverage, and residential density, and minimum required off-street parking spaces. However, as described above, this project would also involve the application of the HIP to the parcels within the program area, including the project site. Table 5 below compares existing CS development standards, the changes applied by the proposed amendment, and the proposed new development. As shown in the table, with Council's approval of the proposed zoning amendment, the new mixed-use building would conform to the applicable zoning standards for FAR, density, and coverage.

Table 5 Zoning Development Standards Comparison Table

Development Standard	CS (Existing Zoning)	Proposed Zoning Amendment (HIP)	Proposed Project
Maximum FAR:	1.0	2.0	1.97
Maximum Residential Density:	30 units per acre	No Maximum	102.34 units per acre
Maximum Site Coverage:	50 percent	100 percent	56 percent

Finally, the project would also be required to comply with the City's Below Market Rate (BMR) Program (PAMC Chapter 18.15). This program requires developers of projects with five or more units to provide for 15 percent of the units to be affordable or to pay in-lieu fees to fund affordable housing projects in the city. Of the 102 units proposed, the project is required to designate 15 percent, or 16 units, as affordable. The project would therefore be consistent with applicable regulations in the PAMC with approval of the proposed PAMC amendment, and impacts would be less than significant.

CONSISTENCY WITH THE PALO ALTO COMPREHENSIVE PLAN

As with all the parcels in the program area, the project site has a land use designation of Service Commercial (CS). Additionally, the following Comprehensive policies also apply to the project:

> **Policy L-1.1.** Maintain and prioritize Palo Alto's varied residential neighborhoods while sustaining the vitality of its commercial areas and public facilities.
>
> **Policy L-1.3.** Infill development in the urban service area should be compatible with its surroundings and the overall scale and character of the city to ensure a compact, efficient development pattern.
>
> **Policy L-1.11.** Hold new development to the highest development standards in order to maintain Palo Alto's livability and achieve the highest quality development with the least impacts.
>
> **Policy L-3.1.** Ensure that new or remodeled structures are compatible with the neighborhood and adjacent structures.
>
> **Policy L-6.1.** Promote high-quality design and site planning that is compatible with surrounding development and public spaces.
>
> **Policy L-6.7.** Where possible, avoid abrupt changes in scale and density between residential and non-residential areas and between residential areas of different densities. To promote compatibility and gradual transitions between land uses, place zoning district boundaries at mid-block locations rather than along streets wherever possible.

The project would involve the construction of a new mixed-use development with a retail space at the first floor and 102 dwelling units. These proposed new uses would be consistent with the land uses envisioned for the Service Commercial land use designation under the 2030 Comprehensive Plan. The project would involve high-quality urban design elements, including landscaping elements and open space, and a sensitivity to the existing built environment and neighboring uses. Therefore, the project would not conflict with the City's Comprehensive Plan and this impact would be less than significant. Further analysis in an EIR is not warranted.

NO IMPACT

12 Mineral Resources

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

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

The parcels within the program area are part of an urbanized area with no current oil or gas extraction. According to the Natural Environment Element of the City's Comprehensive Plan, Palo Alto does not contain mineral deposits of regional significance (City of Palo Alto 2017a). Therefore, no mineral resource activities would be altered or displaced by the proposed project and further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site and surrounding properties are part of an urbanized area with no current oil or gas extraction. According to the Natural Environment Element of the City's Comprehensive Plan, Palo Alto does not contain mineral deposits of regional significance (City of Palo Alto 2017a). Therefore, no mineral resource activities would be altered or displaced by the proposed project and further analysis of this issue in an EIR is not warranted.

NO IMPACT

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13 Noise

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

NOISE AND VIBRATION SETTING

Noise is defined as unwanted sound that disturbs human activity. Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. Noise level measurements include intensity, frequency, and duration, as well as time of occurrence. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4,000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz).

Because of the logarithmic scale of the decibel unit, sound levels cannot be added or subtracted arithmetically. If a sound's physical intensity is doubled, the sound level increases by 3 dBA, regardless of the initial sound level. For example, 60 dBA plus 60 dBA equals 63 dBA. Where ambient noise levels are high in comparison to a new noise source, the change in noise level would be less than 3 dBA. For example, when 70 dBA ambient noise levels are combined with a 60 dBA noise source the resulting noise level equals 70.4 dBA.

The time period in which noise occurs is important since noise that occurs at night tends to be more disturbing than that which occurs during the day. Community noise is usually measured using Day-Night Average Level (Ldn), which is the 24-hour average noise level with a 10-dBA penalty for noise occurring during nighttime (10:00 PM to 7:00 AM) hours, or Community Noise Equivalent Level (CNEL), which is the 24-hour average noise level with a 5 dBA penalty for noise occurring from 7:00 PM to 10:00 PM and a 10 dBA penalty for noise occurring from 10:00 PM to 7:00 AM. Noise levels described by Ldn and CNEL typically do not differ by more than 1 dBA. In practice, CNEL and Ldn are often used interchangeably.

Noise that is experienced at any receptor can be attenuated by distance or the presence of noise barriers or intervening terrain. Sound from a single source (*i.e.*, a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance. A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by this shielding depends on the size of the object, proximity to the noise source and receiver, surface weight, solidity, and the frequency content of the noise source. Natural terrain features (such as hills and dense woods) and human-made features (such as buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dBA of noise reduction. The manner in which buildings in California are constructed generally provides a reduction of exterior-to-interior noise levels of approximately 25 dBA with closed windows (FTA 2006).

PROJECT SITE NOISE ENVIRONMENT

Like many urban areas, Palo Alto's noise environment is dominated by transportation-related noise, including car and truck traffic and trains. Highway 101 is the largest source of traffic noise in Palo Alto, with other highways and major roadways contributing as well. These include El Camino Real, the Oregon Expressway, the Foothill Expressway, Highway 280, Embarcadero Road, San Antonio Road, Middlefield Road, University Avenue, Page Mill Road/Oregon Expressway, and Alma Street, among others. Noise along all of these roadways is generated by private cars, trucks, buses, and other types of vehicles. Caltrain also runs through the center of Palo Alto and contributes to the noise environment of the city. Air traffic makes only a modest contribution to ambient noise levels in Palo Alto.

IMPACT ANALYSIS

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

HOUSING INCENTIVE PROGRAM EXPANSION

Construction of the higher-density housing allowed under the proposed HIP expansion would generate temporary noise that would be audible at nearby sensitive receptors, including the residential uses surrounding the program area. Noise associated with construction is a function of the type of construction equipment, the location and sensitivity of nearby land uses, and the timing and duration of the construction activities. In addition, construction and operation of the housing could increase transportation related noise sources, such as automobiles, trucks, and motorcycles

Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create a sustained noise level, and because of its proximity to areas sensitive to noise exposure. Impacts would be potentially significant and will be further analyzed in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As with all development associated with the HIP expansion, construction of the proposed project at 788 San Antonio Road would generate temporary noise that would be audible at nearby sensitive receptors, including the residential uses surrounding the project site. Noise associated with construction is a function of the type of construction equipment, the location and sensitivity of nearby land uses, and the timing and duration of the construction activities. In addition, construction and operation of the project could increase transportation related noise sources, such as automobiles, trucks, and motorcycles

Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create a sustained noise level, and because of its proximity to areas sensitive to noise exposure. Impacts would be potentially significant and will be further analyzed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

Development of the higher-density housing allowed by the HIP expansion would involve construction activities such as demolition, asphalt removal, grading, and excavation activities. Each of these is anticipated to result in some vibration and noise that would affect the nearby Greenhouse residential apartment complex to the west of the program area and the three schools within 0.25 miles of the program area.

Due to the presence of sensitive noise receptors near the program, groundborne noise and vibration could affect these sensitive receptors. Impacts would be potentially significant and will be further analyzed in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The proposed project would involve construction activities such as demolition, asphalt removal, grading, and excavation activities. Each of these is anticipated to result in some vibration and noise that would affect the nearby Greenhouse residential apartment complex approximately 500 feet west of the project site and educational sensitive receptors, Sequoia Academy 250 feet north, Palo Alto Preparatory School 1,250 feet southeast, and Meira Academy, 1,400 north.

Due to the presence of sensitive noise receptors near the project site, groundborne noise and vibration could affect these sensitive receptors. Impacts would be potentially significant and will be further analyzed in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is not within two miles of a public or private airstrip or airport. No impacts would occur and further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site is not within two miles of a public or private airstrip or airport. No impacts would occur and further analysis of this issue in an EIR is not warranted.

NO IMPACT

14 Population and Housing

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow up to 818 new residential units in the program area beyond what is currently allowed and, therefore, would directly generate population growth. Based on a per-person household rate of 2.3 for the City of Palo Alto (City of Palo Alto 2014b), these 818 units would add an estimated 1,881 new residents to the City population. The current population of Palo Alto is estimated at 69,397 (Department of Finance (DOF) 2019). The addition of new residents from the HIP expansion to the City would therefore increase the population of Palo Alto to 71,278. ABAG estimates that the City's population will increase to 89,100 by 2025, an increase of 22,168 residents (ABAG 2013). The population increase associated with the proposed project would therefore be within ABAG's population forecast for the City.

The city also currently has 29,228 housing units (DOF 2019). The addition of 818 units would bring the total number of housing units to 30,046. The latest ABAG projections also estimate that the number of housing units in the city in 2040 will be 32,900 (ABAG 2017). The housing growth associated with the project is therefore well within ABAG projections. Therefore, the proposed project would not substantially induce population growth through the provision of new housing units. In addition, one of the goals of the proposed HIP expansion is to encourage the development of new housing in specific locations to help meet the City's Regional Housing Need Assessment goal. Therefore, while the project would result in population growth, such growth would not be unplanned. Impacts would be less than significant and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project would include up to 102 new residential units and, therefore, would directly generate population growth. These 102 units would be within the 818 units allowed by the HIP expansion portion of this project, as analyzed in the previous section. As a single development project, and based on a per-person household rate of 2.3 for the City of Palo Alto (City of Palo Alto 2014b), the proposed mixed-use project would add an estimated 235 new residents to the City population. The current population of Palo Alto is estimated at 69,397 (Department of Finance (DOF) 2019). The addition of new residents to the City would increase the population of Palo Alto to 69,632. ABAG estimates that the City's population will increase to 89,100 by 2025, an increase of 22,168 residents (ABAG 2013). The population increase associated with the proposed project would therefore be within the population forecast for the City.

The city also currently has 29,228 housing units (DOF 2019). The addition of 102 units would bring the total number of housing units to 29,330. The latest ABAG projections also estimate that the number of housing units in the city in 2040 will be 32,900 (ABAG 2017). The housing growth associated with the project is therefore well within ABAG projections. Therefore, the proposed project would not substantially induce population growth through the provision of new housing units.

The proposed project would also generate approximately five[1] new jobs that could indirectly generate population growth and a greater need for employee housing, not accounting for the removal of two existing commercial buildings. This incremental increase in employment opportunities in the city would not substantially induce population growth through the provision of new jobs. The project would therefore not induce substantial unplanned population growth in the area; impacts would be less than significant, and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

There are no existing housing units or people residing on the project site in a form of temporary housing within the program area. Therefore, development subject to the proposed HIP expansion would not displace existing housing units or people. No impact would occur, and further analysis in an EIR is not warranted.

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[1] No city, county, or regional employee density rates are available. This analysis assumes 400 square feet per employee (1,779 sf of commercial/400 sf per employee = five employees), based on an employee density rate from the Southern California Association of Governments (2001).

788 SAN ANTONIO ROAD MIXED-USE PROJECT

There are no existing housing units at the project site or people residing on the project site in a form of temporary housing. Therefore, the project would not displace existing housing units or people. No impact would occur, and further analysis in an EIR is not warranted.

NO IMPACT

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15 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1 Fire protection?	☐	☐	■	☐
2 Police protection?	☐	☐	■	☐
3 Schools?	☐	☐	■	☐
4 Parks?	☐	☐	■	☐
5 Other public facilities?	☐	☐	■	☐

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Fire protection is provided by the City of Palo Alto Fire Department (PAFD). The Fire Department provides fire suppression, paramedic ambulance service, search and rescue, fire prevention inspections/permits, public fire education programs, emergency preparedness planning and other services based on community needs. PAFD also reviews development projects and building permit applications for compliance with California Building Code Requirements and other regulations intended to prevent or reduce fire hazards. New development subject to the proposed HIP expansion, including the proposed project at 788 San Antonio Road, would be required to adhere to the conditions of approval set forth by the PAFD based on their review of the project plans.

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow housing within the program area at higher densities than currently allowed by the PAMC. This increased density could result in the need for fire station improvements or expansions. The 2030 Comprehensive Plan EIR concluded that buildout under the Comprehensive Plan would not require expanded or new fire facilities because new development would be in existing urbanized areas already served by existing PAFD stations and required to comply with California Fire Code regulations (City of Palo Alto 2017a). As outlined in sections 11, *Land Use and Planning*, and 14, *Population and Housing*, the project would be consistent with the development goals and vision of the 2030 Comprehensive Plan and would produce housing for an increase in population within the expectations for Palo Alto. Moreover, the program area is within an urbanized, existing service area of the PAFD. The fire station closest to the project site is Fire Station 4, located at 3600 Middlefield Road, which is approximately 0.75 miles northwest of the northern edge of the program area. With the continued implementation of existing practices of the City, including required compliance with the California Fire Code, new development would not significantly affect community fire protection services and would not result in the need for construction of new, or expansion of existing, fire protection facilities. Impacts would be less than significant and further analysis in an EIR is not warranted.

788 San Antonio Road Mixed-Use Project

The proposed project would increase the density at the project site and could therefore result in the need for fire station improvements or expansions. The 2030 Comprehensive Plan EIR concluded that buildout under the Comprehensive Plan would not require expanded or new fire facilities because new development would be in existing urbanized areas already served by existing PAFD stations and required to comply with California Fire Code regulations (City of Palo Alto 2017a). As outlined in sections 11, *Land Use and Planning*, and 14, *Population and Housing*, the project would be consistent with the development goals and vision of the 2030 Comprehensive Plan and would produce housing for an increase in population within the expectations for Palo Alto. Moreover, as noted above, the site is within an urbanized, existing service area of the PAFD. With the continued implementation of existing practices of the City, including required compliance with the California Fire Code, the proposed project would not significantly affect community fire protection services and would not result in the need for construction of new, or expansion of existing fire protection facilities. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Police protection in Palo Alto is provided by the Palo Alto Police Department (PAPD). The police station closest to the project site is at 1000 Villa Street, approximately two miles southeast of the program area and project site.

HOUSING INCENTIVE PROGRAM EXPANSION

Development allowed by the proposed HIP expansion would not create excessive demand for police services or introduce development to areas outside of normal service range that would necessitate new police protection facilities; the program area is within the PAPD's service area and is currently serviced by the PAPD. The proposed project would thus not create the need for new or expanded police protection facilities and impacts would be less than significant. Further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The proposed project would not create excessive demand for police services or introduce development to areas outside of normal service range that would necessitate new police protection facilities; the project site is within the PAPD's service area and is currently serviced by the PAPD. The proposed project would thus not create the need for new or expanded police protection facilities and impacts would be less than significant. Further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The program area and project site are served by the Palo Alto Unified School District (PAUSD).

HOUSING INCENTIVE PROGRAM EXPANSION

Development allowed by the proposed HIP expansion would involve up to 818 new residential units. These 102 units would be within the 818 units allowed by the HIP expansion portion of this project, as analyzed in the previous section. Assuming a conservative student generation rate of one student per residential unit, the proposed project would generate up to 818 additional students at PAUSD schools. Pursuant to Senate Bill 50 (Section 65995(h)), payment of mandatory fees to the affected school district would reduce potential school impacts to less than significant level under CEQA. If approved, new housing development would be subject to the Palo Alto Unified School District School Impact Fees, which are assessed based on proposed land use and floor area. Therefore, the HIP expansion would not have a significant impact with respect to schools. Further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project would involve up to 102 new residential units. These 102 units would be within the 818 units allowed by the HIP expansion portion of this project, as analyzed in the previous section. As an individual development project, and assuming a conservative student generation rate of one student per residential unit, the proposed project would generate up to 102 additional students at PAUSD schools. Pursuant to Senate Bill 50 (Section 65995(h)), payment of mandatory fees to the affected school district would reduce potential school impacts to less than significant level under CEQA. If approved, this project would be subject to the Palo Alto

Unified School District School Impact Fees, which are assessed based on proposed land use and floor area. Therefore, the project would not have a significant impact with respect to schools. Further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

See Section 16, *Recreation.*

LESS THAN SIGNIFICANT IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?

As described in criteria a.1 – a.4 above, impacts related to expanded or altered government facilities, including fire, police, school, and park facilities, would be less than significant.

Other government facilities include library services. Library services are provided by the Palo Alto City Library. Palo Alto's public library system is comprised of six libraries: Main, Children's, Downtown, College Terrace, Mitchell Park, and Terman Park. The City has one of the highest library item per capita circulation rates in the nation with over one million volumes loaned in 2017 and some 1 million people using the libraries annually (Palo Alto City Library 2017. The closest library branch is Mitchell Park located at 3700 Middlefield Road, Palo Alto, CA 94303, which is less than a mile west of the program area.

HOUSING INCENTIVE PROGRAM EXPANSION

As described in Section 14, *Population and Housing*, development allowed by the HIP expansion would generate population growth of approximately 1,881 people. This level of population growth would not be substantial in relation to the City's overall population and would thus not require construction of new library facilities. This impact would be less than significant. Further analysis of impacts related to public services in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The proposed project would generate population growth of approximately 235 people. This level of population growth would not be substantial and would thus not require construction of new library facilities. This impact would be less than significant. Further analysis of impacts related to public services in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	■	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	■	☐

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

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

Over one-third of Palo Alto's land area consists of open space preserves. The City owns and operates approximately 36 parks and preserves, comprised of 162 acres of urban parks and 4,000 acres of open space (City of Palo Alto 2019). The City's estimated population is 69,397 residents (DOF 2019). Therefore, the ratio of urban parks to residents in the City is 2.3 acres of parkland for every 1,000 residents and the ratio of open space to residents in the City is 57.6 acres of parkland for every 1,000 residents.

HOUSING INCENTIVE PROGRAM EXPANSION

As described in Section 14, *Population and Housing*, the new maximum number of housing units allowed under the HIP expansion would increase the population of Palo Alto to 71,278. Therefore, if all 818 housing units potentially allowed under the HIP expansion were constructed, the ratio of urban parks to residents in the City would be 2.27 acres of parkland for every 1,000 residents and the ratio of open space to residents would be 56.12 acres of parkland for every 1,000 residents. The new housing would therefore result in only an incremental reduction in available recreation space per resident in the City. In addition, the program area within walking distance of several existing nearby parks and recreation areas, including the Cubberley Community Center, approximately 700 feet southwest of the area, Ramos Park, approximately 0.5 miles northwest of the area, and Mitchell Park, approximately 0.6 miles west of the area. Therefore, while the proposed HIP expansion would allow new housing development that would contribute additional residents to the City population, given the existing population in the City and the number of new residents the project would produce, it would not substantially alter citywide demand for parks such that substantial physical deterioration of parks would occur, or the construction of new recreational facilities would be required.

The HIP expansion would not include the creation of new recreational facilities other than spaces dedicated for residents of new housing developments. Impacts would be less than significant and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

While the project would contribute additional residents to the City population, given the existing population in the City and the number of new residents the project would produce, it would not substantially alter citywide demand for parks such that substantial physical deterioration of parks would occur, or the construction of new recreational facilities would be required.

The proposed project would not include recreational facilities other than the on-site areas that would serve future residents of the project. The parks closest to project site are Thaddeus Park, located approximately 0.58 miles southeast of the project site and Ramos Park, located approximately 0.57 miles northwest of the site. Thaddeus Park includes land devoted to picnic areas, open green spaces, and a playground, and Ramos Park includes greenspace with a large grassy area, a playground, and a basketball court. Construction of the project would not involve off-site activities or construction that would directly affect these parks. Impacts would be less than significant and further analysis in an EIR is not warranted.

LESS THAN SIGNIFICANT IMPACT

17 Transportation

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

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

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

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

d. Would the project result in inadequate emergency access?

HOUSING INCENTIVE PROGRAM EXPANSION

The higher-density housing allowed by the proposed HIP expansion could result in increased traffic compared to existing conditions. Trips generated as a result of the proposed project have the potential to impact area intersections and roadway segments and contribute to cumulative traffic increases. Traffic impacts would be potentially significant and will be analyzed further in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The proposed project would increase traffic compared to existing conditions. Trips generated as a result of the proposed project have the potential to impact area intersections and roadway segments and contribute to cumulative traffic increases. The proposed project may also conflict with applicable plans and policies including the VTA Congestion Management Program. Traffic impacts would be potentially significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	■	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

TRIBAL CULTURAL RESOURCES SETTING

As of July 1, 2015, California Assembly Bill 52 of 2014 (AB 52) was enacted and expands CEQA by defining a new resource category, "tribal cultural resources." AB 52 establishes that "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is:

1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public

Resources Code Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

In May 2016, the City of Palo received a single request from a tribe to be contacted in accordance AB 52. However, through subsequent correspondence with the tribe, it was concluded that the tribe had contacted the City of Palo Alto in error and did not wish to be contacted regarding future projects within the City's jurisdiction. The tribe, the Torres Martinez Desert Cahuilla Indians, is not traditionally or culturally affiliated with the geographic area within the City of Palo Alto. Because no other tribes have requested to be contacted, no notices in accordance with AB 52 were sent and no further action is required. As discussed in the Cultural Resources Section, a SLF search of the project area was also negative.

IMPACT ANALYSIS

a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*

b. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 2024.1?*

HOUSING INCENTIVE PROGRAM EXPANSION

Although no tribal cultural resources are expected to be present within the program area, there is the possibility of encountering undisturbed subsurface tribal cultural resources during demolition and construction activities associated with the higher-density housing allowed by the HIP expansion. Such activities could potentially result in significant impacts on unanticipated tribal cultural resources. Mitigation Measure TCR-1 identified below would reduce impacts on unidentified tribal cultural resources to a less than significant level and further analysis of this issue in an EIR is not warranted. This measure will be included in the EIR's executive summary and mitigation monitoring and reporting program.

MITIGATION MEASURES

The following mitigation measure would be required to avoid or reduce the project's potentially significant impacts to tribal cultural resources.

TCR-1 Unanticipated Discovery of Tribal Cultural Resources. In the event that cultural resources of Native American origin are identified during construction of any development associated with proposed HIP expansion, all earth-disturbing work in the vicinity of the find must be temporarily suspended or redirected until an archaeologist has evaluated the nature and significance of the find and an appropriate Native American representative, based on the nature of the find, is consulted. If the County, in consultation with local Native Americans, determines that the resource is a tribal cultural resource and thus significant under CEQA, a mitigation plan shall be prepared and implemented in accordance with state guidelines and in consultation with Native American groups. The plan would include avoidance of the resource or, if avoidance of the resource is infeasible, the plan would outline the appropriate treatment of the resource in coordination with the archeologist, if applicable, and the appropriate Native American tribal representative.

SIGNIFICANCE AFTER MITIGATION

Mitigation Measure TCR-1 would ensure that tribal cultural resources are identified properly and preserved in the event they are uncovered during construction and would reduce impacts regarding disrupting tribal cultural resources to a less than significant level. This measure will be included in the EIR's executive summary and mitigation monitoring and reporting program. Further analysis of this issue in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

Although no tribal cultural resources are expected to be present on-site, there is the possibility of encountering undisturbed subsurface tribal cultural resources. The proposed grading of the project site could potentially result in significant impacts on unanticipated tribal cultural resources. However, the project would be subject to Mitigation Measure TCR-1, which would ensure that tribal cultural resources are identified properly and preserved in the event they are uncovered during construction and would reduce impacts regarding disrupting tribal cultural resources to a less than significant level. Further analysis of this issue in an EIR is not warranted.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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19 Utilities and Service Systems

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

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

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

The City of Palo Alto Utilities Department (CPAU) oversees a wastewater collection system consisting of over 208 miles of sewer lines. The City operates the Regional Water Quality Control Plant (RWQCP), which has primary treatment (bar screening and primary sedimentation), secondary treatment (fixed film reactors, conventional activated sludge, clarification and filtration), and tertiary treatment (filtration through a sand and coal filter and UV disinfection). Wastewater is routed to RWQCP, where it is treated prior to discharge into the San Francisco Bay. While the CPAU is responsible for the wastewater collection system, the Palo Alto Public Works Department is responsible for the collection/conveyance of sewage collected and delivered to the RWQCP.

The RWQCP is designed to have an average dry weather flow capacity of 39 million gallons per day (MGD) with full tertiary treatment, and a peak wet weather flow capacity of 80 MGD with full secondary treatment. Current average flows are approximately 22 MGD. Therefore, the current available capacity of the RWQCP is 17 MGD. The plant capacity is sufficient for current dry and wet weather loads and for future load projections. The RWQCP does not experience any major treatment system constraints and has no planned capacity expansions. Approximately 220,000 people live in the RWQCP service area. Of the wastewater flow to the RWQCP, about 60 percent is estimated to come from residences, 10 percent from industries, and 30 percent from commercial businesses and institutions. The RWQCP treats 21 million gallons per day of effluent from all the partner cities. All of the wastewater treated at the RWQCP can be recycled. The plant already has some capability to produce recycled water that meets the Title 22 unrestricted use standard (approximately 4.5 MGD is presently available) (UWMP 2016).

HOUSING INCENTIVE PROGRAM EXPANSION

The proposed HIP expansion would allow the development of up to 818 new housing units within the program area. Palo Alto's Utilities UWMP does not list wastewater generation factors. As a result, wastewater generation rates from the City of Los Angeles were used to estimate the amount of wastewater that would be generated by the development under the HIP expansion. As shown in Table 6, the new housing would generate an estimated 130,880 gallons of wastewater per day. The increase in wastewater generation associated with new housing under the proposed HIP expansion would be approximately 0.77 percent of the existing unused capacity of the RWQCP. Therefore, there would be sufficient wastewater capacity to serve the housing. The proposed HIP expansion would therefore not exceed wastewater treatment requirements or require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, nor would it result in a substantial physical deterioration of public wastewater facilities. Therefore, impacts would be less than significant.

Table 6 Estimated Wastewater Generation – HIP Expansion

Type of Use	Quantity	Generation Factor (Per Day)	Amount (gallons per day)
Residential – 2-bedroom*	818 du	160 gallons/du/day	130,880

* In order to calculate the most conservative estimate, all units were assumed to be two bedrooms.

Notes: du=dwelling unit

Source: City of Los Angeles CEQA Thresholds Guidelines (2006)

788 San Antonio Road Mixed-Use Project

The project would introduce new retail and residential uses to the project site. As shown in Table 7, the proposed project would generate an estimated 12,662 gallons of wastewater per day. The increase in wastewater generation associated with the project would be approximately 0.07 percent of the existing unused capacity of the RWQCP. Therefore, there would be sufficient wastewater capacity to serve the project site. The proposed project would not exceed wastewater treatment requirements or require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. The proposed project would not result in a substantial physical deterioration of public wastewater facilities. Therefore, impacts would be less than significant.

Table 7 Estimated Wastewater Generation – 788 San Antonio Road Project

Type of Use	Quantity	Generation Factor (Per Day)	Amount (gallons per day)
Retail	1,779 sf	80 gallons/1,000 sf/day	142
Residential – studio*	32 du	120 gallons/du/day	3,840
Residential – 1 bedroom*	63 du	120- gallons/du/day	7,560
Residential – 2 bedroom*	7 du	160 gallons/du/day	1,120
Total			**12,662**

* Assumes project would include 32 studios, 63 one-bedroom, seen two-bedroom, and two three-bedroom apartment units.

Notes: sf= square feet, du=dwelling unit

Source: City of Los Angeles CEQA Thresholds Guidelines (2006)

LESS THAN SIGNIFICANT IMPACT

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

Since 1962, the City of Palo Alto's potable water supply has come from the San Francisco Public Utilities Commission (SFPUC). In 1999, the City began to prepare a new Water Integrated Resources Plan (WIRP), and it was approved in 2017. Supplies from the SFPUC were found to be adequate in normal years, but additional supplies are needed in drought years to avoid shortages. The City completed the Emergency Water Supply and Storage project in 2015 that would provide the flexibility to maintain basic water service and fire flows if a catastrophic interruption of SFPUC service occurred. The City is also a participating agency on the Bay Area

Water Supply and Conservation Agency's Long-Term Reliable Water Supply Strategy to meet the projected water needs of its member agencies and their customers through 2035 and to increase their water supply reliability under normal and drought conditions (City of Palo Alto 2017d).

The City of Palo Alto attempts to address issues of water supply in its Urban Water Management Plan (UWMP) (City of Palo Alto 2016b). According to the UWMP, the City of Palo Alto has analyzed three different hydrological conditions to determine the reliability of water supplies: average/normal water year, single dry water year, and multiple, dry water year periods. In each of the three hydrological conditions, the projected water demand was calculated taking into account growth in billing data, water conservation efforts, and demographics. The UWMP states that the City of Palo Alto can reliably meet the projected water demand in each of the hydrological conditions through 2035 (City of Palo Alto 2016b).

Table 8 shows the projected City water supply and demand through the year 2035 according to the City's UWMP.

Table 8 City of Palo Alto Supply/Demand Balance (AFY)

	2020	2025	2030	2035
Demand	11,883	11,411	11,132	10,879
Supply	19,118	19,118	19,118	19,118
Difference	7,235	7,707	7,986	8,239

Source: City of Palo Alto 2016b, Table 26
AFY = acre-feet per year

HOUSING INCENTIVE PROGRAM EXPANSION

Development of higher-density housing under the proposed HIP expansion would increase demand for potable water. Assuming that water use is approximately 120 percent of wastewater generation (130,880 gallons per day), the proposed project would demand approximately 157,056 gallons of water per day, or 0.48 acre-feet per year (AFY) (see Table 5 for estimated wastewater generation calculations). As shown in Table 7, available water supply is projected through 2035. Sufficient water supplies would be available to serve the project from existing entitlements and resources. No new or expanded entitlements would be needed to serve the new housing. The HIP expansion would not result in a substantial physical deterioration of public water facilities or result in adverse physical impacts from new or expanded utility facilities due to increased use as a result of the project. Therefore, impacts would be less than significant.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

Development of the mixed-use project would increase demand for potable water. Assuming that water use is approximately 120 percent of wastewater generation (12,662 gallons per day), the proposed project would demand approximately 15,194 gallons of water per day, or 0.05 acre-feet per year (AFY) (see Table 6 for estimated wastewater generation calculations). As shown in Table 7, available water supply is projected through 2035. Sufficient water supplies would be available to serve the project from existing entitlements and resources. No new or expanded entitlements would be needed to serve the proposed project. The project would not result in a substantial physical deterioration of public water facilities or result in adverse physical impacts from new or expanded utility facilities due to increased use as a result of the project. Therefore, impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

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

Currently, the City is contracted with GreenWaste of Palo Alto for collection of garbage, recycling, and composting services in the city and with Waste Management Inc. to use the Kirby Canyon Landfill for waste disposal. As of November 2017, the Kirby Canyon Landfill has a remaining capacity of 16,191,600 tons and the daily permitted capacity is 2,600 tons per day (California Department of Resources, Recycling and Recovery [CalRecycle] 2017). According to the latest Disposal Facility Inspection Report in 2010, the peak tonnage is 2,094 tons per day. Therefore, the landfill has a remaining daily capacity of 506 tons per day.

HOUSING INCENTIVE PROGRAM EXPANSION

As shown in Table 9, housing allowed by the HIP expansion would generate approximately 3,272 pounds, or 1.636 tons, of solid waste per day. The incremental increase in solid waste associated with the HIP expansion would be within the permitted capacities of Kirby Canyon Landfill. Therefore, the new housing would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. The proposed HIP expansion would not result in a substantial physical deterioration of public solid waste facilities. Impacts would be less than significant.

Table 9 Estimated Solid Waste Generation

Type of Use	Quantity	Generation Factor	Total (lbs/day)	Total (tons/day)
Residential	818 du	4 lbs /du/day	3,272	1.636
Total solid waste sent to landfill			3,272	1.636
Total solid waste sent to landfill assuming 50% diversion rate			1,636	0.818

Source: CalRecycle Waste Generation Rates 2018. https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates
Notes: du=dwelling unit, lbs = pounds

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As shown in Table 10, the project would generate approximately 412 pounds, or 0.206 tons, of solid waste per day. The incremental increase in solid waste associated with the project would be within the permitted capacities of Kirby Canyon Landfill. Therefore, the project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. The proposed project would not result in a substantial physical deterioration of public solid waste facilities. Impacts would be less than significant.

Table 10 Estimated Solid Waste Generation

Type of Use	Quantity	Generation Factor	Total (lbs/day)	Total (tons/day)
Retail	1,779 sf	2.5 lbs/ 1,000 sf/day	4.5	0.002
Residential	102 du	4 lbs /du/day	408	0.204
Total solid waste sent to landfill			412.5	0.206
Total solid waste sent to landfill assuming 50% diversion rate			206	0.103

Source: CalRecycle Waste Generation Rates 2018. https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates

Notes: du=dwelling unit, lbs = pounds, sf = square feet

LESS THAN SIGNIFICANT IMPACT

20 Wildfire

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

a. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?*

b. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

c. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

d. *If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

HOUSING INCENTIVE PROGRAM EXPANSION

The program area is not located in or near a Fire Hazard Severity Zone or Very High Hazard Severity Zone for wildland fires (CalFire 2008). Therefore, there would be no impacts related to wildfire and further analysis in an EIR is not warranted.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

The project site is not located in or near a Fire Hazard Severity Zone or Very High Hazard Severity Zone for wildland fires (CalFire 2008). Therefore, there would be no impacts related to wildfire and further analysis in an EIR is not warranted.

NO IMPACT

21 Mandatory Findings of Significance

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

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

HOUSING INCENTIVE PROGRAM EXPANSION

As noted under Section 4, *Biological Resources*, development allowed by the HIP expansion may affect nesting birds protected under the MBTA. Mitigation Measure BIO-1 would reduce these potential impacts to a less than significant level. All other impacts related to biological resources would be less than significant or no impact would occur. Therefore, with incorporation of mitigation, the proposed zoning text amendment would not result in substantially reduced habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self- sustaining levels, elimination of a plant or animal community, or reduced number or restricted range of a rare or endangered plant or animal.

As discussed in Section 5, *Cultural Resources*, mitigation measures CR-1 and CR-2 would reduce impacts related to the discovery of archaeological impacts within the program area to a less than significant level. However, development under the HIP expansion could involve demolition of historical resources. Therefore, impacts could be significant and will be analyzed further in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As noted under Section 4, *Biological Resources*, implementation of the project may affect nesting birds protected under the MBTA. Mitigation Measure BIO-1 would reduce these potential impacts to a less than significant level. The project may also conflict with the City of Palo Alto Tree Preservation and Management Ordinance; however, Mitigation Measure BIO-1would ensure that the project applicant would meet the requirements of the City's Tree Technical Manual and thus reduce this potential impact to a less than significant level. All other impacts related to biological resources would be less than significant or no impact would occur. Therefore, with incorporation of mitigation, the project would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

As discussed in Section 5, *Cultural Resources*, mitigation measures CR-1 and CR-2 would reduce impacts related to the discovery of archaeological impacts within the project site to a less than significant level. However, the project would involve demolition of a resource recommended as eligible for the California Register of Historical Resources. Therefore, impacts could be significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

As described in Sections 3, 5, 8, 6, 13, and 17 above, development allowed by the proposed HIP expansion could result in significant cumulative impacts to air quality, cultural resources, greenhouse gases, energy, traffic, and noise. These impacts will be analyzed further in an EIR.

The HIP expansion would have no impact, a less than significant impact, or a less than significant impact after mitigation with respect to all other environmental issues discussed in the checklist. There are no other known projects in development or under consideration that would affect those other resource areas.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As described in Sections 3, 5, 8, 6, 13, and 17 above, the project could result in significant cumulative impacts to air quality, cultural resources, greenhouse gases, energy, traffic, and noise. These impacts will be analyzed further in an EIR.

The project would have no impact, a less than significant impact, or a less than significant impact after mitigation with respect to all other environmental issues discussed in the checklist. There are no other known projects in development or under consideration that would affect those other resource areas.

POTENTIALLY SIGNIFICANT IMPACT

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

HOUSING INCENTIVE PROGRAM EXPANSION

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, traffic safety, geologic hazards, and noise impacts. As described in sections 7 and 9 of the Environmental Checklist, impacts related to geology and hazards would be less than significant or less than significant with mitigation incorporated. However, as detailed in the preceding responses, development allowed by the proposed HIP expansion could result in effects on air quality, greenhouse gasses, traffic, and noise that could be significant and will be analyzed further in an EIR.

788 SAN ANTONIO ROAD MIXED-USE PROJECT

As described in Sections 7 and 9 of the Environmental Checklist, impacts related to geology and hazards would be less than significant or less than significant with mitigation incorporated. However, as detailed in the preceding responses, the proposed project’s effects on air quality, traffic, and noise could be significant and will be analyzed further in an EIR.

POTENTIALLY SIGNIFICANT IMPACT

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List of Preparers

Rincon Consultants, Inc. prepared this Initial Study under contract to the City of Palo Alto. Persons involved in data gathering analysis, project management, and quality control are listed below.

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Appendix A

788 San Antonio Road Arborist Report

Kielty Arborist Services LLC
Certified Arborist WE#0476A
P.O. Box 6187
San Mateo, CA 94403
650-515-9783

March 25, 2020

Yurong Han and Ted O'Hanlon
Site: San Antonio Housing Project, Palo Alto CA

Dear Yurong Han and Ted O'Hanlon,

As requested on Monday, January 21, 2019, I visited the above site to inspect and comment on the trees. A housing development is planned for this site and your concern as to the future health and safety of the trees on site has prompted this visit.

Method:
All inspections were made from the ground; the trees were not climbed for this inspection. The trees in question were located on a map provided by you. Each tree was then measured for diameter at 48 inches above ground level (DBH or diameter at breast height). The tree was given a condition rating for form and vitality. The trees' condition rating is based on 50 percent vitality and 50 percent form, using the following scale.

1 - 29	Very Poor
30 - 49	Poor
50 - 69	Fair
70 - 89	Good
90 - 100	Excellent

The height of the tree was measured using a Nikon Forestry 550 Hypsometer. The spread was paced off. Comments and recommendations for future maintenance are provided.

Survey:

Tree#	**Species**	**DBH**	**CON**	**HT/SP**	**Comments**
1**P/R**	Modesto ash *(Fraxinus velutina* 'Modesto')	15.0	60	30/30	Fair vigor, fair form, street tree, not usual form of species, wide spreading canopy, street tree.
2**R**	Raywood ash *(Fraxinus angustifolia* 'Raywood')	7-8-7-6	30	25/25	Poor vigor, poor form, multi leader at 3 feet, large amount of dead wood, in decline, fire damage, **recommended for removal.**
3*	Indian laurel fig *(Ficus microcarpa)*	30.0	50	45/40	Good vigor, fair to poor form, multi leader at 3 feet with poor unions, against neighbor's foundation, surrounded by hardscapes, poor location, needs pruning maintenance.
4***P**	Raywood ash *(Fraxinus angustifolia* 'Raywood')	6.2	30	12/10	Poor vigor, poor form, suppressed, in decline, heavy dead wood, street tree.
5**R**	Chinese pistache *(Pistachia chinensis)*	6.2	80	15/12	Good vigor, good form, young tree,
6**P/R**	Flowering ash *(Fraxinus ornus)*	5.4	80	20/10	Good vigor, good form, street tree.
7**P/R**	Chinese pistache *(Pistachia chinensis)*	5.7	80	20/10	Good vigor, good form, street tree.
8**R**	Chinese pistache *(Pistachia chinensis)*	9.3	80	15/20	Good vigor, good form.
9**R**	Chinese pistache *(Pistachia chinensis)*	4.0	80	15/12	Good vigor, good form.
10**P**	American elm cultivar *(Ulmus americana* 'Princeton')	4.8	80	20/10	Good vigor, good form, street tree.
11**P**	American elm cultivar *(Ulmus americana* 'Princeton')	7.3	80	20/10	Good vigor, good form, street tree.
12**P**	Southern live oak *(Quercus virginiana)*	5.2	80	15/12	Good vigor, good form, street tree.
13**P**	Southern live oak *(Quercus virginiana)*	4.9	80	15/12	Good vigor, good form, street tree.

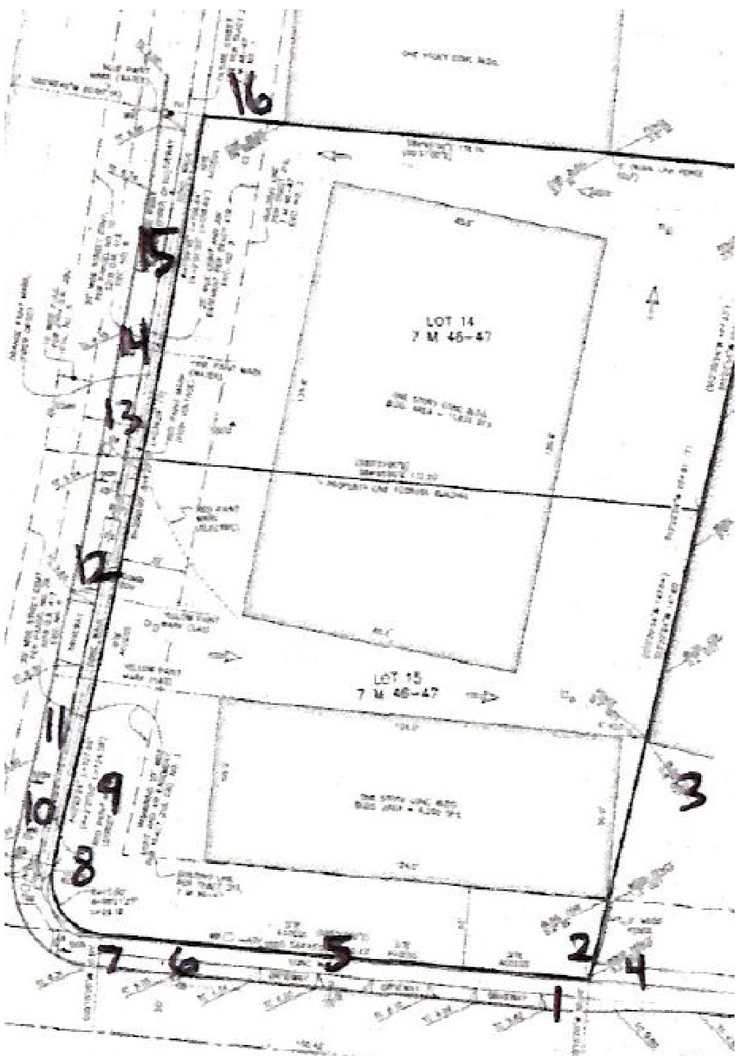
San Antonio Road Housing /3/25/20 (3)

Survey:

Tree#	**Species**	**DBH**	**CON**	**HT/SP**	**Comments**
14**P**	Southern live oak *(Quercus virginiana)*	4.4	80	15/12	Good vigor, good form, street tree.
15**P**	Southern live oak *(Quercus virginiana)*	4.7	80	15/12	Good vigor, good form, street tree.
16*	Weeping blue atlas cedar *(Cedrus atlantica* 'Glauca pendula')	8est	80	8/15	Good vigor, fair form, weeping cultivar, 10 feet from property line.

*indicates neighbor's tree. **P-indicates protected tree**

R-indicates tree proposed for removal



Showing tree locations

Summary:
This site has 10 protected street trees (#1, 4, 6-7, and 10-15). All of the street trees are in fair to good condition, as the majority of them are young street trees that have been recently planted. Because the protected trees are street trees, construction impacts are to be minimal to nonexistent, due to buildings located at the property setback far from the retained trees. Street trees #1, 6, and 7 are proposed for removal to facilitate the Leghorn Street frontage realignment. These are the only protected trees proposed for removal.

Showing southern live oak street trees

Raywood ash tree #2 is in poor condition. This tree is not a protected tree and is in significant decline, therefore removal is recommended regardless of the proposed construction. Other non- protected trees to be removed include trees #5, 8, and 9.

Ficus tree #3 is located on the neighboring property to the east. This tree is mature for the species. The proposed building foundation near this tree is pushed back further away from the existing. Impacts are expected to be nonexistent for this reason.

Showing neighbor's Ficus tree #3

All protected street trees to be retained will need to be protected by type 2 tree protection fencing throughout the entire length of the proposed construction. Fencing must be installed in a way that completely fences off the entire street tree planting pits.

All of the retained street trees are imported species. It is recommended to provide supplemental irrigation for these trees throughout the construction process. Every 2 weeks the planting pits are recommended to receive flood type irrigation until the top foot of soil is saturated. Seasonal rainfall may reduce the need to irrigate.

Replacement trees:

The tree canopy replacement ratio as seen in the Palo Alto Tree Technical Manual was used to get a number of required replacement trees for the proposed trees to be removed. Sixteen 24" box sized trees are shown to be planted on the landscape plans and should be enough to fulfill the replacement requirements.

TREE CANOPY REPLACEMENT (PALO ALTO TREE TECHNICAL MANUAL)				
Number	**Tree species | Common Name**	**Canopy (feet)**	**Replacement Tree Quantity**	**Alternative Tree Size**
1	Fraxinus velutina 'Modesto' | Modesto Ash	30	Four--24" Box	Two--48" Box
6	Fraxinus ornus | Flowering Ash	10	Three -- 24" Box	Two -- 36" Box
7	Pistachia chinensis | Chinese Pistache	10	Three -- 24" Box	Two -- 36" Box
	TOTAL REPLACEMENT TREES NEEDED		Ten--24" Box	Four --36" Box
				Two--48" Box
	PROPOSED REPLACEMENT		**Ten--24" Box**	
			(16--24" box shown on plans)	

The following tree protection plan will help reduce impacts to the retained trees.

Tree Protection Plan:

Tree Protection Fencing

Tree protection zones should be established and maintained throughout the entire length of the project. Fencing for the protection zones should be 6 foot tall metal chain link supported by metal poles pounded into the ground to a depth of 2 feet. The support poles should be spaced no more than 10 feet apart on center. The location for the protection fencing should be placed at the edges of the street tree planting pits. Signs should be placed on fencing signifying “Tree Protection Zone - Keep Out”. No materials or equipment should be stored or cleaned inside the tree protection zones. All of the retained trees on site are recommended to be protected by type 2 tree protection fencing. Fencing must be installed in a way that completely fences off the entire street tree planting pits.

Landscape Barrier

Where tree protection does not cover the entire root zone of the trees, or when a smaller tree protection zone is needed for access, a landscape buffer consisting of wood chips spread to a depth of six inches with plywood or steel plates placed on top will be placed where foot traffic is expected to be heavy. The landscape buffer will help to reduce compaction to the unprotected root zone. (NOT EXPECTED TO BE USED ON THIS SITE)

Root Cutting

Any roots to be cut shall be monitored and documented. Large roots (over 2” diameter) or large masses of roots to be cut must be inspected by the Project Arborist. The Project Arborist, at this time, may recommend irrigation or fertilization of the root zone. All roots needing to be cut should be cut clean with a saw or lopper. Roots to be left exposed for a period of time should be covered with layers of burlap and kept moist.

Grading

The existing grade underneath the canopies of the protected trees on site is recommended to be retained as is. Grade changes of 3" may be acceptable by the Project arborist after review. Any grade changes proposed that are greater than 3" will require special mitigation measures for tree in close proximity. No grade changes are allowed within 3 feet of a tree's basal flare.

Trenching and Excavation

Trenching for irrigation, drainage, electrical or any other reason shall be done by hand when inside the dripline of a protected tree. Hand digging and the careful placement of pipes below or besides protected roots will significantly reduce root loss, thus reducing trauma to the tree. All trenches shall be backfilled with native materials and compacted to near its original level, as soon as possible. Trenches to be left open for a period of time, will require the covering of all exposed roots with burlap and be kept moist. The trenches will also need to be covered with plywood to help protect the exposed roots.

Irrigation
Normal irrigation shall be maintained on this site at all times. On a construction site, I recommend irrigation during winter months, 1 time per month. Seasonal rainfall may reduce the need for additional irrigation. During the warm season my recommendation is to use heavy irrigation, 2 times per month. This type of irrigation should be started prior to any excavation. The irrigation will improve the vigor and water content of the trees. The on-site arborist may make adjustments to the irrigation recommendations as needed. The foliage of the trees may need cleaning if dust levels are extreme. Removing dust from the foliage will help to reduce mite and insect infestation.

Inspections
The site will be inspected after the tree protection measures are installed and before the start of construction. Monthly inspections are required for site such as this. Inspections will be carried out during the first week of each month. The inspections will be documented with inspection letters being provided to the owner, contractor and city arborist. Other inspections will be carried out on an as needed basis. The monthly inspections are required by the city of Palo Alto as a condition of approval. It is the contractors responsibility to notify the site arborist when construction is to start, and whenever there is to be work preformed within the 10 times the diameter of a protected tree on site. At least a 48 hours notice is needed for site inspections. Kielty Arborist Services can be reached at 650-515-9783(Kevin), or by email at kkarbor0476@yahoo.com.

TREE PROTECTION COMPLIANCE.

The owner and contractor shall implement all protection and inspection schedule measures, design recommendations and construction scheduling as stated in the **TPR & Sheet T-1**, and is subject to code compliance action pursuant to PAMC 8.10.080. The required protective fencing shall remain in place until final landscaping and inspection of the project. Project arborist approval must be obtained and documented in the monthly activity report sent to the City. The mandatory Contractor and Arborist Monthly Tree Activity Report shall be sent monthly to the City (pwps@cityofpaloalto.org) beginning with the initial verification approval, using the template in the Tree Technical Manual, Addendum 11.

1. PLAN CHANGES. Revisions and/or **changes to plans before or during construction** shall be reviewed and responded to by the (a) project site arborist, or (b) landscape architect with written letter of acceptance before submitting the revision to the Building Department for review by Planning, PW or Urban Forestry.

2. TREE DAMAGE. Tree Damage, Injury Mitigation and Inspections apply to Contractor. Reporting, injury mitigation measures and arborist inspection schedule (1-5) apply pursuant to TTM, Section 2.20-2.30. Contractor shall be responsible for the repair or replacement of any publicly owned or protected trees that are damaged during the course of construction, pursuant to Title 8 of the Palo Alto Municipal Code, and city Tree Technical Manual, Section 2.25.

3. GENERAL. The following general tree preservation measures apply to all trees to be retained: No storage of material, topsoil, vehicles or equipment shall be permitted within the tree enclosure area. The ground under and around the tree canopy area shall not be altered. Trees to be retained shall be irrigated, aerated and maintained as necessary to ensure survival.

4. BUILDING PERMIT SUBMITTAL- PROJECT ARBORIST CERTIFICATION LETTER. Prior to submittal for staff review, attach a Project Arborist Certification Letter that he/she has; (a) reviewed the entire building permit plan set submittal and, (b) affirm that ongoing Contractor/Project Arborist site monitoring inspections and reporting have been arranged with the contractor or owner (see Sheet T-1) and, (c) understands that design revisions (site or plan changes) within a TPZ will be routed to Project Arborist/Contractor for review prior to approval from City.

5. TREE PROTECTION VERIFICATION. Prior to any site work verification from the contractor that the required protective fencing is in place shall be submitted to the Urban Forestry Section. The fencing shall contain required warning sign and remain in place until final inspection of the project.

6. EXCAVATION RESTRICTIONS APPLY (TTM, Sec. 2.20 C & D). Any approved grading, digging or trenching beneath a tree canopy shall be performed using 'air-spade' method as a preference, with manual hand shovel as a backup. For utility trenching, including sewer line, roots exposed with diameter of 1.5 inches and greater shall remain intact and not be damaged. If directional boring method is used to tunnel beneath roots, then Table 2-1, Trenching and Tunneling Distance, shall be printed on the final plans to be implemented by Contractor.

7. PLAN SET REQUIREMENTS. The final Plans submitted for building permit shall include the following information and notes on relevant plan sheets:

The information included in this report is believed to be true and based on sound arboricultural principles and practices.
Sincerely,
Kevin R. Kielty *Kevin Kielty*
Certified Arborist WE#0476A

Kielty Arborist Services LLC

ARBORIST DISCLOSURE STATEMENT

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like a medicine, cannot be guaranteed.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures.

Trees can be managed, but they cannot be controlled. To live near a tree is to accept some degree of risk. The only way to eliminate all risks is to eliminate all trees.

Arborist: Kevin Kielty
Kevin R. Kielty

Date: March 25, 2020

Appendix B

788 San Antonio Road Geotechnical Investigation

Stevens Ferrone & Bailey
Engineering Company, Inc

Geotechnical Engineering
Engineering Geology
Storm Water Management
Construction Observation & Testing Services

March 15, 2018

Mr. Ted O'Hanlon c/o
Mr. Yurong Han
Emerald Bay Homes LLC
2225 East Bayshore Road, Suite 200
Palo Alto, CA 94303

Re: Geotechnical Investigation
788-796 San Antonio Road - Palo Alto, California
SFB Project No.: 813-1

Mr. Han:

As requested, Stevens, Ferrone & Bailey Engineering Company, Inc. has performed a geotechnical investigation for the proposed new mixed-use building to be located at 788-796 San Antonio Road in Palo Alto, California. The accompanying report presents the results of our field investigation, laboratory tests, and engineering analysis. The geotechnical conditions are discussed, and recommendations for the geotechnical engineering aspects of the project are presented. Conclusions and recommendations contained herein are based upon applicable standards of our profession at the time this report has been prepared. Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Stevens, Ferrone & Bailey Engineering Company, Inc.

Ken Ferrone
President

HP/KCF/JB:encl.
Copies: Addressee (1 by email)

1600 Willow Pass Court • Concord, CA 94520 • Tel 925.688.1001
Mailing Address: P.O. Box 815, Concord, CA 94522-0815
Serving Northern and Central California, Sacramento, and Central Valley Regions
www.sfandb.com

March 15, 2018

GEOTECHNICAL INVESTIGATION
788-796 SAN ANTONIO ROAD
PALO ALTO, CALIFORNIA
SFB PROJECT NO. 813-1

Prepared For:

Emerald Bay Homes LLC
2225 East Bayshore Road, Suite 200
Palo Alto, CA 94303

Prepared By:

Stevens, Ferrone & Bailey Engineering Company, Inc.

Jonathan Bailey, P.E., G.E.
Civil/Geotechnical Engineer

Kenneth C. Ferrone, P.E., G.E., C.E.G.
Civil/Geotechnical Engineer
Certified Engineering Geologist

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1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed new mixed-use building to be located at 788-796 San Antonio Road in Palo Alto, California as shown on the Site Plan, Figure 1. The purpose of our investigation was to evaluate the geotechnical conditions at the site and provide recommendations regarding the geotechnical engineering aspects of the project.

Based on the information indicated on the Site Plan, as well as information provided by Emerald Bay Homes LLC, it is our understanding that the project will consist of constructing a new potentially 4-story mixed-use building with underground parking on an approximately 1-acre site. Other than excavating for the below-grade parking garage, nominal grading is anticipated. Associated underground utilities, pavements, and access driveway to the garage will be constructed. The existing building and facilities at the site will be demolished prior to new construction.

The conclusions and recommendations provided in this report are based upon the information presented above; Stevens, Ferrone & Bailey Engineering Company, Inc. (SFB) should be consulted if any changes to the project occur to assess if the changes affect the validity of this report.

2.0 SCOPE OF WORK

This investigation included the following scope of work:

- Reviewing available published and unpublished geotechnical and geological literature relevant to the site;
- Performing reconnaissance of the site and surrounding area;
- Performing a subsurface exploration program, including drilling three exploratory borings to a maximum depth of about 61-1/2 feet;
- Performing laboratory testing of samples retrieved from the borings;
- Performing engineering analysis of the field and laboratory data; and
- Preparing this report.

The data obtained and the analyses performed were for the purpose of providing geotechnical design and construction criteria for site earthwork, underground utilities, drainage, building foundations, retaining walls/basement walls, and pavements. Toxicity potential assessment of onsite materials, soils, or groundwater (including mold) and flooding evaluations were beyond our scope of work.

3.0 SITE INVESTIGATION

Reconnaissance of the site and surrounding area was performed on February 27, 2018. Subsurface exploration was performed using a truck-mounted drill rig equipped with 6-inch diameter, continuous flight, solid stem augers and 8-inch diameter, continuous flight, hollow-stem augers. Three exploratory borings were drilled by SFB on February 27, 2018 to a maximum depth of about 61-1/2 feet. The approximate locations of the borings are shown on the Site Plan, Figure 1. Logs of SFB's borings and details regarding SFB's field investigation are included in Appendix A. The results of SFB's laboratory tests are discussed in Appendix B. It should be noted that changes in the surface and subsurface conditions can occur over time as a result of either natural processes or human activity and may affect the validity of the conclusions and recommendations in this report.

3.1 Surface

At the time of our investigation and as shown on Figure 1, the site was bounded by San Antonio Road on the west, Leghorn Street on the south, and existing commercial developments on the other sides. The site was rectangular in shape and had a plan area of about 1-acre with maximum dimensions of about 250 feet by 180 feet. The site grades sloped gently downward towards the north.

At the time of our field exploration, the site was occupied by two existing one-story commercial buildings. The southern building was built in 1953 and the northern building was built in 1967. The areas surrounding the buildings were covered with asphalt concrete for access and parking.

3.2 Subsurface

The near-surface soil materials encountered in our borings at the site (below existing pavement sections) generally consisted of silty clayey fills that extended to depths of about 1 to 2-1/4 feet below the existing ground surface. These fills were probably derived from grading during the original site development. The actual degree of fill compaction is unknown. Some of these fills may be potentially weak and compressible if they were not placed and compacted in accordance with acceptable engineering standards. Below the fill layer, interbedded firm to hard silty clays and medium dense to dense gravelly sands were encountered that extended to the maximum depth explored of about 61-1/2 feet. A layer of fine- to coarse-grained sand with silty and clay was encountered at depths between 45 and 50 feet in Boring SFB-1.

According to the results of laboratory testing, the onsite more clayey, near surface soil materials have a high plasticity and high to critical expansion potential. Detailed descriptions of the materials encountered in our exploratory borings are presented on the boring logs in Appendix A.

Our attached boring logs and related information depict location specific subsurface conditions encountered during our field investigation. The approximate locations of our borings were determined using pacing or landmark references and should be considered accurate only to the degree implied by the method used.

3.3 Groundwater

Groundwater was measured in our borings at depths of about 8-1/2 to 10 feet at the end of drilling. The borings were backfilled with lean cement grout in accordance with Santa Clara Valley Water District requirements prior to leaving the site. Historically, groundwater in the vicinity of the site has been measured at depths of about 5 feet[1]. We recommend a design groundwater table at 5 feet below existing ground surface be used for the project. It should be noted that the borings might not have been left open for a sufficient period of time to establish equilibrium groundwater conditions. In addition, fluctuations in the groundwater level could occur due to change in seasons, variations in rainfall, and other factors.

3.4 Hydrologic Soil Group

The surface soils of the site have been mapped as Urbanland-Hangerone complex (0 to 2 percent slopes, drained) by USDA Web Soil Survey (WSS)[2]. The soils were assigned to Hydrologic Soil Group C by USDA Natural Resources Conservation Service (NRCS); the soils have been categorized as having moderately low to moderately high transmission rates (approximately 0.06 to 0.2 inches per hour).

The Group C soils are defined as having a slow infiltration rate when thoroughly wet. These soils consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

3.5 Geology and Seismicity

According to Brabb, et al. (2000)[3], the site (below existing pavement sections) is underlain by Holocene basin deposits that consist of very fine silty clay to clay deposits and historic stream channels that have been straightened, realigned, or backfilled.

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[1]State of California, 2006, *Seismic Hazard Zone Report for the Mountain View 7.5-Minute Quadrangle, Santa Clara, Alameda, and San Mateo Counties, California,* CGS Seismic Hazard Zone Report 060.

[2]http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

[3]Brabb, Graymer, and Jones, 2000, *Geologic Map and Map Database of the Palo Alto 30’ X 60’ Quadrangle, California,* USGS Miscellaneous Field Studies MF-2332.

The project site is located in the San Francisco Bay Area that is considered one of the most seismically active regions in the United States. Significant earthquakes have occurred in the San Francisco Bay Area and are believed to be associated with crustal movements along a system of sub-parallel fault zones that generally trend in a northwesterly direction. The site is not located within an Alquist-Priolo Earthquake Fault Zones as designated by the State of California[4].

Earthquake intensities will vary throughout the San Francisco Bay Area, depending upon numerous factors including the magnitude of earthquake, the distance of the site from the causative fault, and the type of materials underlying the site. The U.S. Geological Survey (2016)[5] has stated that there is a 72 percent chance of at least one magnitude 6.7 or greater earthquake striking the San Francisco Bay region between 2014 and 2043. Therefore, the site will probably be subjected to at least one moderate to severe earthquake that will cause strong ground shaking.

According to the U.S. Geological Survey's Unified Hazard Tool and applying the Dynamic: Conterminous U.S. 2008 (v3.3.1) model (accessed 3/8/18), the resulting deaggregation calculations indicate that the site has a 10% probability of exceeding a peak ground acceleration of about 0.48g in 50 years (design basis ground motion based on stiff soil site condition; mean return time of 475 years). The actual ground surface acceleration might vary depending upon the local seismic characteristics of the underlying bedrock and the overlying unconsolidated soils.

3.6 Liquefaction

Soil liquefaction is a phenomenon primarily associated with saturated, cohesionless, soil layers located close to the ground surface. These soils lose strength during cyclic loading, such as imposed by earthquakes. During the loss of strength, the soil acquires mobility sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface. According to ABAG and the U.S. Geological Survey, the site is located in an area that has been characterized as having moderate to high liquefaction susceptibility[6,7]. According to the 2006 Seismic Hazard Zones Map of the Mountain View Quadrangle, the site is located in a liquefaction seismic hazard zone as designated by the State of California[8].

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[4]Hart and Bryant, *Fault-Reupture Hazard Zones in California,* CDMG Special Publication 42, Interim Revision 2007.
[5]Aagaard, Blair, Boatwright, Garcia, Harris, Michael, Schwartz, and DiLeo, *Earthquake Outlook for the San Francisco Bay Region 2014–2043,* USGS Fact Sheet 2016–3020, Revised August 2016 (ver. 1.1).
[6]Witter, Knudsen, Sowers, Wentworth, Koehler, and Randolph, 2006, *Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California*", USGS Open File Report 2006-1037.
[7]Knudsen, Sowers, Witter, Wentworth, and Helly, 2000, "*Preliminary Maps of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California*", USGS Open File Report 00-444.
[8]State of California, Seismic Hazard Zones, Mountain View Quadrangle, Official Map, Released: October 18, 2006.

SFB performed SPT-based liquefaction analyses based on procedures described by the Southern California Earthquake Center (SCEC, Martin and Lew, 1999), EERI Monograph 12 (2008)[9], updated CPT and SPT based liquefaction triggering procedures (2014)[10], and in accordance with the 2008 California Geological Survey's (CGS) Special Publication 117A guidelines. As required by the building code, a peak ground acceleration from a Maximum Considered Earthquake (MCE) was used in our analyses; the MCE peak ground acceleration has a 2% probability of being exceeded in a 50-year period (mean return time of 2,475 years). Using the U.S. Geological Survey's Unified Hazard Tool and the ASCE 7-10 model (accessed 3/7/2018), the Maximum Considered Earthquake geometric mean peak ground acceleration (PGA_m) for the site is shown to be 0.56g with a mean earthquake magnitude of 7.14.

The results of our analyses indicate that the saturated, medium dense, sand lens of about 5-1/5 feet thick encountered by Boring SFB-1 at a depth of about 45 feet has a high potential for liquefying when subjected to the PGA_m described above and the groundwater is at a historically high level of 5 feet bgs (below the ground surface). We estimate that the liquefaction of this sand lens, if subjected to the PGA_m event and the historical high groundwater level, could result in residual volumetric strain of about 1.8% and may cause total aerial ground surface settlements of about 1 inch, with differential settlements of about 1/2 inch across typical building column spacings. The actual ground surface damage will vary depending on the thickness of the overlying non-liquefiable soils and the underlying liquefiable soils[11].

To reduce liquefaction effects on the building's foundation, we recommend the building foundation consist of a mat slab and be designed to resist 1/2 inch of differential settlement of the supporting soils. This magnitude of settlement could occur between typical building column spacing or over a distance of about 30 feet, creating a "cupping" shape of the underlying supporting subgrade. In addition, underground pipelines (gas lines, sanitary sewers, water services, etc.) should be properly designed to compensate for the settlement caused by the liquefaction of the underlying supporting soils. It should be noted that after a major liquefaction event, phenomena such as sand boils, ground cracking, and differential movement of overlying improvements such as roadways and utilities may be observed and may require repair.

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[9] Idriss & Boulanger, 2008, *Soil Liquefaction During Earthquakes*, Earthquake Engineering Research Institute, MNO-12.

[10] Boulanger & Idriss, 2014, *CPT and SPT Based Liquefaction Triggering Procedures*, Center for Geotechnical Modeling, Report No. UCD/CGM-14/01, April 2014.

[11] Ishihara, K., 1985, *Stability of Natural Deposits During Earthquakes*, Proceedings of the Eleventh International Conference on Soil Mechanics and Foundation Engineering, San Francisco, CA Volume 1, p. 321-376, August.

4.0 CONCLUSIONS AND RECOMMENDATIONS

It is our opinion that the site is suitable for the proposed project from a geotechnical engineering standpoint. The conclusions and recommendations presented in this report should be incorporated in the design and construction of the project to reduce soil or foundation related issues. The following are the primary geotechnical considerations for development of the site.

SURFACE SOIL RE-COMPACATION: The removal of the existing structures and improvements at the site will likely result in loosening of the surface soils in the upper 2 to 3 feet. In addition, the existing fill materials that blanket the site are likely weak and compressible. In order to reduce the potential for damaging total and differential settlement of overlying improvements (such as new fills, building foundations, driveways, exterior flatwork, and pavements), we recommend these weak materials be completely removed and re-compacted where they will not be removed as part of the below grade garage construction.

We estimate the process can consist of over-excavating the ground 2 feet, scarifying and re-compacting the bottom 12 inches in-place, and replacing the excavation with compacted fill materials. Deeper over-excavation will be necessary in areas where removal of existing structures and foundations extend to depths greater than 2 feet. In addition, if existing fill materials extend to depths greater than about 2 feet, then deeper over-excavations will be necessary. Where the over-excavation limits abut adjacent property, SFB should be consulted to determine the actual vertical and lateral extent of over-excavation so that adjacent property is not adversely impacted. Over-excavations should be performed so that no more than 5 feet of differential fill thickness exists below the proposed building foundations. The removed soil materials can be used as new fill provided it is placed and compacted in accordance with the recommendations presented in this report. The extent of the removal and re-compaction will vary across the site and should be determined in the field by SFB at the time of the earthwork operations.

LIQUEFACTION: As described in Section 3.6 of this report, the saturated, medium dense, sand lens of about 5-1/2 feet thick encountered by Boring SFB-1 at a depth of about 45 feet has a high potential for liquefying when subjected to an MCE/PGA_m earthquake event. We estimate that the liquefaction of this sand lens, if subjected to an MCE/PGA_m earthquake event, could result in residual volumetric strain of about 1.8% and may cause total aerial ground surface settlements of about 1 inch, with differential settlements of about 1/2 inch across typical building column spacings. The actual ground surface damage will vary depending on the thickness of the overlying non-liquefiable soils and the underlying liquefiable soils[12].

[12]Ishihara, K., 1985, *Stability of Natural Deposits During Earthquakes*, Proceedings of the Eleventh International Conference on Soil Mechanics and Foundation Engineering, San Francisco, CA Volume 1, p. 321-376, August.

To reduce liquefaction effects on the building's foundation, we recommend the building foundation consist of a mat slab and be designed to resist 1/2 inch of differential settlement of the supporting soils. This magnitude of settlement could occur between typical building column spacing or over a distance of about 30 feet, creating a "cupping" shape of the underlying supporting subgrade. In addition, underground pipelines (gas lines, sanitary sewers, water services, etc.) should be properly designed to compensate for the settlement caused by the liquefaction of the underlying supporting soils. It should be noted that after a major liquefaction event, phenomena such as sand boils, ground cracking, and differential movement of overlying improvements such as roadways and utilities may be observed and may require repair.

SHALLOW GROUNDWATER AND DEWATERING: Groundwater was measured in our borings at depths of about 8-1/2 to 10 feet at the end of drilling. Historically, groundwater in the vicinity of the site has been measured at depths of about 5 feet[13]. We recommend a design groundwater table at 5 feet below existing ground surface be used for the project. In addition, we recommend below grade walls and slabs be waterproofed; we recommend an expert in waterproofing be consulted to determine the type and extent of the waterproofing.

Temporary dewatering of excavations will be necessary where excavations extend below ground water levels, such as during parking garage excavations and underground utility installations. If permanent dewatering systems will not be installed for the planned below-grade structure, the building and basement walls should be designed to resist buoyancy and hydrostatic pressures from surrounding groundwater.

PARKING GARAGE EXCAVATION: If temporary construction slopes are to be used at the perimeter of the parking garage excavation, we recommend the slopes be no steeper than 1 horizontal to 1 vertical. The top of the slopes should be appropriately setback from existing improvements, such as adjacent streets and buildings. All temporary construction slopes and existing improvements should be monitored during the construction process and appropriate remedial measures should be immediately installed if detrimental movements are observed or measured. Where construction slopes cannot be used due to space constraints, temporary shoring should be installed. Underpinning of adjacent existing buildings may also be required if the excavation has the potential to undermine existing foundations. We recommend current OSHA standards be followed during the design and construction of any temporary construction slopes and/or shoring.

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[13]State of California, 2006, *Seismic Hazard Zone Report for the Mountain View 7.5-Minute Quadrangle, Santa Clara, Alameda, and San Mateo Counties, California,* CGS Seismic Hazard Zone Report 060.

The base of the garage excavation may be wet and unstable. If necessary, the subgrade soils can be mixed with 4 to 5 percent quicklime by weight and compacted to at least 90 percent relative compaction to aid in base stabilization prior to foundation construction. SFB should be consulted at the time of construction to confirm these recommendations.

EXPANSION POTENTIAL: The more clayey, highly to critically expansive, near-surface soil materials will be subjected to volume changes during seasonal fluctuations in moisture content. To reduce the potential for post-construction distress to the proposed improvements resulting from swelling and shrinkage of these materials, we recommend that at-grade structures (if planned) be supported on a foundation system that is designed to reduce the impact of the expansive soils. It should be noted that special design considerations will be required for exterior slabs.

CORROSION POTENTIAL: Two onsite soil sample was tested for pH (ASTM D4972), chlorides (ASTM D4327), sulfates (ASTM D4327), sulfides (ASTM D4658M), resistivity at 100% saturation (ASTM G57), and Redox potential (ASTM D1498) for use in evaluating the potential for corrosion on concrete and buried metal such as utilities and reinforcing steel. The results of these tests are included in Appendix B. We recommend these test results be forwarded to your underground contractors, pipeline designers, and foundation designers and contractors so that they can design and install corrosion protection measures. Please be aware that we are not corrosion protection experts; we recommend corrosion protection measures be designed and constructed so that all concrete and metal is protected against corrosion. We also recommend additional testing be performed if the corrosion test results are deemed insufficient by the designers of the corrosion protection measures.

ADDITIONAL RECOMMENDATIONS: Detailed drainage, earthwork, foundation, garage wall, exterior slabs, and pavement recommendations for use in design and construction of the project are presented below. We recommend SFB review the design and specifications to verify that the recommendations presented in this report have been properly interpreted and implemented in the design, plans, and specifications. We also recommend SFB be retained to provide consulting services and to perform construction observation and testing services during the construction phase of the project to observe and test the implementation of our recommendations, and to provide supplemental or revised recommendations in the event conditions different than those described in this report are encountered. We assume no responsibility for misinterpretation of our recommendations.

4.1 Earthwork

4.1.1 Clearing and Site Preparation

The site should be cleared of all obstructions including any existing structures and their entire foundation systems, asphalt concrete pavements, concrete, designated existing utilities and pipelines and their associated backfill, designated trees and shrubs and their associated entire root systems, and debris. Holes resulting from the removal of underground obstructions extending below the proposed finish grade should be cleared and backfilled with fill materials as specified in **Section 4.1.4, *Fill Material***, and compacted to the requirements in **Section 4.1.5, *Compaction***. Tree roots may extend to depths of about 3 to 4 feet. Wells and below ground tanks, if they exist, should be abandoned in accordance with Santa Clara County standards.

From a geotechnical standpoint, any existing trench backfill materials, tank backfill materials, clay or concrete pipes, pavements, and concrete that are removed can be used as new fill onsite provided debris is removed and it is broken up to meet the size requirement for fill material in **Section 4.1.4, *Fill Material***. We recommend fill materials composed of broken up concrete or asphalt concrete not be located within 3 feet of the ground surface in yard areas. Consideration should be given to placing these materials below pavements, directly under building footprints, or in deeper excavations. We recommend backfilling operations for any excavations be performed under the observation and testing of SFB.

4.1.2 Weak Soil Re-Compaction

The removal of the existing structures and improvements at the site will likely result in loosening of the surface soils in the upper 2 to 3 feet. In addition, the existing fill materials that blanket the site are likely weak and compressible. In order to reduce the potential for damaging total and differential settlement of overlying improvements (such as new fills, building foundations, driveways, exterior flatwork, and pavements), we recommend these weak materials be completely removed and re-compacted where they will not be removed as part of the below grade garage construction.

We estimate the process can consist of over-excavating the ground 2 feet, scarifying and re-compacting the bottom 12 inches in-place, and replacing the excavation with compacted fill materials. Deeper over-excavation will be necessary in areas where removal of existing structures and foundations extend to depths greater than 2 feet. In addition, if existing fill materials extend to depths greater than about 2 feet, then deeper over-excavations will be necessary. Where the over-excavation limits abut adjacent property, SFB should be consulted to determine the actual vertical and lateral extent of over-excavation so that adjacent property is not adversely impacted. Over-excavations should be performed so that no more than 5 feet of differential fill thickness exists below the proposed building foundations. The removed soil materials can be used as new fill provided it is placed and compacted in accordance with the recommendations presented in this report. The extent of the removal and re-compaction will vary across the site and should be determined in the field by SFB at the time of the earthwork operations.

Removed soil materials may be used as new fill onsite provided it satisfies the recommendations provided in **Section 4.1.4, *Fill Material***. Compaction should be performed in accordance with the recommendations in **Section 4.1.5, *Compaction***.

4.1.3 Subgrade Preparation

After the completion of clearing, site preparation, and weak soil re-compaction, soil exposed in areas to receive improvements (such as structural fill, building foundations, driveways, exterior flatwork, and pavements) should be scarified to a depth of about 12 inches, moisture conditioned to approximately 5 percent over optimum water content, and compacted to the requirements for structural fill. If building pads or pavement subgrade are allowed to remain exposed to sun, wind, or rain for an extended period of time, or are disturbed by borrowing animals or vehicles, the exposed subgrade or pavement subgrade may need to be reconditioned (moisture conditioned and/or scarified and recompacted) prior to foundation or pavement construction. SFB should be consulted on the need for subgrade reconditioning when the subgrade is left exposed for extended periods of time.

4.1.4 Fill Material

From a geotechnical and mechanical standpoint, onsite soils having an organic content of less than 3 percent by volume can be used as fill. Fill should not contain rocks or lumps larger than 6 inches in greatest dimension with not more than 15 percent larger than 2.5 inches. If required, imported fill should have a plasticity index of 25 or less and have a significant amount of cohesive fines.

In addition to the mechanical properties specifications, all imported fill material should have a resistivity (100% saturated) no less than the resistivity for the onsite soils, a pH of between approximately 6.0 and 8.5, a total water soluble chloride concentration less than 300 ppm, and a total water soluble sulfate concentration less than 500 ppm. We recommend import samples be submitted for corrosion and geotechnical testing at least two weeks prior to being brought onsite.

4.1.5 Compaction

We recommend structural fill in the upper 5 feet be compacted between 88 and 92 percent relative compaction, as determined by ASTM D1557 (latest edition). Below 5 feet, we recommend structural fill be compacted to at least 90 percent. We recommend the new fill be moisture conditioned approximately 5 percent over optimum water content. The upper 6 inches of subgrade soils beneath pavements should be compacted to at least 95 percent relative compaction. Fill material should be spread and compacted in lifts not exceeding approximately 8 to 12 inches in uncompacted thickness.

4.1.6 Utility Trench Backfill

Pipeline trenches should be backfilled with fill placed in lifts of approximately 8 inches in uncompacted thickness. Thicker lifts can be used provided the method of compaction is approved by SFB and the required minimum degree of compaction is achieved. Backfill should be placed by mechanical means only. Jetting is not permitted.

Onsite trench backfill should be compacted to at least 90 percent relative compaction. Imported sand trench backfill should be compacted to at least 95 percent relative compaction and sufficient water is added during backfilling operations to prevent the soil from "bulking" during compaction. The upper 3 feet of trench backfill in foundation, slab, and pavement areas should be entirely compacted to at least 95 percent relative compaction. To reduce piping and settlement of overlying improvements, we recommend rock bedding and rock backfill (if used) be completely surrounded by a filter fabric such as Mirafi 140N (or equivalent); alternatively, filter fabric would not be necessary if Caltrans Class 2 permeable material is used in lieu of rock bedding and rock backfill.

Sand or gravel backfilled trench laterals that extend toward driveways, exterior slabs-on-grade, or under the building foundations, and are located below irrigated landscaped areas such as lawns or planting strips, should be plugged with onsite clays, low strength concrete, or sand/cement slurry. The plug for the trench lateral should be located below the edge of pavement or slabs, and under the perimeter of the foundation. The plug should be at least 24 inches thick, extend the entire width of the trench, and extend from the bottom of the trench to the top of the sand or gravel backfill.

4.1.7 Exterior Flatwork

We recommend that exterior slabs (including patios, sidewalks, and driveways) be placed directly on the properly compacted fills. We do not recommend using aggregate base, gravel, or crushed rock below these improvements. If imported granular materials are placed below these elements, subsurface water can seep through the granular materials and cause the underlying soils to saturate or pipe. Prior to placing concrete, subgrade soils should be moisture conditioned to increase their moisture content to approximately 5 percent above laboratory optimum moisture (ASTM D-1557).

The more expansive clayey soils at the site could be subjected to volume changes during fluctuations in moisture content. As a result of these volume changes, some vertical movement of exterior slabs (such as driveways, sidewalks, patios, exterior flatwork, etc.) should be anticipated. This movement could result in damage to the exterior slabs and might require periodic maintenance or replacement. Adequate clearance should be provided between the exterior slabs and building elements that overhang these slabs, such as window sills or doors that open outward.

We recommend reinforcing exterior slabs with steel bars in lieu of wire mesh. To reduce potential crack formation, the installation of #4 bars spaced at approximately 18 inches on center in both directions should be considered. Score joints and expansion joints should be used to control cracking and allow for expansion and contraction of the concrete slabs. We recommend appropriate flexible, relatively impermeable fillers be used at all cold/expansion joints. The installation of dowels at all expansion and cold joints will reduce differential slab movements; if used, the dowels should be at least 30 inches long and should be spaced at a maximum lateral spacing of 18 inches. Although exterior slabs that are adequately reinforced will still crack, trip hazards requiring replacement of the slabs will be reduced if the slabs are properly reinforced.

4.1.8 Construction During Wet Weather Conditions

If construction proceeds during or shortly after wet weather conditions, the moisture content of the onsite soils could be significantly above optimum. Consequently, subgrade preparation, placement and/or reworking of onsite soil or fills as structural fill might not be possible. Alternative wet weather construction recommendations can be provided by our representative in the field at the time of construction, if appropriate. All the drainage measures recommended in this report should be implemented and maintained during and after construction, especially during wet weather conditions.

4.1.9 Surface Drainage, Irrigation, and Landscaping

Ponding of surface water must not be allowed on pavements, adjacent to foundations, at the top or bottom of slopes, and at the top or adjacent to retaining walls. Ponding of water should also not be allowed on the ground surface adjacent to or near exterior slabs, including driveways, walkways, and patios. Surface water should not be allowed to flow over the top of slopes, down slope faces, or over retaining walls.

We recommend positive surface gradients of at least 2 percent be provided adjacent to foundations to direct surface water away from the foundations and toward suitable discharge facilities. Roof downspouts and landscaping drainage inlets should be connected to solid pipes that discharge the collected water into appropriate water collection facilities. We recommend the surface drainage be designed in accordance with the latest edition of the California Building Code.

In order to reduce differential foundation movements, landscaping (where used) should be placed uniformly adjacent to the foundation and exterior slabs. We recommend trees be no closer to the structure or exterior slabs than half the mature height of the tree; in no case should tree roots be allowed to extend near or below the foundations or exterior slabs.

Drainage inlets should be provided within enclosed planter areas and the collected water should be discharged onto pavement, into drainage swales, or into storm water collection systems. In order to reduce the potential for heaving and seepage, we recommend lining planting areas and collecting the accumulated surface water in subdrain pipes that discharge to appropriate collection facilities. The drainage should be designed and constructed so that the moisture content of the soils surrounding the foundations do not become elevated and no ponding of water occurs. The inlets should be kept free of debris and be lower in elevation than the adjacent ground surface.

We recommend regular maintenance of the drainage systems be performed, including maintenance prior to rainstorms. The inspection should include checking drainage patterns to make sure they are performing properly, making sure drainage systems and inlets are functional and not clogged, and checking that erosion control measures are adequate for anticipated storm events. Immediate repairs should be performed if any of these measures appears to be inadequate.

Irrigation should be performed in a uniform, systematic manner as equally as possible on all sides of the foundations and exterior slabs to maintain moist soil conditions. Over-watering must be avoided. To reduce moisture changes in the natural soils and fills in landscaped areas, we recommend that drought resistant plants and low flow watering systems be used. All irrigation systems should be regularly inspected for leakage.

4.1.10 Storm Water Runoff Structures

To satisfy local and state permit requirements, most new development projects must control pollutant sources and reduce, detain, retain, and treat specified amounts of storm water runoff. The types of improvements that are designed to accomplish these goals are known as Post-Construction Requirements (PCR's) and/or Low Impact Development (LID's). The intent of these types of improvements is to conserve and incorporate on-site natural features, together with constructed hydrologic controls, to more closely mimic pre-development hydrology and watershed processes.

To aid in the Civil Engineering design and analyses of appropriate treatment facilities, we recommend the onsite soils be categorized as Hydrologic Soil Group C. We recommend a design groundwater table at 5 feet below existing ground surface be used for the project.

We recommend PCR/LID improvements that are designed to detain or retain water such as bio-swales, porous pavement structures, and water detention basins, be lined with a relatively impermeable membrane in order to reduce water seepage and the potential for damage to other infrastructure improvements (such as pavements, foundations, and walkways). We recommend a relatively impermeable membrane such as STEGO Wrap 15-mil or equivalent be installed below and along the sides of these facilities that direct the collected water into subdrain pipes. The membrane should be lapped and sealed in accordance with the manufacture's specifications, including taping joints where pipes penetrate the membrane.

The soil filter materials within basins and swales will consolidate over time causing long-term ground surface settlement. Additional filling within the basins and swales over time may be needed to maintain design surface elevations. The soil filter materials and associated compaction requirements should be specified by the Civil Engineer and shown in detail on the grading and improvement plans.

Sidewalls of earthen swales and basins steeper than 2:1 (horizontal to vertical) will experience downward and lateral movements that can cause significant ground surface movements, including movement of adjacent improvements such as foundations, utilities, pavements, driveways, walkways, and curbs and gutters. The magnitude and rate of movement depends upon the swale and basin backfill material type and compaction. To reduce the potential for damaging movements, we recommend 2:1 sidewall slopes be used for earthen swales and basins and the adjacent improvement be setback at least 5 feet from the top of the sidewall slopes, or the slopes be appropriately restrained using an engineered system, such as deepened curbs that are designed to resist lateral earth pressures and act as a retaining wall. SFB should be consulted to evaluate the need for sidewall restraint when swales or basins are planned.

4.1.11 Future Maintenance

In order to reduce water-created issues, we recommend regular maintenance of the site be performed, including maintenance prior to rainstorms. Maintenance should include the re-compaction of loosened soils, collapsing and infilling holes with compacted soils or low strength sand/cement grout, removal and control of digging animals, modifying storm water drainage patterns to allow for sheet flow into drainage inlets or ditches rather than concentrated flow or ponding, removal of debris within drainage ditches and inlets, and immediately repairing any erosion or soil flow. The inspection should include checking drainage patterns, making sure drainage systems are functional and not clogged, and erosion control measures are adequate for anticipated storm events. Immediate repair should be performed if any of these measures appears to be inadequate. Temporary and permanent erosion and sediment control measures should be installed over any exposed soils immediately after repairs are made.

Differential movement of exterior slabs can occur over time as a result of numerous factors. We recommend the development owners perform inspections and maintenance of the slabs, including infilling significant cracks, providing fillers at slab offsets, and replacing slabs if severely damaged.

4.1.12 Additional Recommendations

We recommend the drainage, irrigation, landscaping, and maintenance recommendations provided in this report be forwarded to your designers and contractors, and we recommend they be included in disclosure statements given to development owners and their maintenance associations.

4.2 Foundation Support

4.2.1 General Recommendations

We recommend the planned below-grade parking garage be supported on a structural mat foundation. To reduce the liquefaction effects on foundations, we recommend the building foundation be designed to resist 1/2 inch of differential settlement of the supporting soils. This magnitude of settlement could occur between typical building column spacing or at a distance of about 30 feet creating a “cupping” shape of the underlying supporting subgrade. In addition, underground pipelines (gas lines, sanitary sewers, water services, etc.) should be properly designed to compensate for the settlement caused by the liquefaction of the underlying supporting soils. It should be noted that after a major liquefaction event, phenomena such as sand boils, ground cracking, and differential movement of overlying improvements such as roadways and utilities may be observed and may require repair.

We recommend a design groundwater table at 5 feet below existing ground surface be used for the project. If a permanent dewatering system will not be installed, the below-grade structure and basement walls below the design groundwater should be designed to resist buoyancy and hydrostatic pressures from surrounding groundwater. Uplift resistance can be provided by the weight of the structure and the skin friction between the garage wall faces and adjacent soils/backfill. An uplift skin friction resistance of 100 pound per square foot is considered applicable against the walls.

We recommend below grade walls and slabs be waterproofed to reduce the potential for seepage, moisture migration, and efflorescence buildup. Keys should also be provided at the wall construction joints and infilled with a waterstop type product. SFB is not a waterproofing design expert; we recommend an expert in waterproofing be consulted to determine the type and extent of the waterproofing.

To control concrete shrinkage cracking, the garage slabs should have deep score joints that are spaced at approximately 10-feet on center in both directions. The depth and extent of the score joints should be determined by the Structural Engineer and detailed on the plans.

In order to generate full vertical and passive resistance, at least 10 feet of soil cover must be provided between the face of the foundations or walls and the face of slopes, as measured horizontally. The portion of the foundation or wall located closer than 10 feet from the face of slopes should be ignored in both the vertical and lateral load design. Where foundations are located adjacent to utility trenches, the foundation bearing surface should bear below an imaginary 1 horizontal to 1 vertical plane extending upward from the bottom edge of the adjacent utility trench. Alternatively, the foundation reinforcing could be increased to span the area defined above assuming no soil support is provided.

Approach slabs to the garage should be connected to garage slabs using dowels to reduce the potential for differential movements at the joint between the adjoining slabs.

We recommend SFB review the foundation drawings and specifications prior to submittal to verify that the recommendations provided in this report have been used and properly interpreted in the design of the foundations.

4.2.2 Structural Mat Slab

We recommend a structural mat slab foundation be used to support the building and the parking garage structure. The subgrade materials beneath the mat should be considered to have an effective Plasticity Index of 40 percent and a vertical modulus of subgrade reaction of 85 pounds/cubic inch (pci) for a 1-foot by 1-foot plate. The thickness of the foundation slab should be determined by the Structural Engineer. We recommend appropriate water-proofing be applied to the below-grade structure. From a geotechnical engineering standpoint, there would be no need to place crushed gravel or baserock below the mat slab. If needed, concrete rat slabs can be used to aid in construction.

The mat slab foundation should be designed for an allowable dead plus live load bearing pressure of 1,000 pounds per square foot (psf). Areas of the slab which support point or line loads that cannot be adequately resisted by the mat slab foundation should be thickened and supported directly on the subgrade. An allowable bearing pressure of 2,000 psf can be used for localized areas of the slab that are supported directly on the subgrade.

4.2.3 Concrete

We recommend a concrete mix design with low water/cement ratio, such as a 0.45 or less, be used for interior slabs-on-grade or structural mat slabs. The actual water/cement ratio may need to be reduced if the concentration of soluble sulfates or chlorides in the supporting subgrade is detrimental to the concrete. We recommend all concrete and steel be protected against corrosion. The results of corrosion testing on onsite soil samples are attached in Appendix B. We recommend these test results be forwarded to underground contractors, pipeline designers, and foundation designers and contractors so that they can design and install corrosion protection measures. Please be aware that we are not corrosion protection experts; we recommend corrosion protection measures be designed and constructed so that all concrete and metal is protected against corrosion. We also recommend additional testing be performed if the corrosion test results are deemed insufficient by the designers of the corrosion protection measures.

Concrete slabs retain moisture and often take many months to dry; construction water added during the concrete pour further increases the drying time. If the slabs are not allowed to completely dry prior to constructing the super-structure, the concrete slabs will expel water vapor into the super-structure and the vapor will be trapped under impermeable flooring. Slabs must not be poured during or immediately after rainstorms. Any free water trapped on the membrane must be removed prior to the concrete pour. To reduce the potential for differential curing, we recommend you consult with your concrete specialists.

4.2.4 Retaining/Basement Walls

Where walls retain soil, they must be designed to resist both lateral earth pressures and any additional lateral loads caused by surcharging such as building and roadway loads.

We recommend that unrestrained walls (walls free to deflect and disconnected from other structures) be designed to resist an equivalent fluid pressure of 60 pounds per cubic foot. This assumes a level backfill. Restrained walls (walls restrained from deflection such as basement walls) should be designed to resist an equivalent fluid pressure of 60 pounds per cubic foot plus a uniform pressure of 12H pounds per square foot, where H is the height of the wall in feet. These pressures are applicable for retaining walls, or portions of retaining walls, that are all fully backdrained. In addition, these lateral pressures depend upon the moisture content of the retained soils to be constant over time; if the moisture content of the retained soils will fluctuate or increase compared to the moisture content at time of construction, then SFB should be consulted and provide written modifications to this design criteria.

Wherever portions of the garage walls will not be backdrained, the walls should be designed to resist an equivalent fluid pressure of 95 pounds per cubic foot plus a uniform pressure of 12H pounds per square foot, where H is the height of the wall in feet.

Walls with inclined backfill should be designed for an additional equivalent fluid pressure of 1 pound per cubic foot for every 1 degrees of slope inclination. Walls subjected to surcharge loads (such as loads from adjacent buildings) should be designed for an additional uniform lateral pressure equal to one-third and one-half the anticipated surcharge load for unrestrained and restrained walls, respectively.

For retaining walls that need to resist seismic lateral forces from the retained soils, we recommend the walls be designed to also resist a triangular pressure distribution equal to an equivalent fluid pressure of 45 pounds per cubic foot based on the ground acceleration from a design basis earthquake[14,15]. This seismic pressure is in addition to the pressures noted above. Due to the transient nature of the seismic loading, a factor of safety of at least 1.1 can be used in the design of the walls when they resist seismic lateral loads. Some movement of the walls may occur during moderate to strong earthquake shaking and may result in distress as is typical for all structures within the San Francisco Bay Area subjected to earthquake shaking.

Where backdrainage will be used behind retaining walls, the backdrainage system can consist of 1/2 to 3/4 inch crushed, uniformly graded gravel entirely wrapped in filter fabric such as Mirafi 140N or equal (an overlap of at least 12 inches should be provided at all fabric joints). The gravel and fabric should be at least 8 inches wide and extend from the base of the wall to within 12 inches of the finished grade at the top (Caltrans Class 2 permeable material (Section 68) may be used in lieu of gravel and filter fabric). A 4-inch diameter, perforated pipe should be installed at the base and centered within the gravel. The perforated pipe should be connected to a solid collector pipe that transmits the water directly to a storm drain, sump pump, drainage inlet, or onto pavement. If weep holes are used in the wall, the perforated pipe within the gravel is not necessary provided the weep holes are kept free of animals and debris, are located no higher than approximately 6 inches from the lowest adjacent grade, and are able to function properly. As an alternative to using gravel, drainage panels (such as AWD SITEDRAIN Sheet 94 for walls or equal) may be used behind the walls in conjunction with perforated pipe (connected to solid collector pipe), weep holes, or strip drains (such as SITEDRAIN Strip 6000 or equal). If used, the drainage panels can be spaced on-center at approximately 2 times the panel width. All wall subdrains should be connected to a solid pipe that discharges to an appropriate drainage facility.

If heavy compaction equipment is used behind the walls, the walls should be appropriately designed to withstand loads exerted by the heavy equipment and/or temporarily braced. Fill placed behind walls should conform to the recommendations provided in **Section 4.1.4, *Fill Material***, and **Section 4.1.5, *Compaction***.

4.2.5 Lateral Load Resistance

For the slab foundations, lateral loads, such as derived from earthquakes and wind, can be resisted by friction between the slab foundation bottom and the supporting subgrade. A friction coefficient of 0.25 is considered applicable.

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[14]Seed and Whitman, 1970, *Design of Earth Retaining Structures for Dynamic Loads.*

[15]Atik and Sitar, 2007, *Development of Improved Procedures for Seismic Design of Buried and Partially Buried Structures*, Pacific Earthquake Engineering Research Center.

The basement walls, if appropriately reinforced to withstand the passive pressures, may be used to resist lateral loads, including those imposed by earthquakes. Approximately 0.02H (where H is the height of wall) of wall deflection will need to occur before generating the full passive resistance against the retained soils. A passive resistance equal to an equivalent fluid weighing 350 pounds per cubic foot acting against the vertical face of the walls can be used. The portion of the basement wall within 2 feet of the exterior finished grade should be ignored in the passive resistance calculation.

4.2.6 Seismic Design Criteria

The following parameters were calculated using the U.S. Seismic Design Map program[16], and were based on the site being located at approximate latitude 37.42°N and longitude 122.1015°W. For seismic design using the 2016 California Building Code (CBC), we recommend the following tabulated seismic design values be used.

Since site soils are vulnerable to potential failure or collapse under seismic loading, such as liquefiable soils, ASCE 7 (which has been adopted by the 2016 CBC) requires that site soils be assigned as Site Class “F” and a site response analysis be performed. However, the results of our field explorations and engineering analyses generally indicate that the liquefiable soils underlying the site exist in forms of localized lenses of sand and we estimate that liquefaction of the sand, if subjected to an MCE earthquake event, may only cause total aerial ground surface settlements of up to about 1 inch with differential settlements of about 1/2 inches across typical building column spacing (approximately 30 feet).

In addition, it is our understanding that the proposed structures will have fundamental periods of vibration less than 0.5 second, so a site-specific response analysis is not required for liquefiable soils per Section 20.3.1 of ASCE 7; therefore, the site class and seismic design parameters can be determined in accordance with ASCE 7/2016 CBC. SFB should be consulted if modifications to these assumptions are made.

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[16]USGS Website, *http://earthquake.usgs.gov/hazards/designmaps/usdesign.php*, accessed 3/8/18.

2016 CBC SEISMIC PARAMETERS		
Seismic Parameter	Design Value	CBC Reference
Site Class	D	Section 1613.3.2
S_S	1.5	Figure 1613.3.1(1)
S_1	0.622	Figure 1613.3.1(2)
F_a	1.0	Table 1613.3.3(1)
F_v	1.5	Table 1613.3.3(2)

4.3 Pavements

4.3.1 Asphalt Concrete

Based on the results of laboratory testing of onsite materials, we recommend that an R-value of 5 be used in preliminary asphalt concrete pavement design. We recommend additional R-value tests be performed once the pavement subgrade is established to confirm the R-value used in the design. Pavement subgrade composed of sandy and gravelly fills will result in higher R-values and thinner pavement sections.

We developed the following alternative preliminary pavement sections using Topic 608 of the State of California Department of Transportation Highway Design Manual, the recommended R-value, and typical traffic indices for residential developments. The project's Civil Engineer or appropriate public agency should determine actual traffic indices. The pavement thicknesses shown below are SFB's recommended minimum values; governing agencies may require pavement thicknesses greater than those shown.

PRELIMINARY PAVEMENT DESIGN ALTERNATIVES SUBGRADE R-VALUE = 5			
Location	Pavement Components		Total Thickness (inches)
	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	
T.I. = 4.5 (auto & light truck parking)	3.0	9.0	12.0
T.I. = 5.0 (access way)	3.0	11.0	14.0

If the pavements are planned to be placed prior to or during construction, the traffic indices and pavement sections may not be adequate for support of what is typically more frequent and heavier construction traffic. If the pavement sections will be used for construction access by heavy trucks or construction equipment (especially fork lifts with support footings), SFB should be consulted to provide recommendations for alternative pavement sections capable of supporting the heavier use and heavier loads. If requested, SFB can provide recommendations for a phased placement of the asphalt concrete to reduce the potential for mechanical scars caused by construction traffic in the finished grade. Preliminary pavement sections should be revised, if necessary, when actual traffic indices are known and pavement subgrade elevations are determined.

Pavement baserock and asphalt concrete should be compacted to at least 95 percent relative compaction. The asphalt concrete compacted unit weight should be determined using Caltrans Test Method 308-A or ASTM Test Method D1188. Asphalt concrete should also satisfy the S-value requirements by Caltrans.

We recommend regular maintenance of the asphalt concrete be performed at approximately five year intervals. Maintenance may include sand slurry sealing, crack filling, and chip seals as necessary. If regular maintenance is not performed, the asphalt concrete layer could experience premature degradation requiring more extensive repairs.

4.3.2 Concrete Slab for Trash Enclosures

The analytical procedure used in our design of the rigid vehicular concrete pavement was the method published by the Portland Cement Association. A modulus of subgrade reaction of 75 pounds per square inch per inch was assigned to represent a reworked, onsite subgrade underlain by 6 inches of aggregate base. The modulus of rupture for concrete was assumed to be 550 pounds per square inch. Based on our analysis, we recommend the concrete slab for the trash enclosure consist of 6 inches of concrete overlying 6 inches of Caltrans Class 2 aggregate baserock. The concrete and baserock should be constructed in accordance with the appropriate specifications for pavements.

5.0 CONDITIONS AND LIMITATIONS

SFB is not responsible for the validity or accuracy of information, analyses, test results, or designs provided to SFB by others or prepared by others. The analysis, designs, opinions, and recommendations submitted in this report are based in part upon the data obtained from our field work and upon information provided by others. Site exploration and testing characterizes subsurface conditions only at the locations where the explorations or tests are performed; actual subsurface conditions between explorations or tests may be different than those described in this report. Variations of subsurface conditions from those analyzed or characterized in this report are not uncommon and may become evident during construction. In addition, changes in the condition of the site can occur over time as a result of either natural processes (such as earthquakes, flooding, or changes in ground water levels) or human activity (such as construction adjacent to the site, dumping of fill, or excavating). If changes to the site's surface or subsurface conditions occur since the performance of the field work described in this report, or if differing subsurface conditions are encountered, we should be contacted immediately to evaluate the differing conditions to assess if the opinions, conclusions, and recommendations provided in this report are still applicable or should be amended.

We recommend SFB be retained to provide geotechnical services during design, reviews, earthwork operations, paving operations, and foundation installation to confirm and observe compliance with the design concepts, specifications and recommendations presented in this report. Our presence will also allow us to modify design if unanticipated subsurface conditions are encountered or if changes to the scope of the project, as defined in this report, are made.

This report is a design document that has been prepared in accordance with generally accepted geological and geotechnical engineering practices for the exclusive use of Emerald Bay Homes LLC and their consultants for specific application to the proposed new mixed-use building to be located at 788-796 San Antonio Road in Palo Alto, California, and is intended to represent our design recommendations to Emerald Bay Homes LLC for specific application to the 788-796 San Antonio Road project. The conclusions and recommendations contained in this report are solely professional opinions. It is the responsibility of Emerald Bay Homes LLC to transmit the information and recommendations of this report to those designing and constructing the project. We will not be responsible for the misinterpretation of the information provided in this report. We recommend SFB be retained to review geological and geotechnical aspects of the construction calculations, specifications, and plans; we should also be retained to participate in prebid and preconstruction conferences to clarify the opinions, conclusions, and recommendations contained in this report.

It should be understood that advancements in the practice of geotechnical engineering and engineering geology, or discovery of differing surface or subsurface conditions, may affect the validity of this report and are not uncommon. SFB strives to perform its services in a proper and professional manner with reasonable care and competence but we are not infallible. Geological engineering and geotechnical engineering are disciplines that are far less exact than other engineering disciplines; therefore we should be consulted if it is not completely understood what the limitations to using this report are.

In the event that there are any changes in the nature, design or location of the project, as described in this report, or if any future additions are planned, the conclusions and recommendations contained in this report shall not be considered valid unless we are contacted in writing, the project changes are reviewed by us, and the conclusions and recommendations presented in this report are modified or verified in writing. The opinions, conclusions, and recommendations contained in this report are based upon the description of the project as presented in the introduction section of this report.

This report does not necessarily represent all of the information that has been communicated by us to Emerald Bay Homes LLC and their consultants during the course of this engagement and our rendering of professional services to Emerald Bay Homes LLC. Reliance on this report by parties other than those described above must be at their own risk unless we are first consulted as to the parties' intended use of this report and only after we obtain the written consent of Emerald Bay Homes LLC to divulge information that may have been communicated to Emerald Bay Homes LLC. We cannot accept consequences for use of segregated portions of this report.

Please refer to Appendix C for additional guidelines regarding use of this report.

FIGURE

KEY

SFB-3 — APPROXIMATE LOCATION OF SFB EXPLORATORY BORING (2/27/18)

APPROXIMATE PROJECT LIMIT

N

APPROXIMATE SCALE: 1" = 60'

0 60 120

NOTE: Base map was created by overlaying the Santa Clara County Assessor's Map Book 147 Page 3 on a Google Earth image dated 5/21/17.

DATE	Stevens Ferrone & Bailey Engineering Company, Inc	1600 Willow Pass Court Concord, CA 94520 Tel 925.688.1001 Fax 925.688.1005 www.SFandB.com	SITE PLAN	FIGURE
March 2018			788-796 SAN ANTONIO ROAD Palo Alto, California	1
PROJECT NO.				
813-1				

APPENDIX A

Field Investigation

APPENDIX A
Field Investigation

Our field investigation for the proposed new mixed-use building to be located at 788-796 San Antonio Road in Palo Alto, California, consisted of surface reconnaissance and a subsurface exploration program. Geotechnical reconnaissance of the site and surrounding area was performed on February 27, 2018. Subsurface exploration was performed using a truck-mounted drill rig equipped with 6-inch diameter, continuous flight, solid stem augers and 8-inch diameter, continuous flight, hollow-stem augers. Three exploratory borings were drilled on February 27, 2018 to a maximum depth of about 61-1/2 feet. Our representative continuously logged the soils encountered in the borings in the field. The soils are described in general accordance with the Unified Soil Classification System (ASTM D2487). The logs of the borings, as well as a key for the classification of the soil (Figure A-1) are included as part of this appendix.

Representative samples were obtained from our exploratory boring at selected depths appropriate to the investigation. Relatively undisturbed samples were obtained using a 3-inch O.D. split barrel sampler with liners, and disturbed samples were obtained using the 2-inch O.D. split spoon sampler. All samples were transmitted to our offices for evaluation and appropriate testing. Both sampler types are indicated in the "Sampler" column of the boring logs as designated in Figure A-1.

Resistance blow counts were obtained in our boring with the samplers by dropping a 140-pound safety hammer through a 30-inch free fall. The sampler was driven 18 inches and the number of blows were recorded for each 6 inches of penetration. The blows per foot recorded on the boring logs represent the accumulated number of converted blows that were required to drive the last 12 inches, or the number of inches indicated where hard resistance was encountered. The blow counts recorded on the boring logs have been converted to equivalent SPT field blow counts, but have not been corrected for overburden, silt content, or other factors.

The attached boring logs and related information show our interpretation of the subsurface conditions at the dates and locations indicated, and it is not warranted that they are representative of subsurface conditions at other locations and times.

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		grf	ltr	Description
Coarse Grained Soils	Gravel Gravelly Soils		GW	Well-graded gravels or gravel sand mixtures, little or no fines
			GP	Poorly-graded gravels or gravel sand mixture, little or no fines
			GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sand And Sandy Soils		SW	Well-graded sands or gravelly sands, little or no fines
			SP	Poorly-graded sands or gravelly sands, little or no fines
			SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, and-clay mixtures

Major Divisions		grf	ltr	Description
Soils	Silts And Clays LL < 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silt-clays of low plasticity
	Silts And Clays LL > 50		MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat and other highly organic soils

GRAIN SIZES

U.S. STANDARD SERIES SIEVE: 200, 40, 10, 4

CLEAR SQUARE SIEVE OPENINGS: 3/4", 3", 12"

Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

RELATIVE DENSITY

Sands and Gravels	Blows/Foot*
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

CONSISTENCY

Silts and Clays	Blows/Foot*	Strength (tsf)**
Very Soft	0 - 2	0 - 1/4
Soft	2 - 4	1/4 - 1/2
Firm	4 - 8	1/2 - 1
Stiff	8 - 16	1 - 2
Very Stiff	16 - 32	2 - 4
Hard	Over 32	Over 4

*Number of Blows for a 140-pound hammer falling 30 inches, driving a 2-inch O.D. (1-3/8" I.D.) split spoon sampler.
**Unconfined compressive strength.

SYMBOLS & NOTES

- Standard Penetration sampler (2" OD Split Barrel)
- Modified California sampler (3" OD Split Barrel)
- California Sampler (2.5" OD Split Barrel)
- Shelby Tube
- Pitcher Barrel
- HQ Core
- Ground Water level initially encountered
- Ground Water level at end of drilling

PI = Plasticity Index
LL = Liquid Limit
R = R-Value

Increasing Visual Moisture Content

Saturated
Wet
Moist
Damp
Dry

Constituent Percentage

trace	<5%
some	5-15%
with	16-30%
-y	31-49%

Stevens, Ferrone & Bailey Engineering Company, Inc.
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Concord, CA 94520
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KEY TO EXPLORATORY BORING LOGS

788-796 SAN ANTONIO ROAD
Palo Alto, California

PROJECT NO.	DATE	FIGURE NO.
813-1	March 2018	A-1

DRILL RIG CME 75 HSA	SURFACE ELEVATION ---	LOGGED BY HP
DEPTH TO GROUND WATER 8.5 feet	BORING DIAMETER 8-inch	DATE DRILLED 02/27/18

DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNC. COMP. (KSF)	OTHER TESTS
Asphalt Concrete (AC) about 6" thick.			0						
Aggregate Base (AB) about 3" thick.									
FILL: CLAY (CH), black, silty, some sand(fine- to coarse-grained), some gravel(fine, subangular to subrounded), dry.	very stiff				31	28	93		
					30	32			
CLAY (CH), light brownish-gray, silty, some sand(fine- to medium-grained), dry.	very stiff		5		32	29	94	7.7	At 6': Liquid Limit = 64% Plasticity Index = 38
CLAY (CL), mottled olive, silty, some sand(fine-grained), damp.	stiff								
			10		14	24	102	2.0	
CLAY (CL), olive, silty, with sand(fine- to coarse-grained), damp. Thin sand lense at 15', trace carbonates.	stiff to very stiff		15		16				At 16': Percent Passing #200 Sieve = 69%
Change color to mottled olive.	very stiff		20		21				At 21': Percent Passing #200 Sieve = 77%
Change color to light gray-olive, damp to moist.									
CLAY (CL), gray, silty, trace sand(fine-grained), damp.	stiff to very stiff		25		16				
Change color to mottled gray, trace gravel(fine, subangular to subrounded), with carbonates.	very stiff		30		19				

DRILL RIG CME 75 HSA	SURFACE ELEVATION ---	LOGGED BY HP
DEPTH TO GROUND WATER 8.5 feet	BORING DIAMETER 8-inch	DATE DRILLED 02/27/18

DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNC. COMP. (KSF)	OTHER TESTS
CLAY (CL), mottled olive, silty, some sand(fine- to medium-grained), with carbonates, damp. Thin sand lense at 36.5', damp to moist.	stiff		35		11				At 36': Percent Passing #200 Sieve = 64%
			40		15				
SAND (SC), olive, fine- to coarse-grained, with silt and clay, moist.	medium dense		45		24				At 46': Percent Passing #200 Sieve = 21%
CLAY (CL), olive-gray, silty, some sand(fine-grained), damp.	stiff		50		12				At 51': Percent Passing #200 Sieve = 92%
Dry to damp.	very stiff		55		22				
Change color to grayish-brown.			60		25				
Bottom of Boring = 61.5 feet Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			65						

Stevens, Ferrone & Bailey Engineering Company, Inc.
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Concord, CA 94520
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EXPLORATORY BORING LOG

788-796 SAN ANTONIO ROAD
Palo Alto, California

PROJECT NO.	DATE	BORING NO.
813-1	**March 2018**	**SFB-1**

DRILL RIG CME 75 CFA	SURFACE ELEVATION ---	LOGGED BY HP
DEPTH TO GROUND WATER 9 feet	BORING DIAMETER 6-inch	DATE DRILLED 02/27/18

DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNC. COMP. (KSF)	OTHER TESTS
Asphalt Concrete (AC) about 6" thick.			0						
Aggregate Base (AB) about 4" thick.									
CLAY (CH), dark gray, silty, some sand(fine- to coarse-grained), dry.	very stiff				26	29	86		
					32	31			At 3.5': Liquid Limit = 77% Plasticity Index = 52
CLAY (CL), dark brownish-gray, silty, some sand(fine- to coarse-grained), gravelly(fine, subangular to subrounded), dry.	hard		5		40	29	93	7.9	
CLAY (CL), greenish-gray, silty, sandy(fine- to coarse-grained), with gravel(fine to coarse, subangular to subrounded), dry to damp.	stiff		10		13	13	118	1.2	
SAND (SM), olive-gray, fine- to coarse-grained, gravelly(fine, subangular to subrounded), trace silt and clay, damp to moist.	dense		15		38				At 16': Sieve Analysis Gravel = 34% Sand = 58% Silt and Clay = 8%
Drilled to 20' for sample, then hole caved to 19', mottled grayish-brown clay found on tip of auger.									
Bottom of Boring = 19 feet Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			20						
			25						
			30						

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EXPLORATORY BORING LOG

788-796 SAN ANTONIO ROAD
Palo Alto, California

PROJECT NO.	DATE	BORING NO.
813-1	**March 2018**	**SFB-2**

DRILL RIG CME 75 HSA	SURFACE ELEVATION ---	LOGGED BY HP
DEPTH TO GROUND WATER 10 feet	BORING DIAMETER 8-inch	DATE DRILLED 02/27/18

DESCRIPTION AND REMARKS	CONSIST	SOIL TYPE	DEPTH (FEET)	SAMPLER	SPT N-VALUE	WATER CONTENT (%)	DRY DENSITY (PCF)	UNC. COMP. (KSF)	OTHER TESTS
Asphalt Concrete (AC) about 4" thick.			0						
Aggregate Base (AB) about 4" thick.									
FILL: CLAY (CL), greenish-gray, with silt, with sand(fine- to coarse-grained), dry.	very stiff				32	35	82	5.7	
CLAY (CH), dark gray, silty, some sand(fine- to coarse-grained), dry.	very stiff				80				
CLAY (CH), gray, silty, some sand(fine- to medium-grained), trace gravel(fine, subangular to subrounded), dry.	hard		5		26	28	95	13.2	
CLAY (CL), greenish-gray, silty, some sand(fine- to medium-grained), dry.	very stiff		10		19	25	100	4.5	
Change color to mottled olive, damp.	hard		15		32				At 16': Percent Passing #200 Sieve = 13%
SAND (SM), olive-gray, fine- to coarse-grained, gravelly(fine, subangular to subrounded), trace silt and clay, damp to moist.	dense								
CLAY (CL), mottled grayish-brown, silty, some sand(fine- to medium-grained), damp.	firm to stiff		20		8				At 21': Percent Passing #200 Sieve = 67%
Bottom of Boring = 21.5 feet Notes: Stratification is approximate, variations must be expected. Blowcounts converted to SPT N-values. See Report for additional details.			25						
			30						

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EXPLORATORY BORING LOG

788-796 SAN ANTONIO ROAD
Palo Alto, California

PROJECT NO.	DATE	BORING NO.
813-1	**March 2018**	**SFB-3**

APPENDIX B

Laboratory Investigation

APPENDIX B

Laboratory Investigation

Our laboratory testing program for the proposed new mixed-use building to be located at 788-796 San Antonio Road in Palo Alto, California was directed toward a quantitative and qualitative evaluation of the physical and mechanical properties of the soils underlying the site.

The natural water content was determined on eleven samples of the subsurface soils. The water contents are recorded on the boring logs at the appropriate sample depths.

Dry density determination was performed on nine samples of the subsurface soils to evaluate their physical properties. The results of the tests are shown on the boring logs at the appropriate sample depths.

Atterberg Limit determination was performed on two samples of the subsurface soils to determine the range of water content over which these materials exhibit plasticity. These values are used to classify the soil in accordance with the Unified Soil Classification System and to indicate the soil's compressibility and expansion potentials. The results of the tests are presented on the boring logs at the appropriate sample depths and attached to this appendix.

Gradation test was performed on one sample of the subsurface soils. This test was performed to assist in the classification of the soils and to determine their grain size distribution. The result of the test is presented on the boring log at the appropriate sample depth and attached to this appendix.

Unconfined compression tests were performed on seven relatively undisturbed samples of the subsurface soils to evaluate the undrained shear strengths of these materials. Failure was taken as the peak normal stress. The results of the tests are presented on the boring logs at the appropriate sample depths and attached to this appendix.

The percent passing the #200 sieve was determined on seven samples of the subsurface soils to aid in the classification of these soils. The results of the tests are shown on the boring logs at the appropriate sample depths.

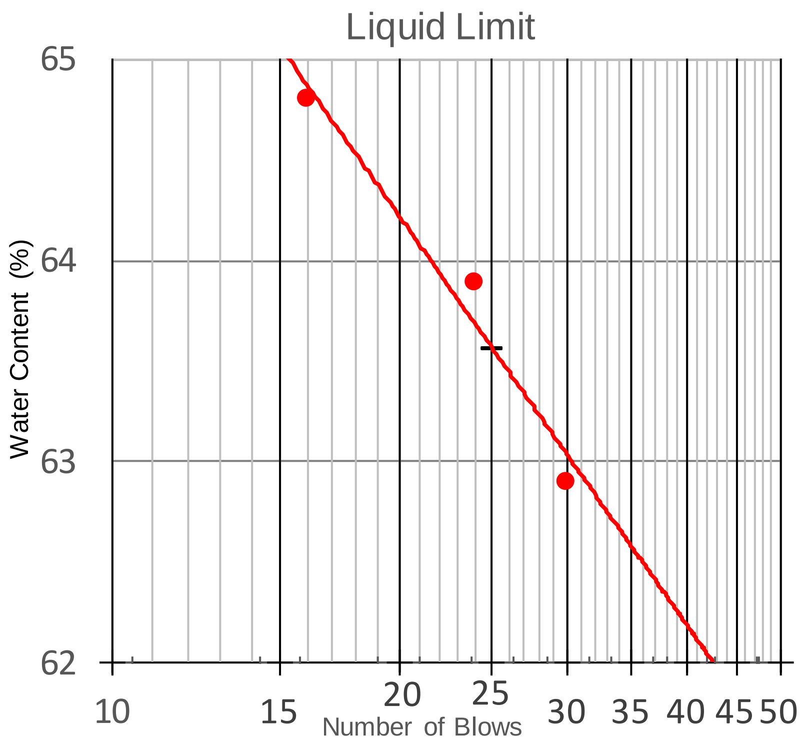
Two onsite soil samples were tested for pH (ASTM D4972), chlorides (ASTM D4327), sulfates (ASTM D4327), sulfides (ASTM D4658M), resistivity at 100% saturation (ASTM G57), and Redox potential (ASTM D1498) for use in evaluating the potential for corrosion on concrete and buried metal such as utilities and reinforcing steel. The results of these tests are included in this appendix. We recommend these test results be forwarded to your underground contractors, pipeline designers, and foundation designers and contractors.

Atterberg Limits Test – ASTM D4318

Project Number: 813-1 **Project Name:** 788-796 San Antonio Road

Boring/Sample No: B-1 **Depth:** 6 **Date:** 03-06-18

Description of Sample: Brown gray silty CLAY some sand (CH) **Tested By** R

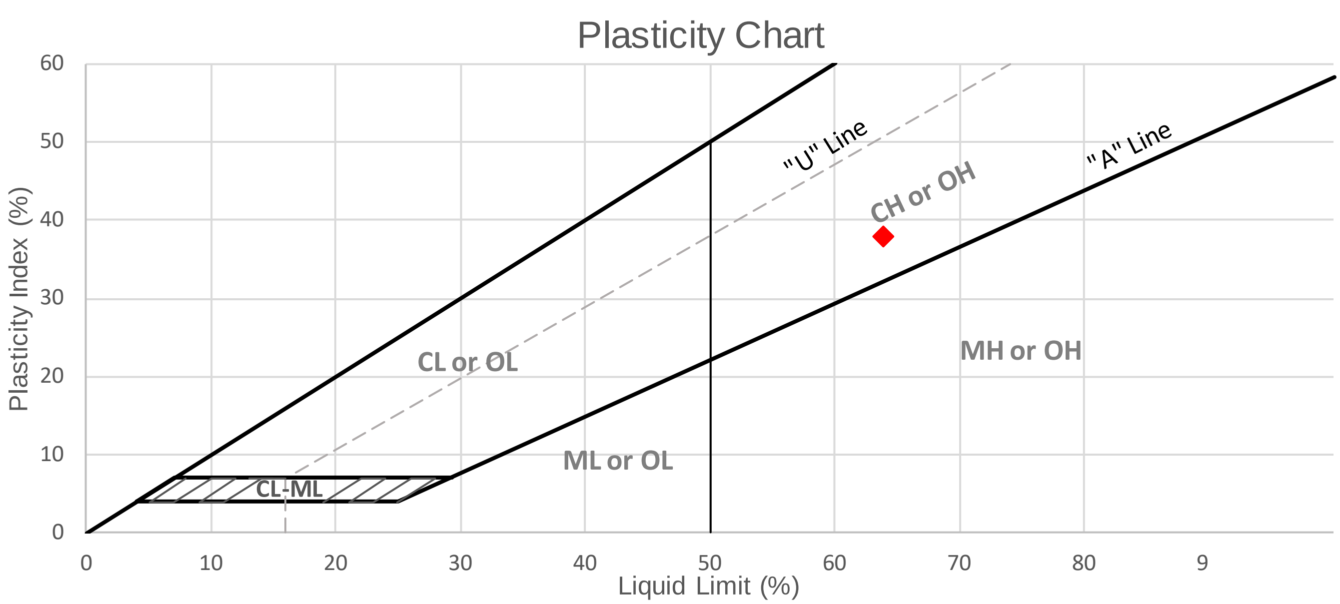


Plastic Limit Data

Trial	1	2	Ave
Water Content (%)	26.2	25.8	26

Data Summary

Liquid Limit	**64**
Plastic Limit	**26**
Plasticity Index	**38**
Natural Water Content	**28.8**
Liquidity Index	**0.074**
% Passing #200 Sieve	**--**



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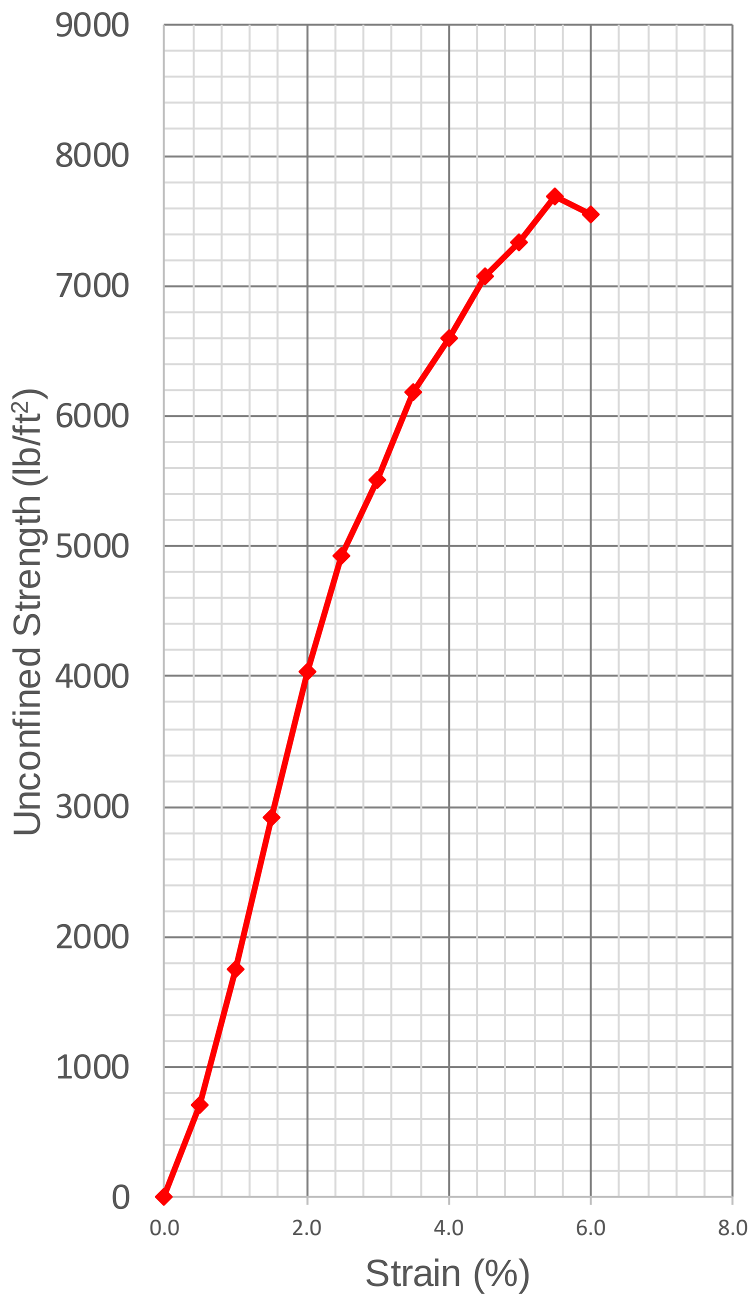
UNCONFINED COMPRESSIVE STRENGTH – D2166

Project Number: 813-1 **Boring #:** B-1 **Depth:** 6

Project Name: 788-796 San Antonio Road **Date:** 3/1/2018

Description: Brown gray silty CLAY some sand (CH) **Tested By:** R



Soil Specimen Initial Measurements	
Diameter	2.42 in
Initial Area	4.60 in^2
Initial Length	5 in
Volume	0.01331 ft^3
Water Content	28.8
Wet Density	121.0 pcf
Dry Density	94.0 pcf

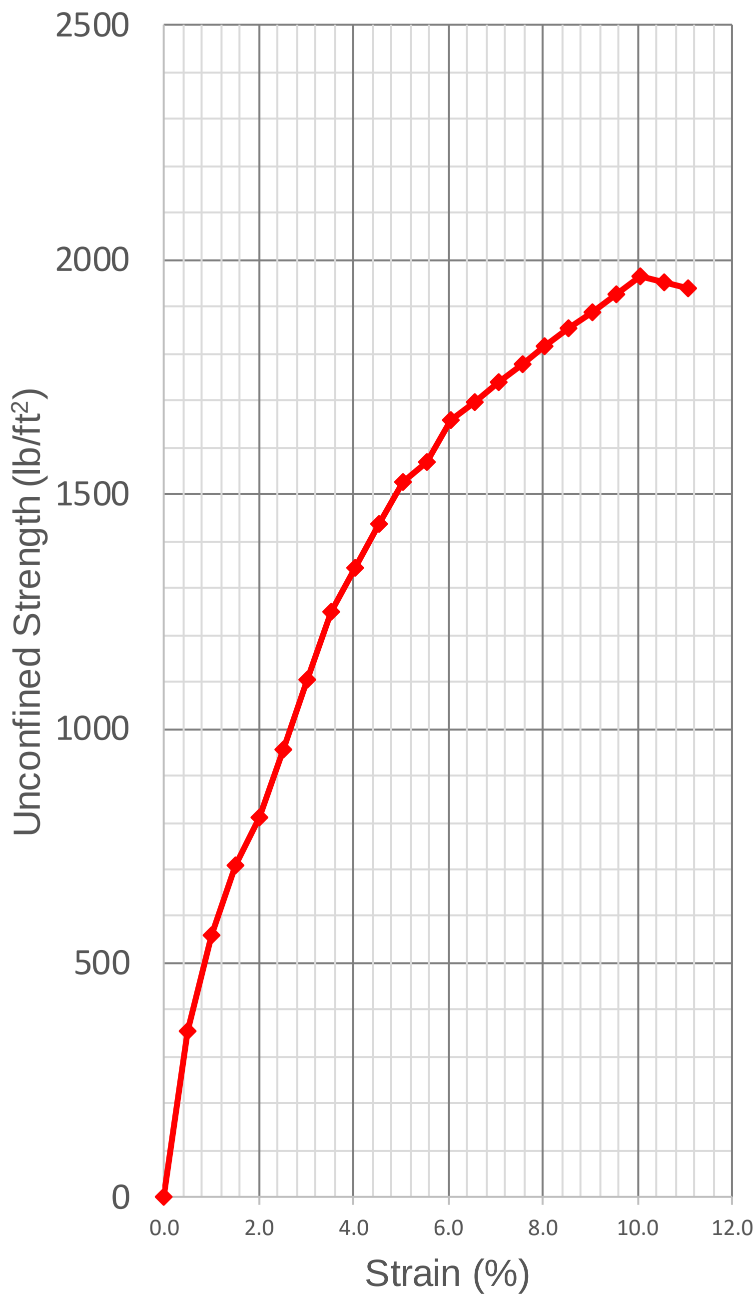
Max Unconfined Compressive Strength	
Elapsed Time	5.5 min
Vertical Dial	0.275 in
Strain	5.5 %
Area	0.03380 ft^2
Axial Load	259.7 lbs
Compressive Strength	7,683 psf

UNCONFINED COMPRESSIVE STRENGTH – D2166

Project Number: 813-1 **Boring #:** B-1 **Depth:** 11

Project Name: 788-796 San Antonio Road **Date:** 3/1/2018

Description: Light brown silty CLAY with sand (CL) **Tested By:** R



Soil Specimen Initial Measurements	
Diameter	2.42 in
Initial Area	4.60 in^2
Initial Length	4.97 in
Volume	0.01323 ft^3
Water Content	23.5
Wet Density	125.8 pcf
Dry Density	101.9 pcf

Max Unconfined Compressive Strength	
Elapsed Time	10 min
Vertical Dial	0.5 in
Strain	10.1 %
Area	0.03552 ft^2
Axial Load	69.7 lbs
Compressive Strength	1,962 psf

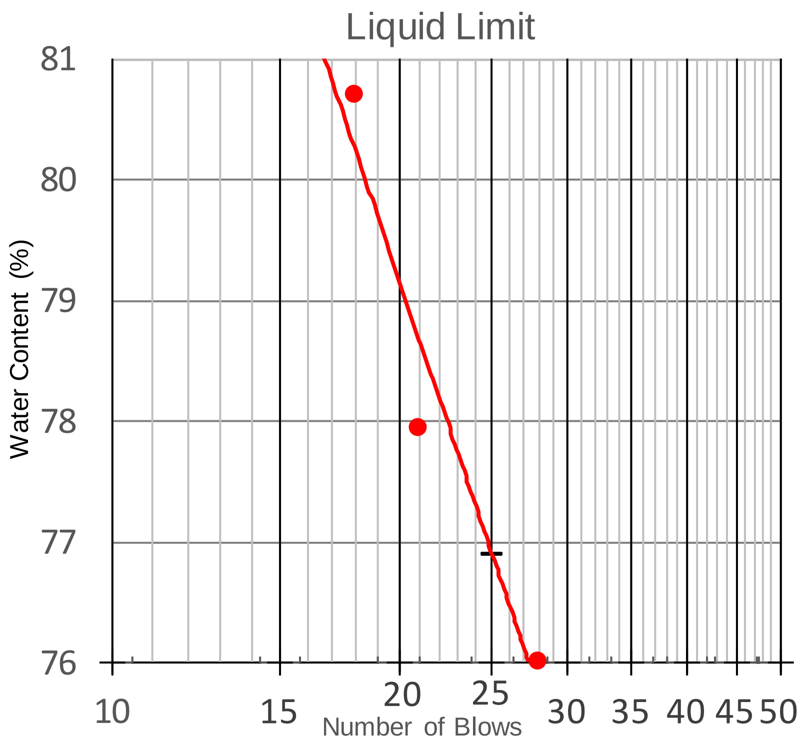
Stevens Ferrone & Bailey Engineering Company, Inc

Atterberg Limits Test – ASTM D4318

Project Number: 813-1 **Project Name:** 788-796 San Antonio Road

Boring/Sample No: B-2 **Depth:** 3.5 **Date:** 03-06-18

Description of Sample: Dark gray brown silty CLAY some sand (CH) **Tested By** R

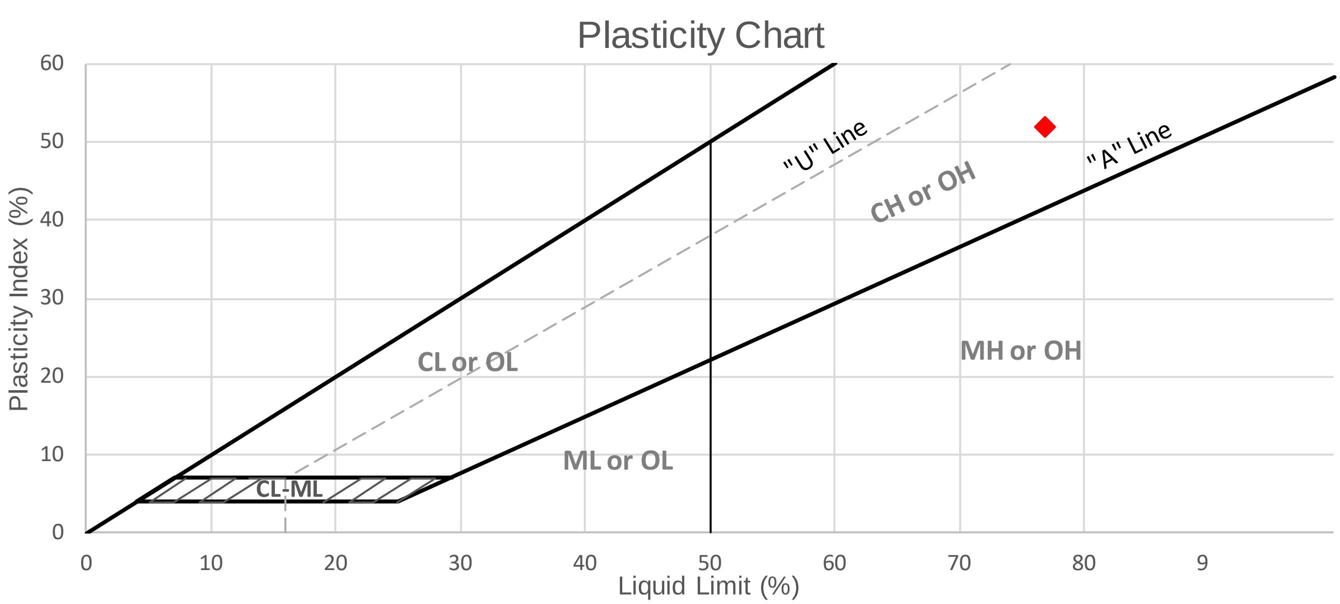


Plastic Limit Data

Trial	1	2	Ave
Water Content (%)	25.4	24.9	25

Data Summary

Liquid Limit	**77**
Plastic Limit	**25**
Plasticity Index	**52**
Natural Water Content	**31.2**
Liquidity Index	**0.119**
% Passing #200 Sieve	--



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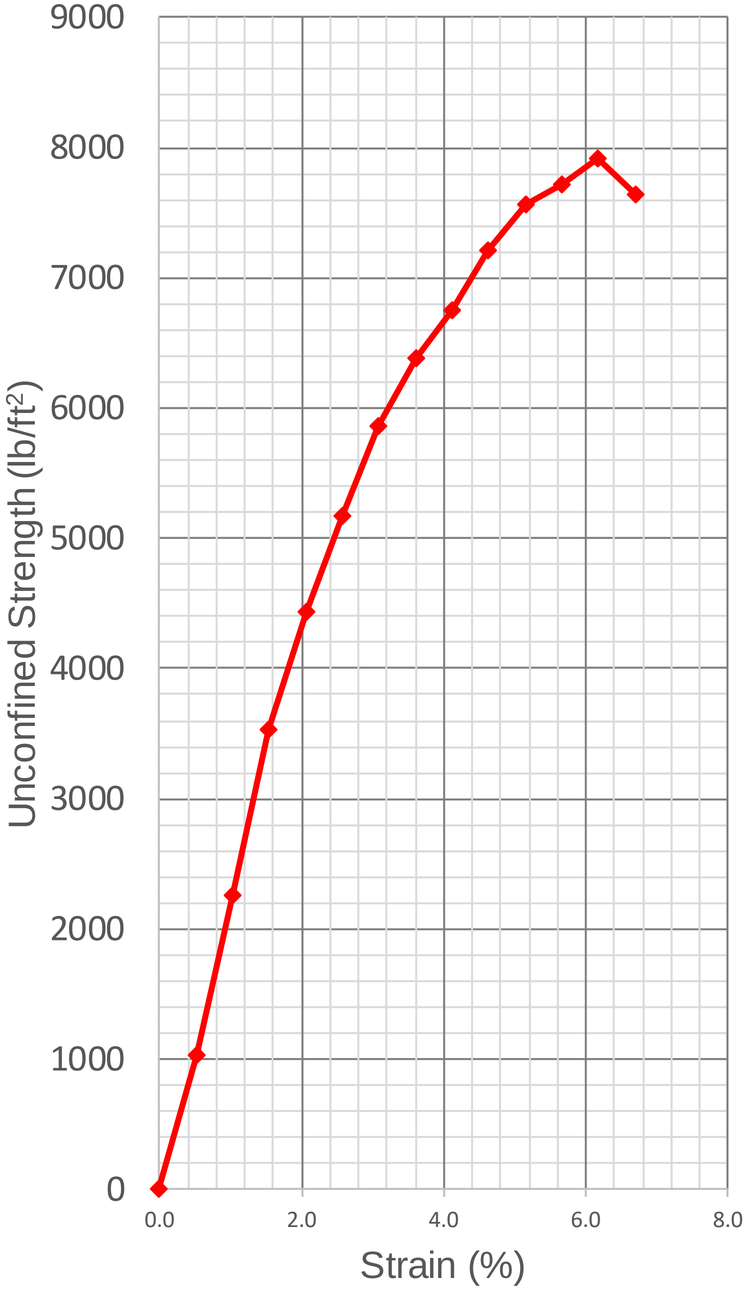
UNCONFINED COMPRESSIVE STRENGTH – D2166

Project Number: 813-1 **Boring #:** B-2 **Depth:** 6

Project Name: 788-796 San Antonio Road **Date:** 3/2/2018

Description: Dk gray brown silty CLAY some sand and gravel (CH) **Tested By:** R



Soil Specimen Initial Measurements	
Diameter	2.42 in
Initial Area	4.60 in^2
Initial Length	4.86 in
Volume	0.01294 ft^3
Water Content	29.0
Wet Density	119.8 pcf
Dry Density	92.8 pcf

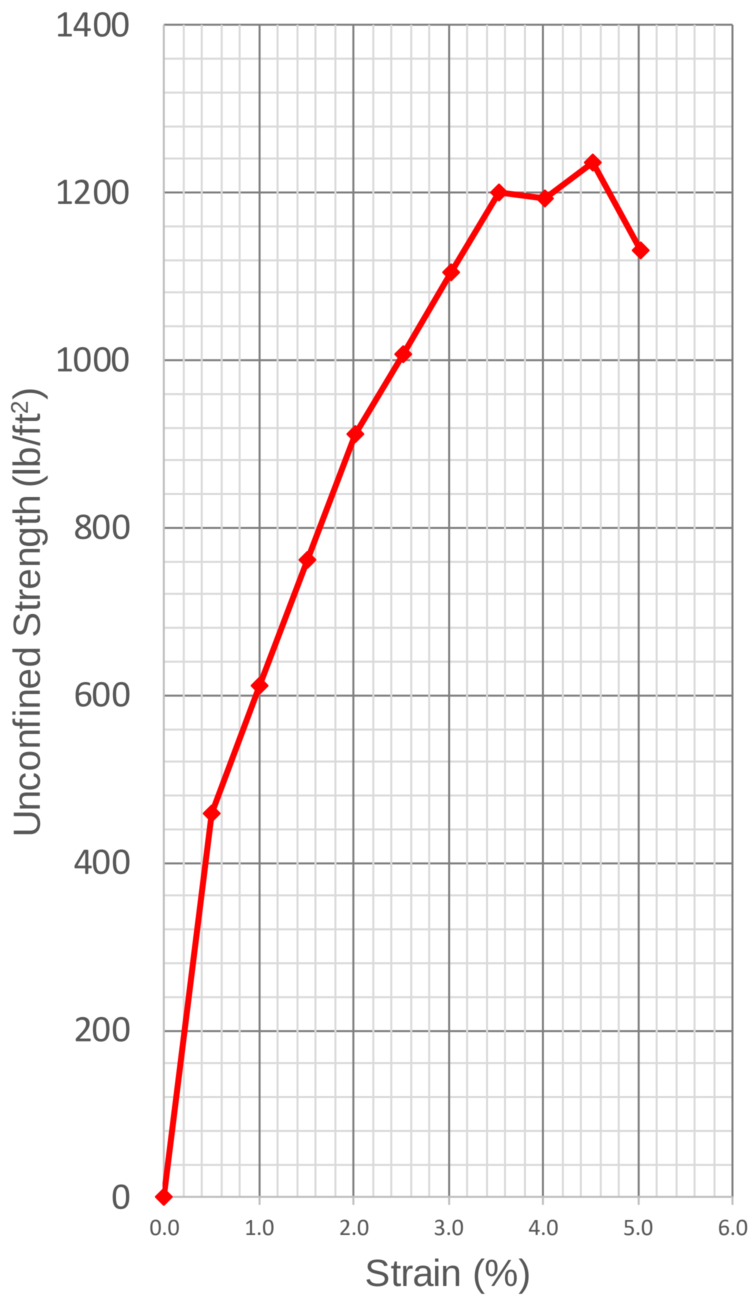
Max Unconfined Compressive Strength	
Elapsed Time	6 min
Vertical Dial	0.3 in
Strain	6.2 %
Area	0.03405 ft^2
Axial Load	269.7 lbs
Compressive Strength	7,922 psf

UNCONFINED COMPRESSIVE STRENGTH – D2166

Project Number: 813-1 **Boring #:** B-2 **Depth:** 11

Project Name: 788-796 San Antonio Road **Date:** 3/2/2018

Description: Green gray gravelly sandy silty CLAY (CL/GC) **Tested By:** R



Soil Specimen Initial Measurements	
Diameter	2.42 in
Initial Area	4.60 in^2
Initial Length	4.97 in
Volume	0.01323 ft^3
Water Content	13.1
Wet Density	133.3 pcf
Dry Density	117.9 pcf

Max Unconfined Compressive Strength	
Elapsed Time	4.5 min
Vertical Dial	0.225 in
Strain	4.5 %
Area	0.03346 ft^2
Axial Load	41.4 lbs
Compressive Strength	1,237 psf

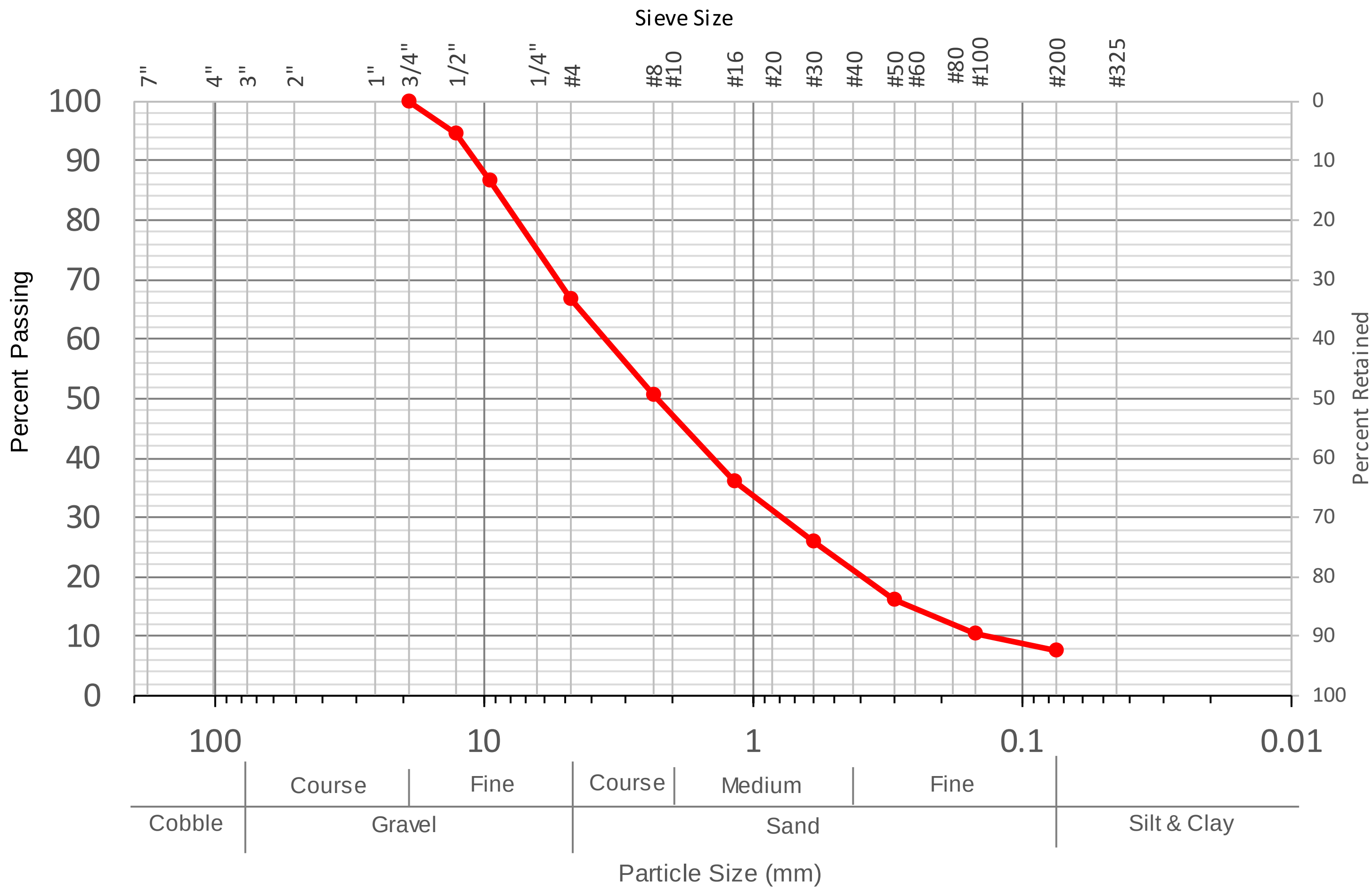
Stevens Ferrone & Bailey Engineering Company, Inc

Sieve Analysis – ASTM C136

Project Number: 813-1 **Project Name:** 788-796 San Antonio Road **Sampling Date:** 2/28/2018

Sample Number: B-2 @ 16' **Description:** Gray gravelly SAND some silt (SM) **Test Date:** 03/02/2018

Sampled By: HP **Source:** Onsite **Tested By:** R



Composite Sieve Data		
Standard Sieve Size	Percent Passing	Specs [1]
3”		
2.5”		
2”		
1.5”		
1”		
3/4”	100.0	
1/2”	94.4	
3/8”	86.7	
#4	66.9	
#8	50.6	
#16	35.9	
#30	25.8	
#50	16.2	
#100	10.5	
#200	7.7	

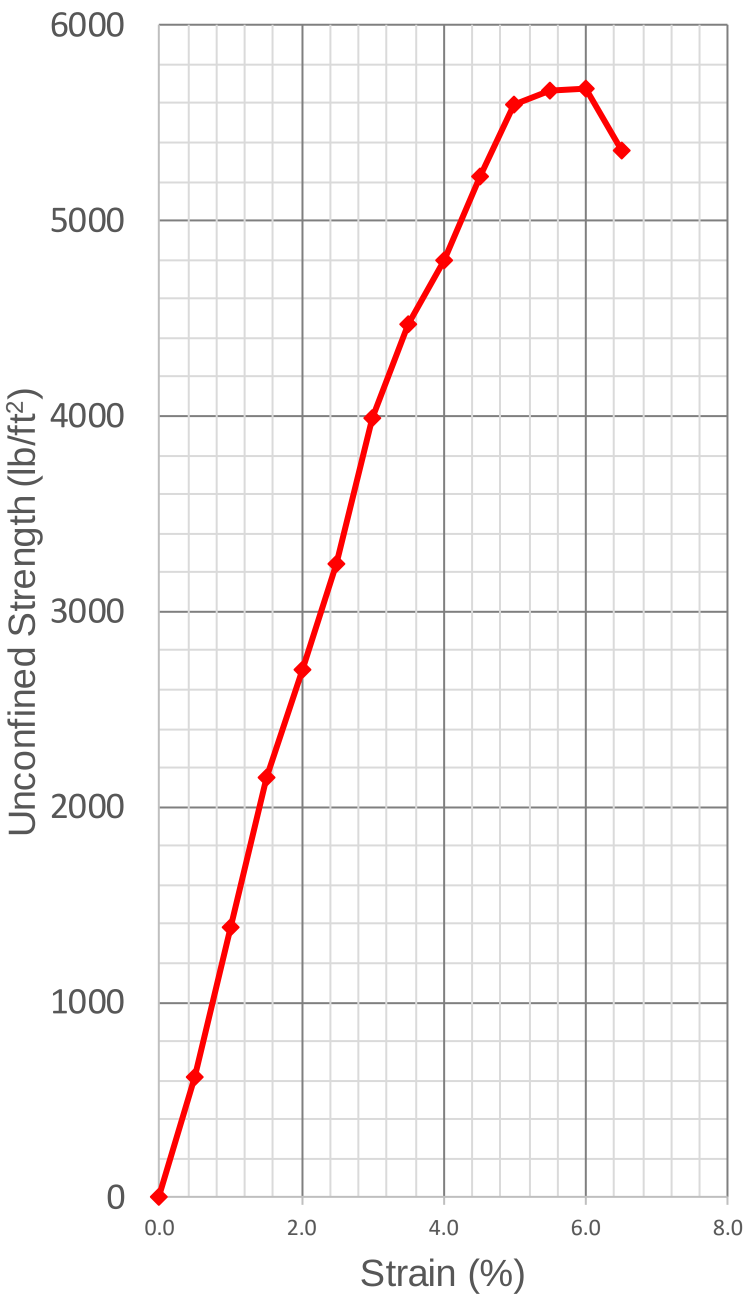
Stevens Ferrone & Bailey Engineering Company, Inc

UNCONFINED COMPRESSIVE STRENGTH – D2166

Project Number: 813-1 **Boring #:** B-3 **Depth:** 1.75

Project Name: 788-796 San Antonio Road **Date:** 3/2/2018

Description: Black silty CLAY some sand (CH) **Tested By:** R



Soil Specimen Initial Measurements	
Diameter	2.42 in
Initial Area	4.60 in^2
Initial Length	5 in
Volume	0.01331 ft^3
Water Content	35.1
Wet Density	110.3 pcf
Dry Density	81.7 pcf

Max Unconfined Compressive Strength	
Elapsed Time	6 min
Vertical Dial	0.3 in
Strain	6.0 %
Area	0.03398 ft^2
Axial Load	193.0 lbs
Compressive Strength	5,679 psf

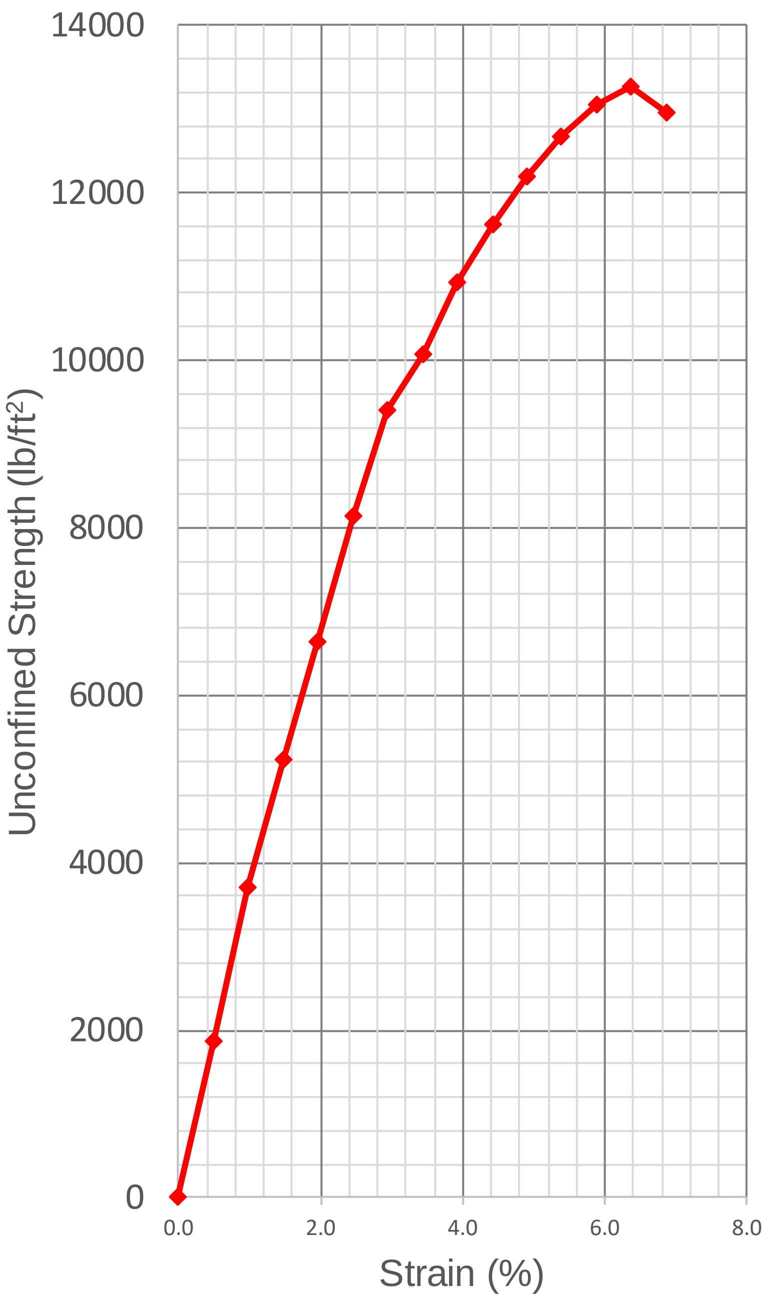
Stevens Ferrone & Bailey Engineering Company, Inc

UNCONFINED COMPRESSIVE STRENGTH – D2166

Project Number: 813-1 **Boring #:** B-3 **Depth:** 6

Project Name: 788-796 San Antonio Road **Date:** 3/2/2018

Description: Gray silty CLAY some sand and pea gravel (CH) **Tested By:** R



Soil Specimen Initial Measurements	
Diameter	2.42 in
Initial Area	4.60 in^2
Initial Length	5.1 in
Volume	0.01358 ft^3
Water Content	27.6
Wet Density	121.5 pcf
Dry Density	95.2 pcf

Max Unconfined Compressive Strength	
Elapsed Time	6.5 min
Vertical Dial	0.325 in
Strain	6.4 %
Area	0.03412 ft^2
Axial Load	453.0 lbs
Compressive Strength	13,277 psf

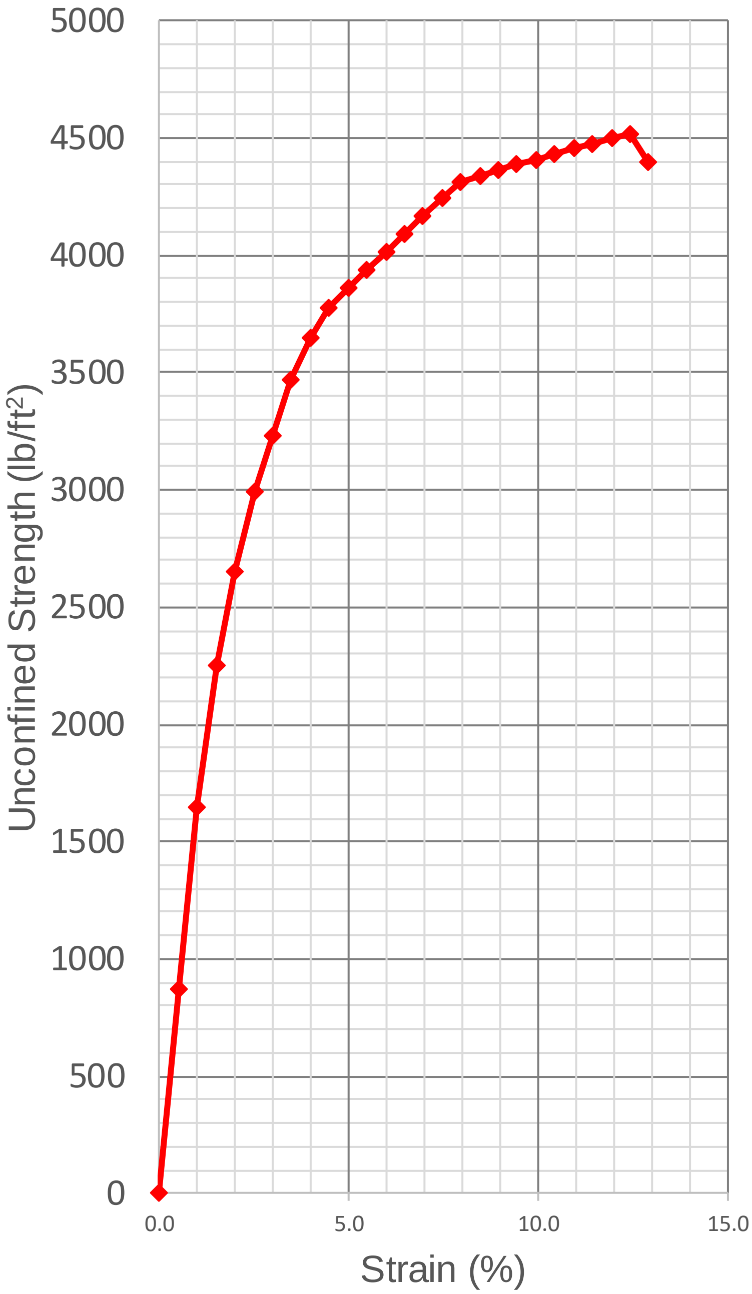
Stevens Ferrone & Bailey Engineering Company, Inc

UNCONFINED COMPRESSIVE STRENGTH – D2166

Project Number: 813-1 **Boring #:** B-3 **Depth:** 11

Project Name: 788-796 San Antonio Road **Date:** 3/2/2018

Description: Green gray silty CLAY some sand (CL) **Tested By:** R



Soil Specimen Initial Measurements	
Diameter	2.42 in
Initial Area	4.60 in^2
Initial Length	5.04 in
Volume	0.01342 ft^3
Water Content	25.3
Wet Density	125.0 pcf
Dry Density	99.7 pcf

Max Unconfined Compressive Strength	
Elapsed Time	12.5 min
Vertical Dial	0.625 in
Strain	12.4 %
Area	0.03647 ft^2
Axial Load	164.7 lbs
Compressive Strength	4,516 psf

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www.cercoanalytical.com

Client: Stevens, Ferrone & Bailey
Client's Project No.: SFB 813-1
Client's Project Name: 788-792 San Antonio Rd., Palo Alto
Date Sampled: 27-Feb-18
Date Received: 28-Feb-18
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 8-Mar-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)*
1802200-001	SFB-1 @ 6'	320	8.54	-	1,500	N.D.	N.D.	23
1802200-002	SFB-3 @ 3'	260	8.61	-	950	N.D.	16	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:	6-Mar-2018	6-Mar-2018	-	7-Mar-2018	5-Mar-2018	6-Mar-2018	6-Mar-2018

* Results Reported on "As Received" Basis

N.D. - None Detected

Cheryl McMillen
Laboratory Director

<u>Quality Control Summary</u> - All laboratory quality control parameters were found to be within established limits

APPENDIX C

ASFE Guidelines

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL BUSINESS ASSOCIATION

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Appendix C

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AEI Consultants

February 28, 2018

LIMITED PHASE II SUBSURFACE INVESTIGATION

Property Identification:
788-796 San Antonio Road
Palo Alto, CA 94303

AEI Project No. 353559

Prepared for:
Yurong Han
Emerald Buy Homes
2115 East Bayshore Road, Suite 200
Palo Alto, San Mateo County, California 94303

Prepared by:
AEI Consultants
3880 S. Bascom Avenue, Suite 109
San Jose, California 95124
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Environmental & Engineering Due Diligence

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Energy Performance & Benchmarking

Industrial Hygiene

Construction Consulting

Construction, Site Stabilization & Stormwater Services

Zoning Analysis Reports & ALTA Surveys

National Presence
Regional Focus
Local Solutions

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February 28, 2018

Ms. Yurong Han
Emerald Buy Homes
2115 East Bayshore Road, Suite 200
Palo Alto, San Mateo County, California 94303

Subject: **Limited Phase II Subsurface Investigation**
788-796 San Antonio Road
Palo Alto, California 94303
AEI Project No. 383559

Dear Ms. Han:

This report presents the results of the Limited Phase II Subsurface Investigation (Phase II) performed by AEI Consultants (AEI) at the above-referenced subject property. The investigation was completed in general accordance with the scope of services outlined in our proposal dated December 28, 2017 (AEI Proposal Number 55855), which was subsequently authorized by Emerald Buy Homes on January 10, 2017. The location of the subject property is shown on Figure 1.

The purpose of this investigation was to assess whether subsurface conditions (i.e., soil, groundwater, and soil gas) have been impacted by potential releases associated with the historic operations at the property. Information regarding the site description, background, scope of work, findings, conclusions, and recommendations are provided in the following sections.

1.0 SITE DESCRIPTION

1.1 Site Setting

The subject property is approximately 1.01 acres located along San Antonio Road and Leghorn Street. The property consists of one, one-story building in the southern portion of the property, and one divided, one-story building along the northern portion of the property.

1.2 Hydrogeology

Based on the Phase I Environmental Site Assessment by Rosso Environmental, Inc., there is evidence of clay soils to 7 feet below ground surface (bgs) overlying sandy gravel from 7 to 13.5 feet bgs, south of the subject property. East of the subject property there is evidence of well-graded gravels with coarse sand. Groundwater south of the Site has been encountered at approximately 7 feet bgs and measured to flow north.

2.0 BACKGROUND

2.1 Site History

A Phase I Environmental Site Assessment was conducted by Rosso Environmental, Inc. with the results presented in a report dated July 21, 2017. Based on a review of historical sources for the Phase I ESA, the subject property was identified as agricultural land until at least 1948. The southern building was developed for office and warehouse uses in 1953 by the California Chrysanthemum Growers Association. In 2003, the building was modified for use as the current vehicle repair facility; Mechanica Automotive. The northern building was developed on vacant land in 1966. The northern portion of the building is occupied by Buckles Smith, and the southern portion of the building is occupied by Studio Kicks. The following recognized environmental conditions (RECs) were identified:

- Adjacent properties to the south (Beacon Gasoline Station) and to the east (Office Outfitters) have reported groundwater contamination of petroleum hydrocarbons and trichloroethene (TCE);
- A 1966 building permit record indicated that approximately two feet of fill material associated with the northern building was reportedly placed onsite from an unknown origin; and
- Historical onsite agricultural use from at least 1939 to 1948.

3.0 SCOPE OF WORK

This investigation focused on assessing whether subsurface conditions (i.e., soil, groundwater, and soil gas) have been impacted by potential releases associated with the historic operations at the property considering the planned redevelopment activities. The scope of work for this investigation included the advancement of five (5) exploratory borings (SB-1 through SB-5) for the collection of soil, grab-groundwater, and soil gas samples for laboratory analyses.

3.1 Health and Safety Plan

A site-specific health and safety plan was prepared, reviewed by onsite personnel, and kept onsite for the duration of the fieldwork.

3.2 Utility Clearance

Prior to drilling activities, proposed boring locations were marked on the ground surface with white paint. Upon marking, Underground Services Alert (USA) North was contacted, who, in turn, notified subscribing utility companies of the planned investigation work for underground utility locations to be marked along the ground surface around the property boundaries and proposed boring locations, where accessible. Private utility locating was conducted by ForeSite Engineering Surveys, Inc. (ForeSite) of Pleasant Hill, California under subcontract to AEI to further identify and locate underground utilities on the property, and to shift boring locations, as appropriate.

3.3 Exploratory Borings

On February 9, 2018, AEI Consultants advanced five (5) soil borings (SB-1 through SB-5) and installed five temporary soil gas probes (SG-1 through SG-5) at the Site, for the collection of soil, grab-groundwater, and soil gas samples. AEI contracted advanced by Environmental Control Associates, Inc of Aptos, California to advance each of the soil borings using a direct push, truck-mounted drill rig. The five borings were advanced to depths of 12 to 16 feet bgs. Drilling operations were overseen by an experienced, environmental professional under the supervision of an AEI State of California-licensed Professional Engineer. The locations of the borings are shown on Figure 2.

3.3.1 Soil Sampling

Each of the soil borings were continuously sampled throughout their entire depths for the purposes of lithologic logging, field screening (headspace testing), and laboratory analyses. Soil samples were obtained using a single-walled coring system approximately 2.25 inches in diameter and 4 feet in length containing plastic liners. The coring system was connected to 1-inch diameter, flush-jointed drill rod that was hydraulically driven (pushed) by the rig to each target sample depth. Upon retrieval from each sample depth interval, the coring system was opened, and the plastic liners were removed and cut for visual inspection and lithologic logging purposes. Recovered soil samples were examined for soil classification and described on detailed boring logs in general conformance with the Unified Soil Classification System (USCS). Additional lithologic descriptions and drilling information were recorded on the boring logs, presented in Appendix A.

Upon sample collection, the ends of the plastic tubes were sealed with Teflon tape and capped. The samples were labeled with the project name, project number, boring number, sample depth, and sampling date/time of sampling. After labelling, the samples were placed into a chilled ice chest containing crushed ice for transport to the analytical laboratory. Chain-of-custody documentation was completed and accompanied the samples to the analytical laboratory.

3.3.2 Headspace Testing

Headspace testing was performed with a photo-ionization detector (PID) equipped with an electrodeless 10.6 eV ultraviolet lamp or equivalent for detecting the presence of total volatile organic compounds (VOCs) in the soil samples. To initiate the headspace testing procedure, soil samples were removed from the sample liners, placed into labeled, plastic bags, and sealed for conducting the tests. After sufficient time had elapsed for gas build-up inside the bags, each bag was punctured with the probe tip of the PID to allow for measurement of the headspace. Measurements of the headspace were obtained in the parts per million (ppm) range for total VOCs. The PID readings were recorded on the boring logs presented in Appendix A.

3.3.3 Grab-Groundwater Sampling

Grab-groundwater sampling was performed upon completion of drilling at all borings (SB-1 through SB-5). Upon encountering the water-bearing zone in each boring, a temporary well consisting of 0.75-inch diameter, slotted, polyvinyl chloride (PVC) casing was installed in each of the borings. The samples were obtained with a peristaltic pump attached to clean polyethylene tubing placed just above the bottom of each temporary well casing. Upon collection, the samples were transferred into appropriate laboratory-supplied containers. The sample bottles were sealed, labeled, and entered onto chain of custody documentation for transportation to a California state-certified laboratory for analyses using the same procedures, previously mentioned. After labeling, the bottles were placed into the chilled ice chest containing crushed ice for transport to the analytical laboratory.

3.3.4 Soil Gas Sampling

Five temporary soil gas sampling point were installed at each boring location (SG-1 through SG-5), as shown on Figure 2. The soil gas sampling probe was installed and sampled in general accordance with the guidelines presented in the *Advisory: Active Soil Gas Investigations*, prepared by the California Department of Toxic Substances Control (DTSC), et al., dated July 2015.

Construction of the sampling point began by advancing a borehole to approximately 5.5 feet bgs. Clean, dry sand (Lonestar No. 2/12 sand) was then backfilled into the bottom of the borehole to 5.0 feet bgs. This was followed by the installation of a temporary soil gas probe attached to inert 0.25-inch diameter Teflon tubing extending to the top of the sand pack. The soil gas probe was positioned at approximately 5 feet bgs in the boring. After the probe and tubing were set in place, an additional 6 inches of clean, dry sand was added above the tip of the probe. The borehole annulus above the sand pack was then filled with approximately 1 foot of dry granular bentonite, followed by the placement of hydrated granular bentonite to grade.

After waiting approximately 120 minutes for the probe to equilibrate with the surrounding soil, a shut-in test was performed to check for leaks in the above-ground sampling manifold. The shut-in test was performed by exerting a vacuum on the sealed above-ground manifold with a six-liter purge canister for at least one minute or longer. If there was any observable loss of vacuum, the fittings were adjusted until the vacuum in the sample train did not noticeably dissipate. Fittings used for the soil gas sampling train consisted of Swagelok® type fittings. A total of three volumes of air were purged from the annular space and tubing prior to collecting a sample through a laboratory-supplied regulator set at 200 milliliters per minute.

Following the shut-in test and purging, a soil gas sample was collected from the soil gas sampling probe. A leak check was performed by introducing and maintaining helium in the ambient air within a plastic shroud placed around the sample apparatus for the duration of the sample collection. The soil gas sample was collected using a laboratory-provided sampling manifold (sampling train) with an average flow rate of 200 milliliters per minute, into a one-liter Summa™ canister. Due to subsurface conditions low flows were observed when collecting samples SG-3 and SG-5. Therefore, lower volumes of samples were collected as indicated by the remaining canister vacuum readings of 17 in-Hg and 20 in-Hg, respectively. The remaining samples were collected with a slight vacuum remaining in the canister. Upon collection, the samples were labeled with the project name, project number, sample ID, and sampling date/time of sampling, and entered onto chain-of-custody documentation for transport to the analytical laboratory.

3.4 Boring Destruction

Upon completion of drilling and removal of temporary well casings, the borings were backfilled with a neat cement grout using tremie methods. The grout mixture consisted of one, 94-pound bag of Portland Type I/II cement to every five-gallons of water.

3.5 Investigation-Derived Waste

Investigation-derived waste was left onsite in labelled, sealed, five-gallon plastic buckets. Disposition of the waste(s) will be dependent upon the analytical results. Upon receipt of the laboratory analytical results and waste profiling, removal and transport of the waste(s) to an appropriate disposal facility can be arranged and implemented upon client approval.

4.0 LABORATORY ANALYSES

Soil and grab-groundwater samples were submitted to McCampbell Analytical, Inc. of Pittsburg, California for laboratory analyses, and soil gas samples were submitted to ESC Lab Sciences of Mt. Juliet, Tennessee for analysis. Shallow soil samples from the northernmost borings were analyzed for a larger spectrum of analysis to assess the reported fill material. The shallow soil samples across the site were analyzed for pesticides and arsenic/lead to assess the historical agricultural use. Groundwater samples were collected to assess the current groundwater conditions considering the known groundwater impact from offsite sources. Soil vapor samples were analyzed to assess the potential for vapor intrusion to any onsite buildings.

Laboratory analysis of soil samples specifically consisted of the following:

- Organochlorine pesticides (OCPs) using USEPA Test Method 8081A (5 samples);
- Arsenic and lead using US EPA Method 6010B (3 samples);
- Total Petroleum Hydrocarbon (TPH) multi-range using USEPA Testing Method 8015M (2 samples);
- VOCs using USEPA Testing Method 8260B (2 samples);
- Semi-volatile organic compounds (SVOCs) using USEPA Test Method 8270C (2 sample);
- Polychlorinated biphenyls (PCBs) using USEPA Test Method 8082 (2 samples);
- Title California Assessment Manual (CAM) 17 metals using USEPA Test Method 6010B/7471A (2 samples); and
- Asbestos by Polarized Light Microscopy (2 samples)

Laboratory analysis of five grab-groundwater samples consisted of the following:

- TPH multi-range using US EPA Testing Method 8015M; and
- VOCs using US EPA Testing Method 8260B

Laboratory analysis of the five soil gas samples consisted of the following:

- VOCs using US EPA Testing TO-15
- Oxygen, carbon dioxide, and helium (leak check) using ASTM D 1946-90

5.0 FINDINGS

5.1 Lithology

Sediment encountered in each of the borings generally consisted of silty clay, clay, and silt, through the boring termination depth of up to 16 feet bgs. Visual or olfactory evidence (i.e., soil discoloration, odor) of potentially-impacted soils was observed in soils that were recovered during drilling activities.

5.2 Soil Analytical Results

Table 1 presents a summary of the soil sample analytical results, and laboratory analytical documentation is provided in Appendix B. Analytical results generated during this investigation were compared to the February 2016 California Regional Water Quality Control Board (RWQCB) Tier 1 (most conservative) Environmental Screening Levels (ESLs). The results can be summarized as follows:

- Total petroleum hydrocarbons in the diesel (TPHd) range was detected at a concentration of 1.1 milligram per kilogram (mg/kg) in SB-5, below the Tier 1 ESL of 230 mg/kg.
- Total petroleum hydrocarbons in the motor oil (TPHmo) range were detected at a concentration of 15 mg/kg in SB-4 and 8.4 mg/kg in SB-5 below the Tier 1 ESL of 5,100 mg/kg.
- Two CAM 17 metals were detected above laboratory reporting limits in each of the samples analyzed. All other metals had concentrations detected below their respective residential and commercial/industrial ESLs.
  - Arsenic was detected at concentrations ranging from 0.67 mg/kg to 2.2 mg/kg, which is consistent with typical background concentrations (up to 11 mg/kg) for the Bay Area (Duvergé, 2011).
  - Cobalt was detected at concentrations ranging from 24 mg/kg (SB-5) to 26 mg/kg (SB-4), which exceeds the residential ESL of 23 mg/kg and is significantly below the commercial/industrial ESL of 350 mg/kg.
  - Chromium was detected at a concentration of 74 mg/kg and 60 mg/kg, which is above the waste disposal criteria of 50 mg/kg and would require additional extraction testing if soil is to be off hauled from the Site.
- Total petroleum hydrocarbons in the gasoline (TPHg) range, VOCs, SVOCs, OCPs, and PCBs were not detected above laboratory reporting limits in the samples collected and analyzed.

5.3 Grab-Groundwater Analytical Results

Table 2 presents a summary of the grab-groundwater sample analytical results, and laboratory analytical documentation is provided in Appendix B. PID readings measured during the headspace testing showed VOC concentrations between 0 and 411.5 ppm. Elevated PID reads observed appeared to be near or within the groundwater zone rather than indicative of a shallow soil contamination. Analytical results generated during this investigation were compared to the ESLs groundwater Tier 1. The results can be summarized as follows:

- TPHg was detected at concentrations of 1,000 micrograms per liter (µg/L) in SB-1, and 1,800 µg/L in SB-2, which are significantly above the Tier 1 ESL of 100 µg/L. TPH-d was detected at concentrations 5,000 µg/L at SB-1, 750 µg/L at SB-2, 400 µg/L at SB-3, and 140 µg/L at SB-4, which are significantly above the Tier 1 ESL of 100 µg/L. Concentrations of TPH-mo were detected in four borings (SB-1 to SB-4) significantly below the Tier 1 ESL of 50,000 µg/L.
- Ethylbenzene was detected in a groundwater samples at a concentration of 20 µg/L in SB-2, above the Tier 1 ESL of 13 µg/L.

- Trichloroethene (TCE) was detected in SB-2 at a concentration of 34 µg/L, above the Tier 1 ESL of 5.0 µg/L.
- The remaining VOCs were not detected either above laboratory reporting limits or their respective ESL in the samples collected and analyzed.

5.4 Soil Gas Analytical Results

Table 3 presents a summary of the soil gas sample analytical results, and laboratory analytical documentation is provided in Appendix B. Analytical results generated during this investigation were compared to the February 2016 ESLs for the sub-slab/soil gas vapor intrusion human health risk levels under a residential land use scenario, and under a commercial/industrial land use scenario. Regional Screening Levels (RSLs) as established by the Environmental Protection Agency (EPA) have been provided for compounds in which an ESL has not been established. The results can be summarized as follows:

- Benzene was detected at a concentration of 56.2 µg/m^3 at SB-3, which is above the residential ESL of 48 µg/m^3 and below the commercial/industrial ESL of 420 µg/m^3.
- Several VOCs were detected in soil gas; however, the detected VOCs were below their respective residential and commercial/industrial ESLs, if applicable.
- Anomalously high concentrations of heptane, n-hexane, cyclohexane, and 2,2,4-Trimethylpentane were observed in SG-4, which also resulted in elevated detection limits in the remaining VOCs. ESLs have not been developed for these compounds, and these compounds did not exceed the calculated RSLs, if available.
- Oxygen was observed at concentrations ranging from 12.2% to 17.7% indicating that aerobic conditions are present beneath the Site.
- The leak check compound helium was not detected in the soil gas samples collected indicating that a significant leak was not present during sampling.

6.0 SUMMARY AND CONCLUSIONS

AEI completed a limited Phase II subsurface investigation at the subject property. The purpose of this investigation was to assess whether subsurface conditions (i.e., soil, groundwater, and soil gas) have been impacted by historical activities either on or offsite in light of the planned redevelopment. Five exploratory borings were advanced during the investigation for the collection of soil, groundwater, and soil gas samples for laboratory analyses.

Analytical results generated during this investigation showed the presence of petroleum hydrocarbons and several VOCs in soil, below their applicable screening levels. Metals detected in the soil were below screening levels or consistent with typical background concentrations, with the exception of cobalt. Cobalt was detected in soil from borings SB-4 (26 mg/kg) and SB-5 (24 mg/kg) at concentrations above the residential ESL of 23 mg/kg and below the commercial/industrial ESL of 350 mg/kg.

Groundwater analytical results showed the presence of petroleum hydrocarbons above screening levels at borings SB-1 to SB-4. TPHg was detected in borings SB-1 (1,000 µg/L) and SB-2 (1,800 µg/L); TPHd was detected in borings SB-1 (5,000 µg/L), SB-2 (750 µg/L), SB-3 (400 µg/L), and

SB-4 (140 µg/L) above the groundwater Tier 1 ESL of 100 µg/L. VOCs were detected below their applicable screening levels, except for SB-2. Ethylbenzene (20 µg/L) and TCE (34 µg/L) were both detected above the groundwater Tier 1 ESL of 13 µg/L and 5.0 µg/L, respectively. These reported concentrations appear to be consistent with historical findings from the offsite investigations and do not appear to be indicative of a new onsite source.

Several VOCs were detected in soil gas, below their applicable screening levels with the exception of Benzene. Benzene was detected in SG-3 (56.2 µg/m^3), above the residential ESL of 48 µg/m^3 and below the commercial/industrial ESL of 420 µg/m^3. In addition, the results from SG-4 represent anomalously high concentrations of several VOCs which do not have an established ESL, including Cyclohexane, Heptane, n-Hexane, and 2,2,4-Trimethylpentane.

Based upon the results of this investigation, except for the area near SB-4, no further investigation is recommended with regard to soil and groundwater as these concentrations appear to be consistent with historical offsite releases and not indicative of an onsite release. Therefore, it is unlikely that the owner of the current property would be responsible for the cleanup of groundwater beneath the Site. It is understood that the property will be redeveloped which would include earthwork activities. Soils slated for excavation and off-site disposal should be appropriately profiled for disposal prior to initiating excavation activities.

While only benzene was reported above the residential ESL, AEI recommends further investigation be conducted in the area of the anomalously high VOCs in soil vapor (SV-4). Due to the elevated concentrations of VOCs in soil gas, additional data is needed to determine the extent of impact and the source. Due to the elevated concentrations, residual source material may require removal. Once the additional data is collected, it is recommended that the Santa Clara County Department of Environmental Health be contacted to provide review and oversight.

7.0 REFERENCES

Rosso Environmental, Inc., 2017, *Phase I Environmental Site Assessment*, *788-796 San Antonio Road, Palo Alto, Santa Clara County, California 94303,* technical report prepared for California Flower Market LLC, dated July 21, 2017.

San Francisco Bay Regional Water Quality Control Board, 2016, *Environmental Screening Levels* (ESLs), February 2016, revision 3.

California Department of Toxic Substances Control, et al., 2015. *Advisory: Active Soil Gas Investigations*. July.

California Department of Toxic Substances Control, et al., 2011. *Final: Vapor Intrusion Guidance*. October.

Duvergé, Dylan Jacques, 2011. *Establishing Background Arsenic in Soil of the Urbanized San Francisco Bay Region*. December.

8.0 REPORT LIMITATIONS AND RELIANCE

This report presents a summary of work completed by AEI Consultants. The completed work includes observations and descriptions of site conditions encountered. Where appropriate, it includes analytical results for samples taken during the course of the work. The number and location of samples are chosen to provide the requested information, subject to scope of work for which AEI was retained and limitations inherent in this type of work, but it cannot be assumed that they are representative of areas not sampled. This report should not be regarded as a guarantee that no further contamination beyond that which could have been detected within the scope of this investigation is present beneath the subject property. Undocumented, unauthorized releases of hazardous material, the remains of which are not readily identifiable by visual inspection and are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical specific investigation.

Any conclusions and/or recommendations are based on these analyses and observations, and the governing regulations. Conclusions beyond those stated and reported herein should not be inferred from this document. These services were performed in accordance with generally accepted practices, in the environmental engineering and construction field, which existed at the time and location of the work. No other warranty, either expressed or implied, has been made.

This investigation was prepared for the sole use and benefit of Emerald Buy Homes. All reports, both verbal and written, whether in draft or final, are for the benefit of Emerald Buy Homes. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of AEI. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with AEI granting such rights, no third parties shall have rights of recourse or recovery whatsoever under any course of action against AEI, its officers, employees, vendors, successors or assigns. Reliance is provided in accordance with AEI's Proposal and Standard Terms & Conditions executed by Emerald Buy Homes. The limitation of liability defined in the Terms and Conditions is the aggregate limit of AEI's liability to the client and all relying parties.

If there are any questions regarding our investigation, please do not hesitate to contact AEI at (408) 559-7600.

Sincerely,
AEI Consultants

Nina Abdollahian
Staff Geologist

Trent A. Weise, P.E.
Vice President

REGISTERED PROFESSIONAL ENGINEER
TRENT A. WEISE
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Exp. 12/31/19
CIVIL
STATE OF CALIFORNIA

AEI Consultants

FIGURES

Legend: Approximate Property Boundary

Source: USGS Topographic Map *Mountain View, CA* (2015)

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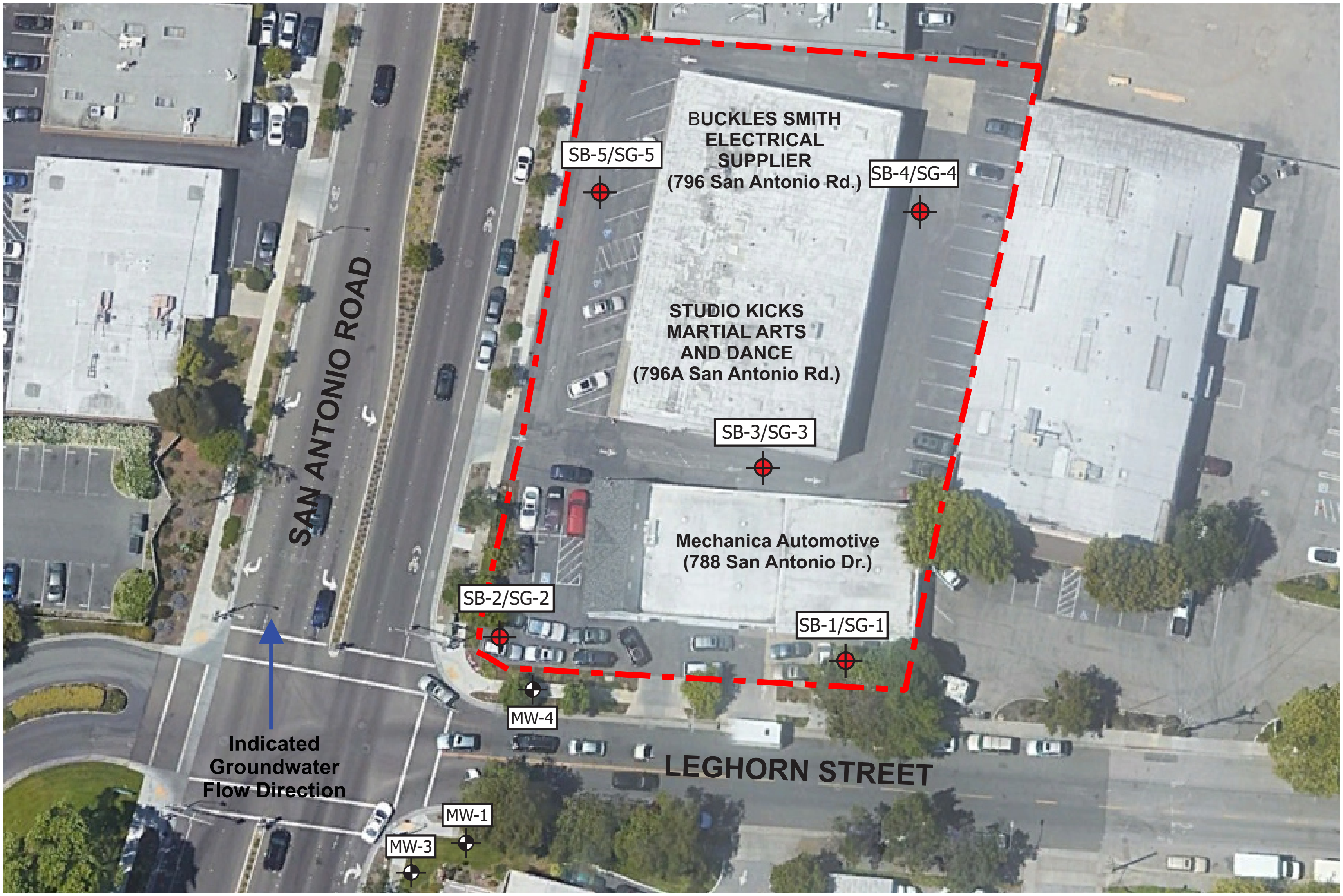
Figure 1: SITE LOCATION MAP

788-796 San Antonio Road Palo Alto, California 94303

Project Number: 353559

AEI Consultants



LEGEND

Approximate Property Boundary

Soil Boring

Former Monitoring Well

0 20 60
APPROXIMATE SCALE: 1″ = 60′

N

AEI Consultants
2500 Camino Diablo, Walnut Creek, California

SITE MAP

788-796 San Antonio Road
Palo Alto, California 94303

FIGURE 2
Project No. 353559

TABLES

TABLE 1: SOIL SAMPLE DATA SUMMARY
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	Depth (feet bgs)	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-mo (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	PCE (mg/kg)	TCE (mg/kg)	cis-1,2-DCE (mg/kg)	trans-1,2-DCE (mg/kg)	Vinyl Chloride (mg/kg)	Asbestos (%)	Remaining VOCs (mg/kg)	Analyzed SVOCs (mg/kg)
SB-4-0.5	2/9/2018	0.5	<1.0	<1.0	15	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<RL	<RL
SB-5-0.5	2/9/2018	0.5	<1.0	1.1	8.4	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND	<RL	<RL
		Comparison Values:															
		RWQCB ESL Residential	740	230	11,000	0.23	970	5.1	560	0.6	1.2	19	160	0.0082	N/A	N/A	N/A
		RWQCB ESL C/I	3,900	1,100	140,000	1	4,600	22	2,400	2.7	8	90	730	0.15	N/A	N/A	N/A
		RWQCB Tier 1	100	230	5,100	0.044	2.9	1.4	2.3	0.42	0.46	0.19	0.67	0.0082	N/A	N/A	N/A

Notes:

mg/kg	milligrams per kilogram
ND	not detected
<RL	less than the laboratory reporting limit
bgs	below ground surface
N/A	not applicable
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
TPH-g	Total Petroleum Hydrocarbons as Gasoline
TPH-d	Total Petroleum Hydrocarbons as Diesel
TPH-mo	Total Petroleum Hydrocarbons as Motor Oil
PCE	Tetrachloroethene
TCE	Trichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
trans-1,2-DCE	cis-1,2-Dichloroethene
Bold	Result exceeds a Comparison Value

Comparison Values:

RWQCB ESL Residential	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels assuming direct exposure human health risk levels for shallow soil exposure under a residential (Residential) land use scenario (RWQCB, February 2016, rev. 3, Table S-1).
RWQCB ESL C/I	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels assuming direct exposure human health risk levels for shallow soil exposure under a commercial/industrial (C/I) land use scenario (RWQCB, February 2016, rev. 3, Table S-1).
RWQCB Tier 1 ESL	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Tier 1 ESL (RWQCB, February 2016, rev. 3, Table S-1).

TABLE 1: SOIL SAMPLE DATA SUMMARY - METALS
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	Depth (feet bgs)	Sb (mg/kg)	As[1] (mg/kg)	Ba (mg/kg)	Be (mg/kg)	Cd (mg/kg)	Cr (mg/kg)	Co (mg/kg)	Cu (mg/kg)	Pb (mg/kg)	Hg (mg/kg)	Mo (mg/kg)	Ni (mg/kg)	Se (mg/kg)	Ag (mg/kg)	Tl (mg/kg)	V (mg/kg)	Zn (mg/kg)
SB-1-0.5	2/9/2018	0.5	--	**2.2**	--	--	--	--	--	--	5.9	--	--	--	--	--	--	--	--
SB-2-0.5	2/9/2018	0.5	--	**2.1**	--	--	--	--	--	--	3.8	--	--	--	--	--	--	--	--
SB-3-0.5	2/9/2018	0.5	--	**0.67**	--	--	--	--	--	--	1.1	--	--	--	--	--	--	--	--
SB-4-0.5	2/9/2018	0.5	<0.50	0.76	22	<0.50	<0.25	74	**26**	83	9.3	0.077	0.5	60	<0.50	<0.50	<0.50	130	88
SB-5-0.5	2/9/2018	0.5	<0.50	0.84	39	<0.50	<0.25	60	**24**	78	2.7	<0.050	0.66	52	<0.50	<0.50	<0.50	130	74
		Comparison Values:																	
		RWQCB ESL Residential	31	0.067	15,000	150	39	N/A	23	3,100	80	13	390	820	390	390	0.78	390	2,300
		RWQCB ESL C/I	470	0.31	220,000	2,200	580	N/A	350	47,000	320	190	5,800	11,000	5,800	5,800	12	5,800	350,000
		RWQCB Tier 1	31	0.067	3,000	42	39	N/A	23	3,100	80	13	390	86	390	390	0.78	390	23,000

Notes:

mg/kg	Milligrams per kilogram
--	Not Analyzed
bgs	Below ground surface
<	not detected above the specified reporting limit
1	Arsenic concentrations from Establishing Background Arsenic in Soil of the San Francisco Bay Region, December 2011 study indicate background levels of arsenic in California Bay Area soil typically range between 1.2 and 22 mg/kg.

Sb	Antimony	As	Arsenic	Ba	Barium
Be	Berrylium	Cd	Cadmium	Cr	Total Chromium
Co	Cobalt	Cu	Copper	Pb	Lead
Hg	Mercury	Mo	Molybdenur	Ni	Nickel
Se	Selenium	Ag	Silver	Tl	Thallium
V	Vanadium	Zn	Zinc		

Bold Exceeds one or more screening level and may be subject to disposal restrictions.

Comparison Values:

RWQCB ESL Residential	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels assuming direct exposure human health risk levels for shallow soil exposure under a residential (Residential) land use scenario (RWQCB, February 2016, rev. 3, Table S-1).
RWQCB ESL C/I	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels assuming direct exposure human health risk levels for shallow soil exposure under a commercial/industrial (C/I) land use scenario (RWQCB, February 2016, rev. 3, Table S-1).
RWQCB Tier 1 ESL	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Tier 1 ESL (RWQCB, February 2016, rev. 3, Table S-1).

TABLE 1: SOIL SAMPLE DATA SUMMARY
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	Depth (feet bgs)	a-Chlordane (mg/kg)	g-Chlordane (mg/kg)	p,p-DDE (mg/kg)	p,p-DDT (mg/kg)	Dieldrin (mg/kg)	PCBs (mg/kg)
SB-1-0.5	2/9/2018	0.5	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	--
SB-2-0.5	2/9/2018	0.5	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	--
SB-3-0.5	2/9/2018	0.5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	--
SB-4-0.5	2/9/2018	0.5	<0.050	<0.050	<0.050	<0.050	<0.050	<2.5
SB-5-0.5	2/9/2018	0.5	<0.0050	<0.0050	0.0069	<0.0050	<0.0050	<0.25
		Comparison Values:						
		RWQCB ESL Residential	0.48		2	2.7	0.038	0.25
		RWQCB ESL C/I	2.2		9	12	0.17	1
		RWQCB Tier 1	0.48		1.9	1.9	0.00017	0.25

Notes:

mg/kg	milligrams per kilogram
--	not analyzed
<RL	less than the laboratory reporting limit
bgs	below ground surface
N/A	not applicable
PCBs	Polychlorinated Biphenyls
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
Bold	Result exceeds a regulatory screening level
---	No established regulatory screening level

Comparison Values:

RWQCB ESL Residential	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels assuming direct exposure human health risk levels for shallow soil exposure under a residential (Residential) land use scenario (RWQCB, February 2016, rev. 3, Table S-1).
RWQCB ESL C/I	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels assuming direct exposure human health risk levels for shallow soil exposure under a commercial/industrial (C/I) land use scenario (RWQCB, February 2016, rev. 3, Table S-1).
RWQCB Tier 1 ESL	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels Tier 1 ESL (RWQCB, February 2016, rev. 3, Table S-1).

TABLE 2: GROUNDWATER SAMPLE DATA SUMMARY
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	TPH-g (µg/L)	TPH-d (µg/L)	TPH-mo (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	PCE (µg/L)	TCE (µg/L)	cis-1,2-DCE (µg/L)
SB-1-W	2/9/2018	**1,000**	**5,000**	350	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1.9
SB-2-W	2/9/2018	**1,800**	**750**	760	<5.0	39	**20**	<5.0	<5.0	**34**	<5.0
SB-3-W	2/9/2018	<50	**400**	4,400	<0.50	<0.50	<0.50	<0.50	<0.50	0.67	<0.50
SB-4-W	2/9/2018	<50	**140**	4,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
SB-5-W	2/9/2018	<50	<50	<250	<0.50	<0.50	<0.50	<0.50	<0.50	2.9	0.98
	Comparison Values: GW Tier 1 ESL	100	100	50,000	1.0	400	13	20	3.0	5.0	6.0

Notes:

µg/L	micrograms per liter
<RL	less than the laboratory reporting limit
NA	not analyzed
bgs	below ground surface
--	not applicable
TPH-g	Total Petroleum Hydrocarbons as Gasoline
TPH-d	Total Petroleum Hydrocarbons as Diesel
TPH-mo	Total Petroleum Hydrocarbons as Motor Oil
PCE	Tetrachloroethene
TCE	Trichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
trans-1,2-DCE	cis-1,2-Dichloroethene
Bold	Result exceeds a Comparison Value

Comparison Values:

GW Tier 1 ESL	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for groundwater (GW) Tier 1 ESLs (RWQCB, February 2016, rev. 3, Table S-1).

TABLE 2: GROUNDWATER SAMPLE DATA SUMMARY
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	trans-1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	Acetone (µg/L)	2-Butanone (µg/L)	n-Butyl Benzene (µg/L)	Methyl-t-butyl ether (µg/L)	Isopropylbenzene (µg/L)	Naphthalene (µg/L)	n-Propyl benzene (µg/L)	1,2,4-Trimethyl benzene (µg/L)	Remaining VOCs (µg/L)
SB-1-W	2/9/2018	<0.50	<0.50	<10	<2.0	<0.50	3.5	<0.50	<0.50	<0.50	<0.50	<RL
SB-2-W	2/9/2018	<5.0	<5.0	<100	<20	14	<5.0	24	**35**	55	31	<RL
SB-3-W	2/9/2018	<0.50	<0.50	<10	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<RL
SB-4-W	2/9/2018	<0.50	<0.50	11	3.2	<0.50	1.3	<0.50	<0.50	<0.50	<0.50	<RL
SB-5-W	2/9/2018	<0.50	<0.50	<10	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<RL
	Comparison Values: GW Tier 1 ESL	10	0.061	1,500	N/A	N/A	5.0	N/A	0.17	N/A	N/A	N/A

Notes:

µg/L	micrograms per liter
<RL	less than the laboratory reporting limit
NA	not analyzed
bgs	below ground surface
--	not applicable
TPH-g	Total Petroleum Hydrocarbons as Gasoline
TPH-d	Total Petroleum Hydrocarbons as Diesel
TPH-mo	Total Petroleum Hydrocarbons as Motor Oil
PCE	Tetrachloroethene
TCE	Trichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
trans-1,2-DCE	cis-1,2-Dichloroethene
Bold	Result exceeds a Comparison Value

Comparison Values:

GW Tier 1 ESL San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for groundwater (GW) Tier 1 ESLs (RWQCB, February 2016, rev. 3, Table S-1).

TABLE 3: SOIL GAS SAMPLE DATA SUMMARY
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	Depth (feet bgs)	Benzene ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Ethylbenzene ($\mu g/m^3$)	Total Xylenes ($\mu g/m^3$)	PCE ($\mu g/m^3$)	TCE ($\mu g/m^3$)	cis-1,2-DCE ($\mu g/m^3$)	trans-1,2-DCE ($\mu g/m^3$)	Vinyl Chloride ($\mu g/m^3$)	Acetone ($\mu g/m^3$)	1,3-Butadiene ($\mu g/m^3$)	Carbon disulfide ($\mu g/m^3$)
SG-1	2/12/2018	5	13.4	41.7	21.8	96.6	<2.72	<2.14	<1.59	<1.59	<1.02	23.8	<8.85	4.72
SG-2	2/9/2018	5	25.3	29.9	5.16	23.2	<2.72	<2.14	<1.59	<1.59	<1.02	97.4	15.2	15.7
SG-3	2/9/2018	5	**56.2**	16.8	10.0	35.9	<10.9	<8.57	<6.34	<6.34	<4.09	75.1	<35.4	11.3
SG-4	2/9/2018	5	<1,280	<1,510	<1,730	<5,200	<2,720	<2,140	<1,590	<1,590	<1,020	<5,940	<8,850	<1,240
SG-5	2/9/2018	5	19.7	21.8	<6.94	<20.84	<10.9	<8.57	<6.34	<6.34	<4.09	38.8	<35.4	43.9
		Comparison Values:												
		RWQCB ESL_{VI} Residential:	48	160,000	560	52,000	240	240	4,200	42,000	4.7	16,000,000	N/A	N/A
		RWQCB ESL_{VI}(C/I):	420	1,300,000	4,900	440,000	2,100	3,000	35,000	350,000	160	140,000,000	N/A	N/A
		Residential RSLs:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	94	730,000

Notes:

$\mu g/m^3$	micrograms per cubic meter
<RL	less than the laboratory reporting limit
bgs	below ground surface
N/A	not applicable
PCE	Tetrachloroethene
TCE	Trichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
trans-1,2-DCE	trans-1,2-Dichloroethene
Bold	Result exceeds a Comparison Value

Comparison Values:

RWQCB ESL_{VI} Residential: San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for subslab/soil gas vapor intrusion human health risk levels under a residential (Residential) land use scenario (RWQCB, February 2016, rev. 3, Table SG-1)

RWQCB ESL_{VI}(C/I): San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for subslab/soil gas intrusion human health risk levels under a commercial/industrial use scenario (RWQCB, February 2016, rev. 3, Table SG-1)

Residential RSLs: Regional Screening Levels (RSL); Residential Ambient Air Table (TR=1E-06, HQ=1), November 2017. An attenuation factor of 0.001 has been applied to the indoor air screening value per the DTSC 2011 Vapor Intrusion Guidance (Table 2: Future Residential Building)

TABLE 3: SOIL GAS SAMPLE DATA SUMMARY
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	Depth (feet bgs)	Chloroethane (µg/m³)	Chloroform (µg/m³)	Cyclohexane (µg/m³)	Ethanol (µg/m³)	4-Ethyltoluene (µg/m³)	Dichlorodifluoro-methane (µg/m³)	Heptane (µg/m³)	n-Hexane (µg/m³)	Methylene Chloride (µg/m³)	2-Butanone (µg/m³)	4-Methyl-2-pentanone (µg/m³)
SG-1	2/12/2018	5	<1.06	20.4	19.5	15.4	28.4	34.2	5.92	15.0	1.59 B	<7.37	<10.2
SG-2	2/9/2018	5	<1.06	<1.95	102	9.95	5.42	<1.98	195	84.7	<1.39	38.3	14.4
SG-3	2/9/2018	5	66.9	<7.79	453	81.4	<7.85	<7.91	115	161	<5.56	<29.5	<40.9
SG-4	2/9/2018	5	<1,060	<1,950	168,000	<2,380	<1,960	<1,980	198,000	643,000	<1,390	<7,370	<10,200
SG-5	2/9/2018	5	<4.22	<7.79	81.3	15.3	<7.85	<7.91	169	322	<5.56	<29.5	<40.9
		Comparison Values:											
		RWQCB ESL_{VI} Residential:	5,200,000	61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,600,000	N/A
		RWQCB ESL_{VI}(C/I):	44,000,000	530	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22,000,000	N/A
		Residential RSLs:	N/A	N/A	1,000,000	N/A	N/A	100,000	420,000	730,000	N/A	N/A	3,100,000

Notes:

µg/m³	micrograms per cubic meter
<RL	less than the laboratory reporting limit
bgs	below ground surface
N/A	not applicable
PCE	Tetrachloroethene
TCE	Trichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
trans-1,2-DCE	trans-1,2-Dichloroethene
Bold	Result exceeds a Comparison Value

Comparison Values:

RWQCB ESL_{VI} Residential: San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for subslab/soil gas vapor intrusion human health risk levels under a residential (Residential) land use scenario (RWQCB, February 2016, rev. 3, Table SG-1)

RWQCB ESL_{VI}(C/I): San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for subslab/soil gas vapor intrusion human health risk levels under a commercial/industrial use scenario (RWQCB, February 2016, rev. 3, Table SG-1)

Residential RSLs: Regional Screening Levels (RSL); Residential Ambient Air Table (TR=1E-06, HQ=1), November 2017. An attenuation factor of 0.001 has been applied to the indoor air screening value per the DTSC 2011 Vapor Intrusion Guidance (Table 2: Future Residential Building)

TABLE 3: SOIL GAS SAMPLE DATA SUMMARY
788-796 San Antonio Road Palo Alto, California 94303

Location ID	Date	Depth (feet bgs)	MTBE ($\mu g/m^3$)	2-Propanol ($\mu g/m^3$)	Propene ($\mu g/m^3$)	Styrene ($\mu g/m^3$)	1,2,4-Trimethylbenzene ($\mu g/m^3$)	1,3,5-Trimethylbenzene ($\mu g/m^3$)	2,2,4-Trimethylpentane ($\mu g/m^3$)	Remaining VOCs ($\mu g/m^3$)	Oxygen (%)	Carbon Dioxide (%)	Helium (Leak Check) (%)
SG-1	2/12/2018	5	<1.44	<6.15	3.8	<1.70	22.6	14.2	<1.87	<RL	17.7	<0.500	<1.00
SG-2	2/9/2018	5	<1.44	<6.15	44.3	2.45	6.36	2.73	299	<RL	15.9	1.46	<1.00
SG-3	2/9/2018	5	13.6	28.1	251	<6.81	<7.85	<7.85	1,470	<RL	17.8	<0.500	<1.00
SG-4	2/9/2018	5	<1,440	<6,150	<1,380	<1,700	<1,960	<1,960	1,160,000	<RL	12.2 B	4.26	<1.00
SG-5	2/9/2018	5	<5.77	<24.6	1,910	<6.81	8.29	<7.85	213	<RL	17.5	<0.500	<1.00
		Comparison Values:											
		RWQCB ESL_{VI} Residential:	5,400	N/A	N/A	470,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		RWQCB ESL_{VI}(C/I):	47,000	N/A	N/A	3,900,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Residential RSLs:	N/A	N/A	N/A	N/A	63,000	63,000	N/A	N/A	N/A	N/A	N/A

Notes:

$\mu g/m^3$	micrograms per cubic meter
<RL	less than the laboratory reporting limit
bgs	below ground surface
N/A	not applicable
PCE	Tetrachloroethene
TCE	Trichloroethene
cis-1,2-DCE	cis-1,2-Dichloroethene
trans-1,2-DCE	trans-1,2-Dichloroethene
Bold	Result exceeds a Comparison Value

Comparison Values:

RWQCB ESL_{VI} Residential:	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for subslab/soil gas vapor intrusion human health risk levels under a residential (Residential) land use scenario (RWQCB, February 2016, rev. 3, Table SG-1)
RWQCB ESL_{VI}(C/I):	San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels for subslab/soil gas vapor intrusion human health risk levels under a commercial/industrial use scenario (RWQCB, February 2016, rev. 3, Table SG-1)
Residential RSLs:	Regional Screening Levels (RSL); Residential Ambient Air Table (TR=1E-06, HQ=1), November 2017. An attenuation factor of 0.001 has been applied to the indoor air screening value per the DTSC 2011 Vapor Intrusion Guidance (Table 2: Future Residential Building)

APPENDIX A

BORING LOGS

AEI Consultants
3880 South Bascom Avenue, Suite 109
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Telephone: 408-559-7600

BORING NUMBER SB-1

CLIENT Emerald Buy Homes
PROJECT NAME Emerald Buy Homes
PROJECT NUMBER 383559
PROJECT LOCATION Palo Alto, California
DATE STARTED 2/9/18 **COMPLETED** 2/9/18
GROUND ELEVATION **HOLE SIZE** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING 10.00 ft
LOGGED BY NA **CHECKED BY** T. Weise
AT END OF DRILLING 8.00 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0				0.4	ASPHALT	
	SB-1-0.5		0.0		SILTY CLAY (CL) black (2.5Y 2.5/1), very stiff, dry, low plasticity, no odor	
	SB-1-3.5		0.0			
5				5.0	CLAYEY SILT (ML) very dark gray (2.5Y 3/1), stiff, dry, low plasticity, no odor	
			0.2	6.0	SILTY CLAY (CL) very dark gray (2.5Y 3/1), stiff, dry, low plasticity, no odor	
	SB-1-8.5		0.2	8.0	color change at 7 feet bgs, very dark grayish brown (2.5Y 3/2)	
	SB-1-W SB-1A-W			9.0	SILTY CLAY (CL) black (2.5Y 2.5/1), very stiff, dry, low plasticity, no odor at 8.5 to 9 feet bgs, lense of sand and gravel	
10			110.4	10.0	SILTY CLAY (CL) trace medium sand, light olive brown (2.5Y 5/3), soft, moist, low plasticity, grayish green mottling, no odor	
	SB-1-11.5		0.6	12.0	SILTY CLAY (CL), some sand, dark greenish gray (GLEY1 4/10GY), soft, moist, medium plasticity, strong odor wet at 10 feet bgs	

Bottom of borehole at 12.0 feet.

AEI Consultants
Environmental & Engineering Services

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BORING NUMBER SB-2

CLIENT Emerald Buy Homes
PROJECT NAME Emerald Buy Homes
PROJECT NUMBER 383559
PROJECT LOCATION Palo Alto, California
DATE STARTED 2/9/18 **COMPLETED** 2/9/18
GROUND ELEVATION **HOLE SIZE** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
▽ **AT TIME OF DRILLING** 10.00 ft
LOGGED BY NA **CHECKED BY** T. Weise
▼ **AT END OF DRILLING** 6.00 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0	SB-2-0.5		0.1		SILTY CLAY (CL) black (2.5Y 5/1), very stiff, dry, low plasticity, no odor	
	SB-2-3.5		0.2	4.0	CLAY (CL) trace sand, some silt, dark gray (2.5Y 4/1), stiff, dry, medium plasticity, no odor	
5	SB-2-W		0.0		▼ color change at 8 feet bgs, light brownish gray (2.5Y 6/2)	
	SB-2-7.5		0.0			
10			411.5	9.0	SANDY SILT (ML) some medium gravel, dark greenish gray (GLEY1 4/10GY), soft, moist, fine sand, strong odor ▽	
	SB-2-11.5		3.0	12.0	wet at 10 feet bgs	

Bottom of borehole at 12.0 feet.

AEI Consultants
Environmental & Engineering Services

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BORING NUMBER SB-3

CLIENT Emerald Buy Homes
PROJECT NAME Emerald Buy Homes
PROJECT NUMBER 383559
PROJECT LOCATION Palo Alto, California
DATE STARTED 2/9/18 **COMPLETED** 2/9/18
GROUND ELEVATION **HOLE SIZE** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY NA **CHECKED BY** T. Weise
AT END OF DRILLING 15.00 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0	SB-3-0.5				CLAY (CL) very dark gray (2.5Y 3/1), stiff, dry, medium plasticity, no odor	
			8.2		color change at 2 feet bgs, black (2.5Y 2.5/1)	
	SB-3-3.5			4.0		
5			18.6		SILT (ML) dark gray (2.5Y 4/1), stiff, dry, low plasticity, no odor	
			6.0			
	SB-3-7.5			8.0		
			36.9		SILTY CLAY (CL) gray (5Y 5/1), very stiff, dry, medium plasticity, no odor	
				9.0	SILTY CLAY (CL) trace fine gravel, grayish green (10Y GY5/2), stiff, dry, low plasticity, moderate odor	
10			356.6		moist at 10 feet bgs	
	SB-3-11.5			12.0		
			1.7		CLAY (CL) dark gray (2.5Y 4/1), medium stiff, dry, medium plasticity, moderate odor	
				13.0	SILTY CLAY (CL) dark greenish gray (GLEY 1 4/5GY), medium stiff, dry, medium plasticity, moderate odor	
			0.8	14.0	SILTY CLAY (CL) trace sand, olive (5Y 4/4), medium stiff, moist, medium plasticity, no odor	
15	SB-3-W				color change at 15 feet bgs, olive (5Y 5/6)	
	SB-3-15.5		0.2	16.0		

Bottom of borehole at 16.0 feet.

AEI Consultants
Environmental & Engineering Services
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Telephone: 408-559-7600

BORING NUMBER SB-4

CLIENT Emerald Buy Homes
PROJECT NAME Emerald Buy Homes
PROJECT NUMBER 383559
PROJECT LOCATION Palo Alto, California
DATE STARTED 2/9/18 **COMPLETED** 2/9/18
GROUND ELEVATION **HOLE SIZE** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY NA **CHECKED BY** T. Weise
AT END OF DRILLING 15.50 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0	SB-4-0.5		61.8		SILTY CLAY (CL) black (2.5Y 2.5/1), very stiff, dry, low plasticity, no odor	
	SB-4-3.5		1.0	4.0	SILTY (ML) dark gray (2.5Y 4/1), very stiff, dry, low plasticity, no odor	
5			4.4			
	SB-4-7.5		21.8	8.0	SILTY CLAY (CL) gray (2.5Y 5/1), very stiff, dry, low plasticity, moderate odor	
10			36.5	10.0	SILTY CLAY (CL) trace fine gravel, dark greenish gray (GLEY 1 4/10GY), very stiff, dry, low plasticity, moderate odor	
	SB-4-11.5		16.5	12.0	CLAY (CL) gray (2.5Y 5/1), very stiff, dry, medium plasticity, no odor	
15			5.5	14.0	CLAY (CL) light olive brown (2.5Y 5/4), stiff, moist, medium plasticity, no odor	
	SB-4-W SB-4-15.5		0.8	16.0		

Bottom of borehole at 16.0 feet.

BORING NUMBER SB-5

AEI Consultants
Environmental & Engineering Services

AEI Consultants
3880 South Bascom Avenue, Suite 109
San Jose, California 95124
Telephone: 408-559-7600

CLIENT Emerald Buy Homes
PROJECT NAME Emerald Buy Homes
PROJECT NUMBER 383559
PROJECT LOCATION Palo Alto, California
DATE STARTED 2/9/18 **COMPLETED** 2/9/18
GROUND ELEVATION **HOLE SIZE** 2.25 inches
DRILLING CONTRACTOR Environmental Control Associates, Inc.
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY NA **CHECKED BY** T. Weise
▼ **AT END OF DRILLING** 14.60 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS	PID DATA (ppm)	GRAPHIC LOG	MATERIAL DESCRIPTION	COMPLETION
0	SB-5-0.5				SILTY CLAY (CL) black (2.5Y 2/5/1), very stiff, dry, low plasticity, no odor	
			0.1			
	SB-5-3.5			4.0		
5			0.0		CLAYEY SILT (ML) dark gray (2.5Y 4/1), stiff, dry, low plasticity, no odor	
			0.0	6.5	CLAY (CL) dark gray (2.5Y 4/1), stiff, dry, low plasticity, no odor	
	SB-5-7.5			8.0	CLAY (CL) trace gravel, grayish brown (2.5Y 5/2), stiff, dry, medium plasticity, no odor	
			0.0	9.0	SILTY CLAY (CL) trace gravel, grayish brown (2.5Y 5/2), stiff, dry, low plasticity, brown mottling, no odor	
10			0.0			
	SB-5-11.5		0.0	12.0	CLAY (CL) light olive brown (2.5Y 5/3), medium stiff, moist, medium plasticity, brown mottling, no odor	
			0.0	14.0	SILTY CLAY (CL) trace gravel, olive (5Y 4/4), very stiff, dry, low plasticity, no odor	
15	SB-5-W SB-5-14.5		0.0	15.0 ▼		

Bottom of borehole at 15.0 feet.

APPENDIX B

LABORATORY ANALYTICAL DATA

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1802498

Report Created for: AEI Consultants

3880 S. Bascom Ave, Suite 109
San Jose, CA 95124

Project Contact: Nina Abdollahian
Project P.O.: 152768
Project: 383559; Emerald Buy Homes; Palo Alto

Project Received: 02/09/2018

Analytical Report reviewed & approved for release on 02/16/2018 by:

Angela Rydelius
Laboratory Manager

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Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes; Palo Alto
WorkOrder: 1802498

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

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Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes; Palo Alto
WorkOrder: 1802498

Analytical Qualifiers

S	Surrogate spike recovery outside accepted recovery limits
b1	Aqueous sample that contains greater than ~1 vol. % sediment
c4	Surrogate recovery outside of the control limits due to coelution with another peak(s) / cluttered chromatogram.
d1	Weakly modified or unmodified gasoline is significant
d9	No recognizable pattern
d17	Reporting limit for MTBE raised due to co-elution with non-target peaks.
e2	Diesel range compounds are significant; no recognizable pattern
e4/e8	Gasoline range compounds are significant.; and/or Pattern resembles kerosene/kerosene range/jet fuel range
e4/e2/e8	Gasoline range compounds are significant.; and/or Diesel range compounds are significant; no recognizable pattern; and/or Pattern resembles kerosene/kerosene range/jet fuel range
e7	Oil range compounds are significant

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F3	The surrogate standard recovery and/or RPD is outside of acceptance limits.
F10	MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix.

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/12/18	**Analytical Method:**	SW8081A
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-1-0.5	**1802498-001A**	**Soil**	**02/09/2018 08:40**	**GC41 02121829.d**	**153086**

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	02/12/2018 22:31
a-BHC	ND	0.0010	1	02/12/2018 22:31
b-BHC	ND	0.0010	1	02/12/2018 22:31
d-BHC	ND	0.0010	1	02/12/2018 22:31
g-BHC	ND	0.0010	1	02/12/2018 22:31
Chlordane (Technical)	ND	0.025	1	02/12/2018 22:31
a-Chlordane	ND	0.0010	1	02/12/2018 22:31
g-Chlordane	ND	0.0010	1	02/12/2018 22:31
p,p-DDD	ND	0.0010	1	02/12/2018 22:31
p,p-DDE	ND	0.0010	1	02/12/2018 22:31
p,p-DDT	ND	0.0010	1	02/12/2018 22:31
Dieldrin	ND	0.0010	1	02/12/2018 22:31
Endosulfan I	ND	0.0010	1	02/12/2018 22:31
Endosulfan II	ND	0.0010	1	02/12/2018 22:31
Endosulfan sulfate	ND	0.0010	1	02/12/2018 22:31
Endrin	ND	0.0010	1	02/12/2018 22:31
Endrin aldehyde	ND	0.0010	1	02/12/2018 22:31
Endrin ketone	ND	0.0010	1	02/12/2018 22:31
Heptachlor	ND	0.0010	1	02/12/2018 22:31
Heptachlor epoxide	ND	0.0010	1	02/12/2018 22:31
Hexachlorobenzene	ND	0.010	1	02/12/2018 22:31
Hexachlorocyclopentadiene	ND	0.020	1	02/12/2018 22:31
Methoxychlor	ND	0.0010	1	02/12/2018 22:31
Toxaphene	ND	0.050	1	02/12/2018 22:31

Surrogates	REC (%)	Limits	
Decachlorobiphenyl	113	70-130	02/12/2018 22:31

Analyst(s): LT

(Cont.)

NELAP 4033ORELAP

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/12/18	**Analytical Method:**	SW8081A
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-2-0.5	**1802498-006A**	**Soil**	**02/09/2018 09:45**	**GC41 02121843.d**	**153086**

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0010	1	02/13/2018 02:03
a-BHC	ND	0.0010	1	02/13/2018 02:03
b-BHC	ND	0.0010	1	02/13/2018 02:03
d-BHC	ND	0.0010	1	02/13/2018 02:03
g-BHC	ND	0.0010	1	02/13/2018 02:03
Chlordane (Technical)	ND	0.025	1	02/13/2018 02:03
a-Chlordane	ND	0.0010	1	02/13/2018 02:03
g-Chlordane	ND	0.0010	1	02/13/2018 02:03
p,p-DDD	ND	0.0010	1	02/13/2018 02:03
p,p-DDE	ND	0.0010	1	02/13/2018 02:03
p,p-DDT	ND	0.0010	1	02/13/2018 02:03
Dieldrin	ND	0.0010	1	02/13/2018 02:03
Endosulfan I	ND	0.0010	1	02/13/2018 02:03
Endosulfan II	ND	0.0010	1	02/13/2018 02:03
Endosulfan sulfate	ND	0.0010	1	02/13/2018 02:03
Endrin	ND	0.0010	1	02/13/2018 02:03
Endrin aldehyde	ND	0.0010	1	02/13/2018 02:03
Endrin ketone	ND	0.0010	1	02/13/2018 02:03
Heptachlor	ND	0.0010	1	02/13/2018 02:03
Heptachlor epoxide	ND	0.0010	1	02/13/2018 02:03
Hexachlorobenzene	ND	0.010	1	02/13/2018 02:03
Hexachlorocyclopentadiene	ND	0.020	1	02/13/2018 02:03
Methoxychlor	ND	0.0010	1	02/13/2018 02:03
Toxaphene	ND	0.050	1	02/13/2018 02:03

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	116	70-130		02/13/2018 02:03

Analyst(s): LT

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-1-W	**1802498-005B**	**Water**	**02/09/2018 08:50**	**GC16 02141824.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/14/2018 22:53
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/14/2018 22:53
Benzene	ND	0.50	1	02/14/2018 22:53
Bromobenzene	ND	0.50	1	02/14/2018 22:53
Bromochloromethane	ND	0.50	1	02/14/2018 22:53
Bromodichloromethane	ND	0.50	1	02/14/2018 22:53
Bromoform	ND	0.50	1	02/14/2018 22:53
Bromomethane	ND	0.50	1	02/14/2018 22:53
2-Butanone (MEK)	ND	2.0	1	02/14/2018 22:53
t-Butyl alcohol (TBA)	ND	2.0	1	02/14/2018 22:53
n-Butyl benzene	ND	0.50	1	02/14/2018 22:53
sec-Butyl benzene	ND	0.50	1	02/14/2018 22:53
tert-Butyl benzene	ND	0.50	1	02/14/2018 22:53
Carbon Disulfide	ND	0.50	1	02/14/2018 22:53
Carbon Tetrachloride	ND	0.50	1	02/14/2018 22:53
Chlorobenzene	ND	0.50	1	02/14/2018 22:53
Chloroethane	ND	0.50	1	02/14/2018 22:53
Chloroform	ND	0.50	1	02/14/2018 22:53
Chloromethane	ND	0.50	1	02/14/2018 22:53
2-Chlorotoluene	ND	0.50	1	02/14/2018 22:53
4-Chlorotoluene	ND	0.50	1	02/14/2018 22:53
Dibromochloromethane	ND	0.50	1	02/14/2018 22:53
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/14/2018 22:53
1,2-Dibromoethane (EDB)	ND	0.50	1	02/14/2018 22:53
Dibromomethane	ND	0.50	1	02/14/2018 22:53
1,2-Dichlorobenzene	ND	0.50	1	02/14/2018 22:53
1,3-Dichlorobenzene	ND	0.50	1	02/14/2018 22:53
1,4-Dichlorobenzene	ND	0.50	1	02/14/2018 22:53
Dichlorodifluoromethane	ND	0.50	1	02/14/2018 22:53
1,1-Dichloroethane	ND	0.50	1	02/14/2018 22:53
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/14/2018 22:53
1,1-Dichloroethene	ND	0.50	1	02/14/2018 22:53
cis-1,2-Dichloroethene	**1.9**	0.50	1	02/14/2018 22:53
trans-1,2-Dichloroethene	ND	0.50	1	02/14/2018 22:53
1,2-Dichloropropane	ND	0.50	1	02/14/2018 22:53
1,3-Dichloropropane	ND	0.50	1	02/14/2018 22:53
2,2-Dichloropropane	ND	0.50	1	02/14/2018 22:53

(Cont.)

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-1-W	**1802498-005B**	**Water**	**02/09/2018 08:50**	**GC16 02141824.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	02/14/2018 22:53
cis-1,3-Dichloropropene	ND	0.50	1	02/14/2018 22:53
trans-1,3-Dichloropropene	ND	0.50	1	02/14/2018 22:53
Diisopropyl ether (DIPE)	ND	0.50	1	02/14/2018 22:53
Ethylbenzene	ND	0.50	1	02/14/2018 22:53
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/14/2018 22:53
Freon 113	ND	0.50	1	02/14/2018 22:53
Hexachlorobutadiene	ND	0.50	1	02/14/2018 22:53
Hexachloroethane	ND	0.50	1	02/14/2018 22:53
2-Hexanone	ND	0.50	1	02/14/2018 22:53
Isopropylbenzene	ND	0.50	1	02/14/2018 22:53
4-Isopropyl toluene	ND	0.50	1	02/14/2018 22:53
Methyl-t-butyl ether (MTBE)	**3.5**	0.50	1	02/14/2018 22:53
Methylene chloride	ND	0.50	1	02/14/2018 22:53
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/14/2018 22:53
Naphthalene	ND	0.50	1	02/14/2018 22:53
n-Propyl benzene	ND	0.50	1	02/14/2018 22:53
Styrene	ND	0.50	1	02/14/2018 22:53
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/14/2018 22:53
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/14/2018 22:53
Tetrachloroethene	ND	0.50	1	02/14/2018 22:53
Toluene	ND	0.50	1	02/14/2018 22:53
1,2,3-Trichlorobenzene	ND	0.50	1	02/14/2018 22:53
1,2,4-Trichlorobenzene	ND	0.50	1	02/14/2018 22:53
1,1,1-Trichloroethane	ND	0.50	1	02/14/2018 22:53
1,1,2-Trichloroethane	ND	0.50	1	02/14/2018 22:53
Trichloroethene	ND	0.50	1	02/14/2018 22:53
Trichlorofluoromethane	ND	0.50	1	02/14/2018 22:53
1,2,3-Trichloropropane	ND	0.50	1	02/14/2018 22:53
1,2,4-Trimethylbenzene	ND	0.50	1	02/14/2018 22:53
1,3,5-Trimethylbenzene	ND	0.50	1	02/14/2018 22:53
Vinyl Chloride	ND	0.50	1	02/14/2018 22:53
Xylenes, Total	ND	0.50	1	02/14/2018 22:53

(Cont.)

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-1-W	**1802498-005B**	**Water**	**02/09/2018 08:50**	**GC16 02141824.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	102	78-134		02/14/2018 22:53
Toluene-d8	108	82-120		02/14/2018 22:53
4-BFB	82	69-131		02/14/2018 22:53

Analyst(s): AK

Analytical Comments: b1

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-2-W	1802498-010B	Water	02/09/2018 09:55	GC16 02141825.D	153256

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	100	10	02/14/2018 23:32
tert-Amyl methyl ether (TAME)	ND	5.0	10	02/14/2018 23:32
Benzene	ND	5.0	10	02/14/2018 23:32
Bromobenzene	ND	5.0	10	02/14/2018 23:32
Bromochloromethane	ND	5.0	10	02/14/2018 23:32
Bromodichloromethane	ND	5.0	10	02/14/2018 23:32
Bromoform	ND	5.0	10	02/14/2018 23:32
Bromomethane	ND	5.0	10	02/14/2018 23:32
2-Butanone (MEK)	ND	20	10	02/14/2018 23:32
t-Butyl alcohol (TBA)	ND	20	10	02/14/2018 23:32
n-Butyl benzene	**14**	5.0	10	02/14/2018 23:32
sec-Butyl benzene	ND	5.0	10	02/14/2018 23:32
tert-Butyl benzene	ND	5.0	10	02/14/2018 23:32
Carbon Disulfide	ND	5.0	10	02/14/2018 23:32
Carbon Tetrachloride	ND	5.0	10	02/14/2018 23:32
Chlorobenzene	ND	5.0	10	02/14/2018 23:32
Chloroethane	ND	5.0	10	02/14/2018 23:32
Chloroform	ND	5.0	10	02/14/2018 23:32
Chloromethane	ND	5.0	10	02/14/2018 23:32
2-Chlorotoluene	ND	5.0	10	02/14/2018 23:32
4-Chlorotoluene	ND	5.0	10	02/14/2018 23:32
Dibromochloromethane	ND	5.0	10	02/14/2018 23:32
1,2-Dibromo-3-chloropropane	ND	2.0	10	02/14/2018 23:32
1,2-Dibromoethane (EDB)	ND	5.0	10	02/14/2018 23:32
Dibromomethane	ND	5.0	10	02/14/2018 23:32
1,2-Dichlorobenzene	ND	5.0	10	02/14/2018 23:32
1,3-Dichlorobenzene	ND	5.0	10	02/14/2018 23:32
1,4-Dichlorobenzene	ND	5.0	10	02/14/2018 23:32
Dichlorodifluoromethane	ND	5.0	10	02/14/2018 23:32
1,1-Dichloroethane	ND	5.0	10	02/14/2018 23:32
1,2-Dichloroethane (1,2-DCA)	ND	5.0	10	02/14/2018 23:32
1,1-Dichloroethene	ND	5.0	10	02/14/2018 23:32
cis-1,2-Dichloroethene	ND	5.0	10	02/14/2018 23:32
trans-1,2-Dichloroethene	ND	5.0	10	02/14/2018 23:32
1,2-Dichloropropane	ND	5.0	10	02/14/2018 23:32
1,3-Dichloropropane	ND	5.0	10	02/14/2018 23:32
2,2-Dichloropropane	ND	5.0	10	02/14/2018 23:32

(Cont.)

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-2-W	**1802498-010B**	**Water**	**02/09/2018 09:55**	**GC16 02141825.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	5.0	10	02/14/2018 23:32
cis-1,3-Dichloropropene	ND	5.0	10	02/14/2018 23:32
trans-1,3-Dichloropropene	ND	5.0	10	02/14/2018 23:32
Diisopropyl ether (DIPE)	ND	5.0	10	02/14/2018 23:32
Ethylbenzene	**20**	5.0	10	02/14/2018 23:32
Ethyl tert-butyl ether (ETBE)	ND	5.0	10	02/14/2018 23:32
Freon 113	ND	5.0	10	02/14/2018 23:32
Hexachlorobutadiene	ND	5.0	10	02/14/2018 23:32
Hexachloroethane	ND	5.0	10	02/14/2018 23:32
2-Hexanone	ND	5.0	10	02/14/2018 23:32
Isopropylbenzene	**24**	5.0	10	02/14/2018 23:32
4-Isopropyl toluene	ND	5.0	10	02/14/2018 23:32
Methyl-t-butyl ether (MTBE)	ND	5.0	10	02/14/2018 23:32
Methylene chloride	ND	5.0	10	02/14/2018 23:32
4-Methyl-2-pentanone (MIBK)	ND	5.0	10	02/14/2018 23:32
Naphthalene	**35**	5.0	10	02/14/2018 23:32
n-Propyl benzene	**55**	5.0	10	02/14/2018 23:32
Styrene	ND	5.0	10	02/14/2018 23:32
1,1,1,2-Tetrachloroethane	ND	5.0	10	02/14/2018 23:32
1,1,2,2-Tetrachloroethane	ND	5.0	10	02/14/2018 23:32
Tetrachloroethene	ND	5.0	10	02/14/2018 23:32
Toluene	**39**	5.0	10	02/14/2018 23:32
1,2,3-Trichlorobenzene	ND	5.0	10	02/14/2018 23:32
1,2,4-Trichlorobenzene	ND	5.0	10	02/14/2018 23:32
1,1,1-Trichloroethane	ND	5.0	10	02/14/2018 23:32
1,1,2-Trichloroethane	ND	5.0	10	02/14/2018 23:32
Trichloroethene	**34**	5.0	10	02/14/2018 23:32
Trichlorofluoromethane	ND	5.0	10	02/14/2018 23:32
1,2,3-Trichloropropane	ND	5.0	10	02/14/2018 23:32
1,2,4-Trimethylbenzene	**31**	5.0	10	02/14/2018 23:32
1,3,5-Trimethylbenzene	ND	5.0	10	02/14/2018 23:32
Vinyl Chloride	ND	5.0	10	02/14/2018 23:32
Xylenes, Total	ND	5.0	10	02/14/2018 23:32

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-2-W	**1802498-010B**	**Water**	**02/09/2018 09:55**	**GC16 02141825.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	100	78-134		02/14/2018 23:32
Toluene-d8	109	82-120		02/14/2018 23:32
4-BFB	96	69-131		02/14/2018 23:32

Analyst(s): AK

Analytical Comments: b1

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/11/18-2/14/18	**Analytical Method:**	SW8021B/8015Bm
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-1-W	**1802498-005A**	**Water**	**02/09/2018 08:50**	**GC3 02141816.D**	**153146**

Analytes	Result		RL	DF	Date Analyzed
TPH(g) (C6-C12)	**1000**		50	1	02/14/2018 19:24
MTBE	---		10	1	02/14/2018 19:24
Benzene	---		0.50	1	02/14/2018 19:24
Toluene	---		0.50	1	02/14/2018 19:24
Ethylbenzene	---		0.50	1	02/14/2018 19:24
Xylenes	---		0.50	1	02/14/2018 19:24
Surrogates	**REC (%)**	**Qualifiers**	**Limits**		
aaa-TFT	281	S	90-117		02/14/2018 19:24

Analyst(s): IA — Analytical Comments: d9,d17,c4,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-2-W	**1802498-010A**	**Water**	**02/09/2018 09:55**	**GC3 02101824.D**	**153146**

Analytes	Result		RL	DF	Date Analyzed
TPH(g) (C6-C12)	**1800**		50	1	02/11/2018 00:23
MTBE	---		20	1	02/11/2018 00:23
Benzene	---		0.50	1	02/11/2018 00:23
Toluene	---		0.50	1	02/11/2018 00:23
Ethylbenzene	---		0.50	1	02/11/2018 00:23
Xylenes	---		0.50	1	02/11/2018 00:23
Surrogates	**REC (%)**	**Qualifiers**	**Limits**		
aaa-TFT	228	S	90-117		02/11/2018 00:23

Analyst(s): IA — Analytical Comments: d1,d17,c4,b1

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3050B
Date Prepared:	2/15/18	**Analytical Method:**	SW6020
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-1-0.5	**1802498-001A**	**Soil**	**02/09/2018 08:40**	**ICP-MS3 093SMPL.D**	**153239**

Analytes	Result	RL	DF	Date Analyzed
Arsenic	**2.2**	0.50	1	02/16/2018 00:33
Lead	**5.9**	0.50	1	02/16/2018 00:33

Surrogates	REC (%)	Limits	
Terbium	99	70-130	02/16/2018 00:33

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-2-0.5	**1802498-006A**	**Soil**	**02/09/2018 09:45**	**ICP-MS3 119SMPL.D**	**153239**

Analytes	Result	RL	DF	Date Analyzed
Arsenic	**2.1**	0.50	1	02/16/2018 03:16
Lead	**3.8**	0.50	1	02/16/2018 03:16

Surrogates	REC (%)	Limits	
Terbium	97	70-130	02/16/2018 03:16

Analyst(s): DB

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3510C
Date Prepared:	2/9/18	**Analytical Method:**	SW8015B
Project:	383559; Emerald Buy Homes; Palo Alto	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-1-W	**1802498-005A**	**Water**	**02/09/2018 08:50**	**GC11B 02121827.D**	**153020**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**5000**	50	1	02/12/2018 18:34
TPH-Motor Oil (C18-C36)	**350**	250	1	02/12/2018 18:34

Surrogates	REC (%)	Limits	Date Analyzed
C9	105	61-139	02/12/2018 18:34

Analyst(s): JIS   Analytical Comments: e4/e8,e2,e7,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-2-W	**1802498-010A**	**Water**	**02/09/2018 09:55**	**GC9b 02121867.D**	**153020**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**750**	50	1	02/13/2018 08:39
TPH-Motor Oil (C18-C36)	**760**	250	1	02/13/2018 08:39

Surrogates	REC (%)	Limits	Date Analyzed
C9	94	61-139	02/13/2018 08:39

Analyst(s): JIS   Analytical Comments: e7,e4/e2/e8,b1

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Aldrin	ND	0.0572	0.0010	0.050	-	114	70-130
a-BHC	ND	0.0580	0.0010	0.050	-	116	70-130
b-BHC	ND	0.0548	0.0010	0.050	-	110	70-130
d-BHC	ND	0.0601	0.0010	0.050	-	120	70-130
g-BHC	ND	0.0585	0.0010	0.050	-	117	70-130
Chlordane (Technical)	ND	-	0.025	-	-	-	-
a-Chlordane	ND	0.0512	0.0010	0.050	-	102	70-130
g-Chlordane	ND	0.0544	0.0010	0.050	-	109	70-130
p,p-DDD	ND	0.0428	0.0010	0.050	-	86	70-130
p,p-DDE	ND	0.0572	0.0010	0.050	-	114	70-130
p,p-DDT	ND	0.0584	0.0010	0.050	-	117	70-130
Dieldrin	ND	0.0589	0.0010	0.050	-	118	70-130
Endosulfan I	ND	0.0572	0.0010	0.050	-	114	70-130
Endosulfan II	ND	0.0532	0.0010	0.050	-	106	70-130
Endosulfan sulfate	ND	0.0607	0.0010	0.050	-	121	70-130
Endrin	ND	0.0585	0.0010	0.050	-	117	70-130
Endrin aldehyde	ND	0.0479	0.0010	0.050	-	96	70-130
Endrin ketone	ND	0.0493	0.0010	0.050	-	99	70-130
Heptachlor	ND	0.0630	0.0010	0.050	-	126	70-130
Heptachlor epoxide	ND	0.0558	0.0010	0.050	-	112	70-130
Hexachlorobenzene	ND	0.0508	0.010	0.050	-	102	50-150
Hexachlorocyclopentadiene	ND	0.0619	0.020	0.050	-	124	50-150
Methoxychlor	ND	0.0532	0.0010	0.050	-	106	70-130
Toxaphene	ND	-	0.050	-	-	-	-
Surrogate Recovery							
Decachlorobiphenyl	0.0600	0.0522		0.050	120	104	70-130

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Aldrin	0.0494	0.0516	0.050	ND	99	103	70-130	4.50	20
a-BHC	0.0554	0.0579	0.050	ND	111	116	70-130	4.34	20
b-BHC	0.0564	0.0588	0.050	ND	113	118	70-130	4.17	20
d-BHC	0.0536	0.0556	0.050	ND	107	111	70-130	3.72	20
g-BHC	0.0509	0.0523	0.050	ND	102	105	70-130	2.73	20
a-Chlordane	0.0449	0.0470	0.050	ND	90	94	70-130	4.46	20
g-Chlordane	0.0498	0.0519	0.050	ND	100	104	70-130	4.15	20
p,p-DDD	0.0486	0.0508	0.050	ND	97	102	70-130	4.32	20
p,p-DDE	0.0492	0.0510	0.050	ND	98	102	70-130	3.66	20
p,p-DDT	0.0605	0.0636	0.050	ND	121	127	70-130	4.97	20
Dieldrin	0.0546	0.0569	0.050	ND	109	114	70-130	4.22	20
Endosulfan I	0.0500	0.0524	0.050	ND	100	105	70-130	4.58	20
Endosulfan II	0.0469	0.0489	0.050	ND	94	98	70-130	4.15	20
Endosulfan sulfate	0.0494	0.0524	0.050	ND	99	105	70-130	6.05	20
Endrin	0.0640	0.0665	0.050	ND	128	133,F1	70-130	3.80	20
Endrin aldehyde	0.0453	0.0477	0.050	ND	91	95	70-130	5.24	20
Endrin ketone	0.0465	0.0487	0.050	ND	93	97	70-130	4.65	20
Heptachlor	0.0588	0.0601	0.050	ND	118	120	70-130	2.31	30
Heptachlor epoxide	0.0492	0.0513	0.050	ND	98	103	70-130	4.24	20
Methoxychlor	0.0586	0.0629	0.050	ND	117	126	70-130	7.01	20
Surrogate Recovery									
Decachlorobiphenyl	0.0512	0.0538	0.050		102	108	70-130	4.98	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	170	10	200	-	85	47-122
tert-Amyl methyl ether (TAME)	ND	9.33	0.50	10	-	93	62-121
Benzene	ND	9.19	0.50	10	-	92	74-121
Bromobenzene	ND	9.50	0.50	10	-	95	63-127
Bromochloromethane	ND	9.00	0.50	10	-	90	70-126
Bromodichloromethane	ND	9.05	0.50	10	-	90	66-127
Bromoform	ND	9.34	0.50	10	-	93	60-119
Bromomethane	ND	9.78	0.50	10	-	98	32-155
2-Butanone (MEK)	ND	35.1	2.0	40	-	88	51-117
t-Butyl alcohol (TBA)	ND	34.0	2.0	40	-	85	41-122
n-Butyl benzene	ND	10.5	0.50	10	-	105	73-137
sec-Butyl benzene	ND	10.1	0.50	10	-	101	71-137
tert-Butyl benzene	ND	10.0	0.50	10	-	100	61-136
Carbon Disulfide	ND	9.28	0.50	10	-	93	61-139
Carbon Tetrachloride	ND	10.2	0.50	10	-	102	69-137
Chlorobenzene	ND	9.62	0.50	10	-	96	71-122
Chloroethane	ND	9.42	0.50	10	-	94	54-132
Chloroform	ND	9.63	0.50	10	-	96	73-122
Chloromethane	ND	8.45	0.50	10	-	84	48-136
2-Chlorotoluene	ND	10.2	0.50	10	-	101	65-134
4-Chlorotoluene	ND	10.1	0.50	10	-	101	65-130
Dibromochloromethane	ND	8.85	0.50	10	-	89	65-121
1,2-Dibromo-3-chloropropane	ND	3.27	0.20	4	-	82	41-132
1,2-Dibromoethane (EDB)	ND	9.21	0.50	10	-	92	67-125
Dibromomethane	ND	9.02	0.50	10	-	90	68-121
1,2-Dichlorobenzene	ND	9.41	0.50	10	-	94	69-128
1,3-Dichlorobenzene	ND	10.2	0.50	10	-	102	71-131
1,4-Dichlorobenzene	ND	9.61	0.50	10	-	96	70-128
Dichlorodifluoromethane	ND	7.65	0.50	10	-	76	21-158
1,1-Dichloroethane	ND	9.42	0.50	10	-	94	73-123
1,2-Dichloroethane (1,2-DCA)	ND	9.16	0.50	10	-	92	61-127
1,1-Dichloroethene	ND	9.44	0.50	10	-	94	68-130
cis-1,2-Dichloroethene	ND	9.35	0.50	10	-	93	72-123
trans-1,2-Dichloroethene	ND	9.36	0.50	10	-	94	64-138
1,2-Dichloropropane	ND	9.17	0.50	10	-	92	71-121
1,3-Dichloropropane	ND	9.11	0.50	10	-	91	69-120
2,2-Dichloropropane	ND	9.96	0.50	10	-	100	64-142

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	10.1	0.50	10	-	101	70-130
cis-1,3-Dichloropropene	ND	9.29	0.50	10	-	93	58-136
trans-1,3-Dichloropropene	ND	9.73	0.50	10	-	97	66-119
Diisopropyl ether (DIPE)	ND	9.32	0.50	10	-	93	66-123
Ethylbenzene	ND	9.80	0.50	10	-	98	71-125
Ethyl tert-butyl ether (ETBE)	ND	9.22	0.50	10	-	92	67-122
Freon 113	ND	9.75	0.50	10	-	97	68-132
Hexachlorobutadiene	ND	9.75	0.50	10	-	97	56-155
Hexachloroethane	ND	10.5	0.50	10	-	105	61-129
2-Hexanone	ND	8.01	0.50	10	-	80	51-115
Isopropylbenzene	ND	10.2	0.50	10	-	102	66-134
4-Isopropyl toluene	ND	10.3	0.50	10	-	103	70-136
Methyl-t-butyl ether (MTBE)	ND	9.02	0.50	10	-	90	64-118
Methylene chloride	ND	9.18	0.50	10	-	92	62-121
4-Methyl-2-pentanone (MIBK)	ND	7.99	0.50	10	-	80	51-115
Naphthalene	ND	8.55	0.50	10	-	86	55-137
n-Propyl benzene	ND	10.1	0.50	10	-	101	63-140
Styrene	ND	9.58	0.50	10	-	96	62-133
1,1,1,2-Tetrachloroethane	ND	9.57	0.50	10	-	96	69-128
1,1,2,2-Tetrachloroethane	ND	8.72	0.50	10	-	87	60-118
Tetrachloroethene	ND	9.30	0.50	10	-	93	63-136
Toluene	ND	9.41	0.50	10	-	94	67-124
1,2,3-Trichlorobenzene	ND	9.08	0.50	10	-	91	57-145
1,2,4-Trichlorobenzene	ND	9.31	0.50	10	-	93	60-144
1,1,1-Trichloroethane	ND	9.68	0.50	10	-	97	70-133
1,1,2-Trichloroethane	ND	8.69	0.50	10	-	87	65-125
Trichloroethene	ND	9.34	0.50	10	-	93	67-133
Trichlorofluoromethane	ND	9.89	0.50	10	-	99	59-145
1,2,3-Trichloropropane	ND	9.17	0.50	10	-	92	65-115
1,2,4-Trimethylbenzene	ND	10.2	0.50	10	-	102	67-136
1,3,5-Trimethylbenzene	ND	9.88	0.50	10	-	99	68-135
Vinyl Chloride	ND	9.74	0.50	10	-	97	53-146
Xylenes, Total	ND	30.0	0.50	30	-	100	68-128

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	25.1	25.0		25	100	100	91-133
Toluene-d8	26.4	26.6		25	106	107	87-127
4-BFB	2.49	2.56		2.5	100	103	66-140

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acetone	214	226	200	ND	105	110	56-141	5.31	20
tert-Amyl methyl ether (TAME)	10.1	10.4	10	ND	101	104	78-120	3.41	20
Benzene	9.19	9.53	10	ND	91	95	81-118	3.60	20
Bromobenzene	8.84	9.27	10	ND	88	93	71-119	4.74	20
Bromochloromethane	9.22	9.62	10	ND	92	96	80-124	4.26	20
Bromodichloromethane	9.19	9.57	10	ND	92	96	78-124	4.07	20
Bromoform	9.98	10.2	10	ND	100	102	65-127	1.84	20
Bromomethane	10.5	11.5	10	ND	105	115	22-175	9.08	20
2-Butanone (MEK)	43.5	45.2	40	ND	106	110	50-152	3.75	20
t-Butyl alcohol (TBA)	41.7	43.4	40	ND	104	108	49-141	3.92	20
n-Butyl benzene	10.2	10.6	10	ND	101	105	77-127	3.73	20
sec-Butyl benzene	9.66	10.0	10	ND	97	100	74-123	3.42	20
tert-Butyl benzene	9.42	9.70	10	ND	94	97	68-122	2.85	20
Carbon Disulfide	9.13	9.44	10	ND	91	94	74-123	3.32	20
Carbon Tetrachloride	10.0	10.4	10	ND	100	104	78-124	3.24	20
Chlorobenzene	9.36	9.64	10	ND	94	96	79-116	2.97	20
Chloroethane	10.9	12.2	10	ND	109	122	56-134	11.9	20
Chloroform	9.74	10.0	10	ND	97	100	82-119	2.95	20
Chloromethane	8.06	9.18	10	ND	81	92	39-147	13.0	20
2-Chlorotoluene	9.38	9.70	10	ND	94	97	69-124	3.32	20
4-Chlorotoluene	9.50	9.74	10	ND	95	97	71-121	2.48	20
Dibromochloromethane	9.36	9.44	10	ND	94	94	76-119	0	20
1,2-Dibromo-3-chloropropane	3.92	3.93	4	ND	98	98	48-138	0	20
1,2-Dibromoethane (EDB)	10.0	10.2	10	ND	100	102	81-122	1.50	20
Dibromomethane	9.63	10.0	10	ND	96	100	83-121	3.89	20
1,2-Dichlorobenzene	9.54	9.89	10	ND	95	99	77-122	3.63	20
1,3-Dichlorobenzene	10.1	10.4	10	ND	101	103	76-125	2.83	20
1,4-Dichlorobenzene	9.72	9.96	10	ND	97	100	78-120	2.35	20
Dichlorodifluoromethane	7.03	7.29	10	ND	70	73	38-135	3.57	20
1,1-Dichloroethane	9.43	9.68	10	ND	93	96	80-120	2.58	20
1,2-Dichloroethane (1,2-DCA)	9.69	10.1	10	ND	97	101	78-122	4.15	20
1,1-Dichloroethene	9.27	9.61	10	ND	93	96	77-120	3.56	20
cis-1,2-Dichloroethene	9.31	9.58	10	ND	90	92	79-123	2.87	20
trans-1,2-Dichloroethene	9.31	9.57	10	ND	92	94	77-125	2.74	20
1,2-Dichloropropane	9.35	9.72	10	ND	94	97	80-121	3.85	20
1,3-Dichloropropane	9.76	9.94	10	ND	98	99	80-120	1.76	20
2,2-Dichloropropane	9.90	10.1	10	ND	99	101	70-132	1.69	20

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
1,1-Dichloropropene	9.34	9.59	10	ND	93	96	78-122	2.63	20
cis-1,3-Dichloropropene	9.60	9.72	10	ND	96	97	73-121	1.20	20
trans-1,3-Dichloropropene	10.4	10.5	10	ND	104	105	77-116	1.19	20
Diisopropyl ether (DIPE)	9.69	10.1	10	ND	97	101	77-125	4.30	20
Ethylbenzene	9.54	9.89	10	ND	95	99	77-119	3.58	20
Ethyl tert-butyl ether (ETBE)	9.93	10.3	10	ND	99	103	81-122	3.46	20
Freon 113	9.59	9.94	10	ND	96	99	77-120	3.56	20
Hexachlorobutadiene	9.32	9.55	10	ND	93	95	57-141	2.46	20
Hexachloroethane	9.98	10.3	10	ND	97	100	26-168	2.80	20
2-Hexanone	9.57	9.77	10	ND	96	98	58-135	2.00	20
Isopropylbenzene	9.77	10.1	10	ND	98	101	74-120	3.12	20
4-Isopropyl toluene	9.79	10.1	10	ND	98	101	75-124	3.06	20
Methyl-t-butyl ether (MTBE)	10.0	10.5	10	ND	95	100	74-128	4.87	20
Methylene chloride	9.22	9.63	10	ND	92	96	55-130	4.33	20
4-Methyl-2-pentanone (MIBK)	9.73	10.1	10	ND	94	97	59-131	3.62	20
Naphthalene	9.26	9.77	10	ND	91	96	65-136	5.29	20
n-Propyl benzene	9.30	9.59	10	ND	93	96	67-128	3.12	20
Styrene	9.35	9.71	10	ND	93	96	64-133	3.80	20
1,1,1,2-Tetrachloroethane	9.56	9.75	10	ND	96	97	78-122	1.95	20
1,1,2,2-Tetrachloroethane	9.18	9.41	10	ND	92	94	72-123	2.50	20
Tetrachloroethene	8.92	9.11	10	ND	89	91	72-123	2.06	20
Toluene	9.35	9.52	10	ND	92	94	74-117	1.82	20
1,2,3-Trichlorobenzene	8.78	9.05	10	ND	88	91	61-141	3.12	20
1,2,4-Trichlorobenzene	9.04	9.29	10	ND	90	93	69-136	2.70	20
1,1,1-Trichloroethane	9.55	9.93	10	ND	96	99	78-122	3.88	20
1,1,2-Trichloroethane	9.42	9.53	10	ND	94	95	79-120	1.09	20
Trichloroethene	9.11	9.43	10	0.6658	84	88	76-122	3.47	20
Trichlorofluoromethane	9.80	10.2	10	ND	98	102	72-125	4.26	20
1,2,3-Trichloropropane	9.88	10.0	10	ND	99	100	72-123	1.64	20
1,2,4-Trimethylbenzene	9.51	9.85	10	ND	95	99	74-123	3.53	20
1,3,5-Trimethylbenzene	9.06	9.44	10	ND	91	94	73-123	4.03	20
Vinyl Chloride	9.27	10.0	10	ND	93	100	57-134	7.60	20
Xylenes, Total	28.7	29.6	30	ND	96	99	76-119	3.00	20

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	25.2	25.4	25		101	102	78-134	0.863	20
Toluene-d8	26.9	26.6	25		108	106	82-120	1.27	20
4-BFB	2.34	2.38	2.5		94	95	69-131	1.52	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/10/18	**BatchID:**	153146
Date Analyzed:	2/10/18	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS/LCSD-153146 1802497-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	50	-	-	-
MTBE	ND	5.0	-	-	-
Benzene	ND	0.50	-	-	-
Toluene	ND	0.50	-	-	-
Ethylbenzene	ND	0.50	-	-	-
Xylenes	ND	0.50	-	-	-
Surrogate Recovery					
aaa-TFT	9.64		10	96	89-116

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	66.2	65.5	60	110	109	78-116	1.10	20
MTBE	9.39	9.21	10	94	92	72-122	1.97	20
Benzene	9.75	9.42	10	97	94	81-123	3.36	20
Toluene	10.3	10.3	10	103	103	83-129	0	20
Ethylbenzene	10.3	9.96	10	103	100	88-126	3.31	20
Xylenes	31.0	30.2	30	103	101	87-131	2.81	20
Surrogate Recovery								
aaa-TFT	9.74	9.92	10	97	99	89-116	1.83	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	234	230	60	167.9	109	103	63-133	1.70	20
MTBE	13.2	13.3	10	ND	101	102	69-122	0.451	20
Benzene	26.8	28.5	10	17.77	90	107	84-125	6.01	20
Toluene	15.1	16.6	10	5.013	101	116	87-131	9.30	20
Ethylbenzene	65.9	70.1	10	57.25	86,F1	128,F1	92-126	6.14	20
Xylenes	66.6	71.9	30	36.67	100	118	88-132	7.65	20
Surrogate Recovery									
aaa-TFT	13.4	14.5	10		134,F3	145,F3	90-117	8.17	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/14/18	**BatchID:**	153239
Date Analyzed:	2/15/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS-153239 1802713-011AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Arsenic	ND	50.4	0.50	50	-	101	75-125
Lead	ND	50.1	0.50	50	-	100	75-125
Surrogate Recovery							
Terbium	529	540		500	106	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Arsenic	52.3	48.4	50	2.0	101	93	75-125	7.77	20
Lead	240	227	50	160	169,F10	143,F10	75-125	5.61	20
Surrogate Recovery									
Terbium	542	533	500		108	107	70-130	1.66	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Arsenic	1.84	2.0	8.00	-
Lead	166	160	3.75	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802498
Date Prepared:	2/9/18	**BatchID:**	153020
Date Analyzed:	2/10/18 - 2/12/18	**Extraction Method:**	SW3510C
Instrument:	GC11A	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes; Palo Alto	**Sample ID:**	MB/LCS/LCSD-153020

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	609		625	97	68-127

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1260	1200	1000	126	120	86-142	4.61	30
Surrogate Recovery								
C9	653	636	625	104	102	68-127	2.70	30

McCampbell Analytical, Inc.
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(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1802498 **ClientCode: AELS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Dry-Weight

Report to:
Nina Abdollahian
AEI Consultants
3880 S. Bascom Ave, Suite 109
San Jose, CA 95124
408-559-7600 FAX:

Email: nabdollahian@aeiconsultants.com
cc/3rd Party: jasmith@aeiconsultants.com;
PO: 152768
Project: 383559; Emerald Buy Homes; Palo Alto

Bill to:
Accounts Payable
AEI Consultants
2500 Camino Diablo, Ste. #200
Walnut Creek, CA 94597
AccountsPayable@AEIConsultants.com

Requested TAT: **5 days;**

Date Received: **02/09/2018**
Date Logged: **02/09/2018**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1802498-001	SB-1-0.5	Soil	2/9/2018 08:40	☐	A			A								
1802498-005	SB-1-W	Water	2/9/2018 08:50	☐		B	A		A							
1802498-006	SB-2-0.5	Soil	2/9/2018 09:45	☐	A			A								
1802498-010	SB-2-W	Water	2/9/2018 09:55	☐		B	A		A							

Test Legend:

1	8081_S	2	8260B_W	3	G-MBTEX_W	4	METALS_TTLC_S
5	TPH(DMO)_W	6		7		8	
9		10		11		12	

Prepared by: Nancy Palacios

The following SampIDs: 005A, 010A contain testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: AEI CONSULTANTS
Project: 383559; Emerald Buy Homes; Palo Alto
Work Order: 1802498
Client Contact: Nina Abdollahian
QC Level: LEVEL 2
Contact's Email: nabdollahian@aeiconsultants.com
Comments:
Date Logged: 2/9/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1802498-001A	SB-1-0.5	Soil	SW6010B (Metals) <Arsenic, Lead>	1	Acetate Liner	☐	2/9/2018 8:40	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1802498-002A	SB-1-3.5	Soil		1	Acetate Liner	☐	2/9/2018 8:36			☑	
1802498-003A	SB-1-7.5	Soil		1	Acetate Liner	☐	2/9/2018 8:42			☑	
1802498-004A	SB-1-11.5	Soil		1	Acetate Liner	☐	2/9/2018 8:53			☑	
1802498-005A	SB-1-W	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	2	VOA w/ HCl	☐	2/9/2018 8:50	5 days	2%+	☐	
1802498-005B	SB-1-W	Water	SW8260B (VOCs)	1	VOA w/ HCl	☐	2/9/2018 8:50	5 days	2%+	☐	
1802498-006A	SB-2-0.5	Soil	SW6010B (Metals) <Arsenic, Lead>	1	Acetate Liner	☐	2/9/2018 9:45	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1802498-007A	SB-2-3.5	Soil		1	Acetate Liner	☐	2/9/2018 9:40			☑	
1802498-008A	SB-2-7.5	Soil		1	Acetate Liner	☐	2/9/2018 9:45			☑	
1802498-009A	SB-2-11.5	Soil		1	Acetate Liner	☐	2/9/2018 9:47			☑	
1802498-010A	SB-2-W	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	3	VOA w/ HCl	☐	2/9/2018 9:55	5 days	2%+	☐	
1802498-010B	SB-2-W	Water	SW8260B (VOCs)	3	VOA w/ HCl	☐	2/9/2018 9:55	5 days	2%+	☐	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1802498

McCAMPBELL ANALYTICAL, INC.

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CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	●	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format:	PDF	●	GeoTracker EDF		EDD		Write On (DW)		EQuIS

Report To: Nina Abdollahian Bill To: AEI Consultants
Company: AEI Consultants
Email: nabdollahian@aeiconsultants.com
Alt Email: jasmith@aeiconsultants.com Tele: 408-559-7600
Project Name: Emerald Buy Homes Project #: 383559
Project Location: Palo Alto PO # 152768
Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	TPH-mo, TPH-g, and TPH-d by 8015M	EPA 8081A (Cl Pesticides)	Arsenic and Lead using 6010B	VOCs using 8260B	SVOCs using 8270C	PCBs using 8082	Title 22 Metals using 6010B and 7471A	Asbestos by PLM	HOLD
→ SB-1-0.5	2/9/18	840	1	S	1		X	X						X
SB-1-3.5	2/9/18	836	1	S	1									X
SB-1-7.5	2/9/18	842	1	S	1									X
SB-1-11.5	2/9/18	853	1	S	1									X
SB-1-W	2/9/18	850		GW	1,2	X			X					
→ SB-2-0.5	2/9/18	943	1	S	1		X	X						X
SB-2-3.5	2/9/18	940	1	S	1									X
SB-2-7.5	2/9/18	945	1	S	1									X
SB-2-11.5	2/9/18	947	1	S	1									X
SB-2-W	2/9/18	955	6	GW	1,2	X			X					

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
[signature]	2/9/18	1446	[signature]	2/9/18	1450
L Moore	2/9/18	1740	Nancy Palacios	2/9/18	1740

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

4.7 WET

2/12/18

Page ___ of ___

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Sample Receipt Checklist

Client Name:	**AEI Consultants**	Date and Time Received	**2/9/2018 17:40**
Project:	**383559; Emerald Buy Homes; Palo Alto**	Date Logged:	**2/9/2018**
		Received by:	Nancy Palacios
WorkOrder №:	**1802498** Matrix: Soil/Water	Logged by:	Nancy Palacios
Carrier:	Laurie Moore (MAI Courier)		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	✔		
Chain of custody signed when relinquished and received?	✔		
Chain of custody agrees with sample labels?	✔		
Sample IDs noted by Client on COC?	✔		
Date and Time of collection noted by Client on COC?	✔		
Sampler's name noted on COC?		✔	
COC agrees with Quote?			✔

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?			✔
Shipping container/cooler in good condition?	✔		
Samples in proper containers/bottles?	✔		
Sample containers intact?	✔		
Sufficient sample volume for indicated test?	✔		

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	✔		
Sample/Temp Blank temperature	Temp: 4.7°C		
Water - VOA vials have zero headspace / no bubbles?	✔		
Sample labels checked for correct preservation?	✔		
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?			✔
Samples Received on Ice?	✔		
(Ice Type: WET ICE)			
UCMR Samples:			
pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?			✔
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?			✔

Comments: Method SW8081A (OC Pesticides) was received with temperature condition not met.

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1802499

Report Created for: AEI Consultants

3880 S. Bascom Ave, Suite 109
San Jose, CA 95124

Project Contact: Nina Abdollahian
Project P.O.: 152768
Project: 383559; Emerald Buy Homes Palo Alto

Project Received: 02/09/2018

Analytical Report reviewed & approved for release on 02/15/2018 by:

Jennifer Lagerbom
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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CA ELAP 1644 ♦ NELAP 4033 ORELAP

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Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes Palo Alto
WorkOrder: 1802499

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes Palo Alto
WorkOrder: 1802499

Analytical Qualifiers

a3	Sample diluted due to high organic content.
e2	Diesel range compounds are significant; no recognizable pattern
e7	Oil range compounds are significant

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F10	MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix.

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/12/18	**Analytical Method:**	SW8081A/8082
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	**1802499-002A**	**Soil**	**02/09/2018 11:32**	**GC22 02141811.D**	**153086**

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0050	5	02/14/2018 18:16
a-BHC	ND	0.0050	5	02/14/2018 18:16
b-BHC	ND	0.0050	5	02/14/2018 18:16
d-BHC	ND	0.0050	5	02/14/2018 18:16
g-BHC	ND	0.0050	5	02/14/2018 18:16
Chlordane (Technical)	ND	0.12	5	02/14/2018 18:16
a-Chlordane	ND	0.0050	5	02/14/2018 18:16
g-Chlordane	ND	0.0050	5	02/14/2018 18:16
p,p-DDD	ND	0.0050	5	02/14/2018 18:16
p,p-DDE	**0.0069**	0.0050	5	02/14/2018 18:16
p,p-DDT	ND	0.0050	5	02/14/2018 18:16
Dieldrin	ND	0.0050	5	02/14/2018 18:16
Endosulfan I	ND	0.0050	5	02/14/2018 18:16
Endosulfan II	ND	0.0050	5	02/14/2018 18:16
Endosulfan sulfate	ND	0.0050	5	02/14/2018 18:16
Endrin	ND	0.0050	5	02/14/2018 18:16
Endrin aldehyde	ND	0.0050	5	02/14/2018 18:16
Endrin ketone	ND	0.0050	5	02/14/2018 18:16
Heptachlor	ND	0.0050	5	02/14/2018 18:16
Heptachlor epoxide	ND	0.0050	5	02/14/2018 18:16
Hexachlorobenzene	ND	0.050	5	02/14/2018 18:16
Hexachlorocyclopentadiene	ND	0.10	5	02/14/2018 18:16
Methoxychlor	ND	0.0050	5	02/14/2018 18:16
Toxaphene	ND	0.25	5	02/14/2018 18:16
Aroclor1016	ND	0.25	5	02/14/2018 18:16
Aroclor1221	ND	0.25	5	02/14/2018 18:16
Aroclor1232	ND	0.25	5	02/14/2018 18:16
Aroclor1242	ND	0.25	5	02/14/2018 18:16
Aroclor1248	ND	0.25	5	02/14/2018 18:16
Aroclor1254	ND	0.25	5	02/14/2018 18:16
Aroclor1260	ND	0.25	5	02/14/2018 18:16
PCBs, total	ND	0.25	5	02/14/2018 18:16

Surrogates	REC (%)	Limits	Date Analyzed
Decachlorobiphenyl	100	70-130	02/14/2018 18:16

Analyst(s): CK

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	1802499-002A	Soil	02/09/2018 11:32	GC18 02141815.D	153085

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/14/2018 16:58
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/14/2018 16:58
Benzene	ND	0.0050	1	02/14/2018 16:58
Bromobenzene	ND	0.0050	1	02/14/2018 16:58
Bromochloromethane	ND	0.0050	1	02/14/2018 16:58
Bromodichloromethane	ND	0.0050	1	02/14/2018 16:58
Bromoform	ND	0.0050	1	02/14/2018 16:58
Bromomethane	ND	0.0050	1	02/14/2018 16:58
2-Butanone (MEK)	ND	0.020	1	02/14/2018 16:58
t-Butyl alcohol (TBA)	ND	0.050	1	02/14/2018 16:58
n-Butyl benzene	ND	0.0050	1	02/14/2018 16:58
sec-Butyl benzene	ND	0.0050	1	02/14/2018 16:58
tert-Butyl benzene	ND	0.0050	1	02/14/2018 16:58
Carbon Disulfide	ND	0.0050	1	02/14/2018 16:58
Carbon Tetrachloride	ND	0.0050	1	02/14/2018 16:58
Chlorobenzene	ND	0.0050	1	02/14/2018 16:58
Chloroethane	ND	0.0050	1	02/14/2018 16:58
Chloroform	ND	0.0050	1	02/14/2018 16:58
Chloromethane	ND	0.0050	1	02/14/2018 16:58
2-Chlorotoluene	ND	0.0050	1	02/14/2018 16:58
4-Chlorotoluene	ND	0.0050	1	02/14/2018 16:58
Dibromochloromethane	ND	0.0050	1	02/14/2018 16:58
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/14/2018 16:58
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/14/2018 16:58
Dibromomethane	ND	0.0050	1	02/14/2018 16:58
1,2-Dichlorobenzene	ND	0.0050	1	02/14/2018 16:58
1,3-Dichlorobenzene	ND	0.0050	1	02/14/2018 16:58
1,4-Dichlorobenzene	ND	0.0050	1	02/14/2018 16:58
Dichlorodifluoromethane	ND	0.0050	1	02/14/2018 16:58
1,1-Dichloroethane	ND	0.0050	1	02/14/2018 16:58
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/14/2018 16:58
1,1-Dichloroethene	ND	0.0050	1	02/14/2018 16:58
cis-1,2-Dichloroethene	ND	0.0050	1	02/14/2018 16:58
trans-1,2-Dichloroethene	ND	0.0050	1	02/14/2018 16:58
1,2-Dichloropropane	ND	0.0050	1	02/14/2018 16:58
1,3-Dichloropropane	ND	0.0050	1	02/14/2018 16:58
2,2-Dichloropropane	ND	0.0050	1	02/14/2018 16:58

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	1802499-002A	Soil	02/09/2018 11:32	GC18 02141815.D	153085

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/14/2018 16:58
cis-1,3-Dichloropropene	ND	0.0050	1	02/14/2018 16:58
trans-1,3-Dichloropropene	ND	0.0050	1	02/14/2018 16:58
Diisopropyl ether (DIPE)	ND	0.0050	1	02/14/2018 16:58
Ethylbenzene	ND	0.0050	1	02/14/2018 16:58
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/14/2018 16:58
Freon 113	ND	0.0050	1	02/14/2018 16:58
Hexachlorobutadiene	ND	0.0050	1	02/14/2018 16:58
Hexachloroethane	ND	0.0050	1	02/14/2018 16:58
2-Hexanone	ND	0.0050	1	02/14/2018 16:58
Isopropylbenzene	ND	0.0050	1	02/14/2018 16:58
4-Isopropyl toluene	ND	0.0050	1	02/14/2018 16:58
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/14/2018 16:58
Methylene chloride	ND	0.0050	1	02/14/2018 16:58
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/14/2018 16:58
Naphthalene	ND	0.0050	1	02/14/2018 16:58
n-Propyl benzene	ND	0.0050	1	02/14/2018 16:58
Styrene	ND	0.0050	1	02/14/2018 16:58
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/14/2018 16:58
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/14/2018 16:58
Tetrachloroethene	ND	0.0050	1	02/14/2018 16:58
Toluene	ND	0.0050	1	02/14/2018 16:58
1,2,3-Trichlorobenzene	ND	0.0050	1	02/14/2018 16:58
1,2,4-Trichlorobenzene	ND	0.0050	1	02/14/2018 16:58
1,1,1-Trichloroethane	ND	0.0050	1	02/14/2018 16:58
1,1,2-Trichloroethane	ND	0.0050	1	02/14/2018 16:58
Trichloroethene	ND	0.0050	1	02/14/2018 16:58
Trichlorofluoromethane	ND	0.0050	1	02/14/2018 16:58
1,2,3-Trichloropropane	ND	0.0050	1	02/14/2018 16:58
1,2,4-Trimethylbenzene	ND	0.0050	1	02/14/2018 16:58
1,3,5-Trimethylbenzene	ND	0.0050	1	02/14/2018 16:58
Vinyl Chloride	ND	0.0050	1	02/14/2018 16:58
Xylenes, Total	ND	0.0050	1	02/14/2018 16:58

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	1802499-002A	Soil	02/09/2018 11:32	GC18 02141815.D	153085

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	103	82-136		02/14/2018 16:58
Toluene-d8	117	92-139		02/14/2018 16:58
4-BFB	101	82-135		02/14/2018 16:58
Benzene-d6	104	55-122		02/14/2018 16:58
Ethylbenzene-d10	111	58-141		02/14/2018 16:58
1,2-DCB-d4	78	51-107		02/14/2018 16:58

Analyst(s): AK

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/13/18	**Analytical Method:**	SW8270C
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	1802499-002A	Soil	02/09/2018 11:32	GC21 02141813.D	153166

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	0.50	2	02/14/2018 14:54
Acenaphthylene	ND	0.50	2	02/14/2018 14:54
Acetochlor	ND	0.50	2	02/14/2018 14:54
Anthracene	ND	0.50	2	02/14/2018 14:54
Benzidine	ND	2.6	2	02/14/2018 14:54
Benzo (a) anthracene	ND	0.50	2	02/14/2018 14:54
Benzo (a) pyrene	ND	0.50	2	02/14/2018 14:54
Benzo (b) fluoranthene	ND	0.50	2	02/14/2018 14:54
Benzo (g,h,i) perylene	ND	0.50	2	02/14/2018 14:54
Benzo (k) fluoranthene	ND	0.50	2	02/14/2018 14:54
Benzyl Alcohol	ND	2.6	2	02/14/2018 14:54
1,1-Biphenyl	ND	0.50	2	02/14/2018 14:54
Bis (2-chloroethoxy) Methane	ND	0.50	2	02/14/2018 14:54
Bis (2-chloroethyl) Ether	ND	0.50	2	02/14/2018 14:54
Bis (2-chloroisopropyl) Ether	ND	0.50	2	02/14/2018 14:54
Bis (2-ethylhexyl) Adipate	ND	0.50	2	02/14/2018 14:54
Bis (2-ethylhexyl) Phthalate	ND	0.50	2	02/14/2018 14:54
4-Bromophenyl Phenyl Ether	ND	0.50	2	02/14/2018 14:54
Butylbenzyl Phthalate	ND	0.50	2	02/14/2018 14:54
4-Chloroaniline	ND	1.0	2	02/14/2018 14:54
4-Chloro-3-methylphenol	ND	0.50	2	02/14/2018 14:54
2-Chloronaphthalene	ND	0.50	2	02/14/2018 14:54
2-Chlorophenol	ND	0.50	2	02/14/2018 14:54
4-Chlorophenyl Phenyl Ether	ND	0.50	2	02/14/2018 14:54
Chrysene	ND	0.50	2	02/14/2018 14:54
Dibenzo (a,h) anthracene	ND	0.50	2	02/14/2018 14:54
Dibenzofuran	ND	0.50	2	02/14/2018 14:54
Di-n-butyl Phthalate	ND	0.50	2	02/14/2018 14:54
1,2-Dichlorobenzene	ND	0.50	2	02/14/2018 14:54
1,3-Dichlorobenzene	ND	0.50	2	02/14/2018 14:54
1,4-Dichlorobenzene	ND	0.50	2	02/14/2018 14:54
3,3-Dichlorobenzidine	ND	1.0	2	02/14/2018 14:54
2,4-Dichlorophenol	ND	0.50	2	02/14/2018 14:54
Diethyl Phthalate	ND	0.50	2	02/14/2018 14:54
2,4-Dimethylphenol	ND	0.50	2	02/14/2018 14:54
Dimethyl Phthalate	ND	0.50	2	02/14/2018 14:54
4,6-Dinitro-2-methylphenol	ND	2.6	2	02/14/2018 14:54

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/13/18	**Analytical Method:**	SW8270C
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	1802499-002A	Soil	02/09/2018 11:32	GC21 02141813.D	153166

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	13	2	02/14/2018 14:54
2,4-Dinitrotoluene	ND	0.50	2	02/14/2018 14:54
2,6-Dinitrotoluene	ND	0.50	2	02/14/2018 14:54
Di-n-octyl Phthalate	ND	1.0	2	02/14/2018 14:54
1,2-Diphenylhydrazine	ND	0.50	2	02/14/2018 14:54
Fluoranthene	ND	0.50	2	02/14/2018 14:54
Fluorene	ND	0.50	2	02/14/2018 14:54
Hexachlorobenzene	ND	0.50	2	02/14/2018 14:54
Hexachlorobutadiene	ND	0.50	2	02/14/2018 14:54
Hexachlorocyclopentadiene	ND	2.6	2	02/14/2018 14:54
Hexachloroethane	ND	0.50	2	02/14/2018 14:54
Indeno (1,2,3-cd) pyrene	ND	0.50	2	02/14/2018 14:54
Isophorone	ND	0.50	2	02/14/2018 14:54
2-Methylnaphthalene	ND	0.50	2	02/14/2018 14:54
2-Methylphenol (o-Cresol)	ND	0.50	2	02/14/2018 14:54
3 & 4-Methylphenol (m,p-Cresol)	ND	0.50	2	02/14/2018 14:54
Naphthalene	ND	0.50	2	02/14/2018 14:54
2-Nitroaniline	ND	2.6	2	02/14/2018 14:54
3-Nitroaniline	ND	2.6	2	02/14/2018 14:54
4-Nitroaniline	ND	2.6	2	02/14/2018 14:54
Nitrobenzene	ND	0.50	2	02/14/2018 14:54
2-Nitrophenol	ND	2.6	2	02/14/2018 14:54
4-Nitrophenol	ND	2.6	2	02/14/2018 14:54
N-Nitrosodiphenylamine	ND	0.50	2	02/14/2018 14:54
N-Nitrosodi-n-propylamine	ND	0.50	2	02/14/2018 14:54
Pentachlorophenol	ND	2.6	2	02/14/2018 14:54
Phenanthrene	ND	0.50	2	02/14/2018 14:54
Phenol	ND	0.50	2	02/14/2018 14:54
Pyrene	ND	0.50	2	02/14/2018 14:54
Pyridine	ND	0.50	2	02/14/2018 14:54
1,2,4-Trichlorobenzene	ND	0.50	2	02/14/2018 14:54
2,4,5-Trichlorophenol	ND	0.50	2	02/14/2018 14:54
2,4,6-Trichlorophenol	ND	0.50	2	02/14/2018 14:54

(Cont.)

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"When Quality Counts"
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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/13/18	**Analytical Method:**	SW8270C
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	**1802499-002A**	**Soil**	**02/09/2018 11:32**	**GC21 02141813.D**	**153166**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	82	30-130		02/14/2018 14:54
Phenol-d5	75	30-130		02/14/2018 14:54
Nitrobenzene-d5	69	30-130		02/14/2018 14:54
2-Fluorobiphenyl	69	30-130		02/14/2018 14:54
2,4,6-Tribromophenol	83	16-130		02/14/2018 14:54
4-Terphenyl-d14	68	30-130		02/14/2018 14:54

Analyst(s): REB

Analytical Comments: a3

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3050B
Date Prepared:	2/12/18	**Analytical Method:**	SW6020
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	1802499-002A	Soil	02/09/2018 11:32	ICP-MS1 108SMPL.D	153077

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	02/13/2018 19:13
Arsenic	**0.84**	0.50	1	02/13/2018 19:13
Barium	**39**	5.0	1	02/13/2018 19:13
Beryllium	ND	0.50	1	02/13/2018 19:13
Cadmium	ND	0.25	1	02/13/2018 19:13
Chromium	**60**	0.50	1	02/13/2018 19:13
Cobalt	**24**	0.50	1	02/13/2018 19:13
Copper	**78**	0.50	1	02/13/2018 19:13
Lead	**2.7**	0.50	1	02/13/2018 19:13
Mercury	ND	0.050	1	02/13/2018 19:13
Molybdenum	**0.66**	0.50	1	02/13/2018 19:13
Nickel	**52**	0.50	1	02/13/2018 19:13
Selenium	ND	0.50	1	02/13/2018 19:13
Silver	ND	0.50	1	02/13/2018 19:13
Thallium	ND	0.50	1	02/13/2018 19:13
Vanadium	**130**	0.50	1	02/13/2018 19:13
Zinc	**74**	5.0	1	02/13/2018 19:13

Surrogates	REC (%)	Limits		
Terbium	105	70-130		02/13/2018 19:13

Analyst(s): JC

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8021B/8015Bm
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	**1802499-002A**	**Soil**	**02/09/2018 11:32**	**GC7 02141812.D**	**153082**

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/14/2018 16:52
MTBE	---	0.050	1	02/14/2018 16:52
Benzene	---	0.0050	1	02/14/2018 16:52
Toluene	---	0.0050	1	02/14/2018 16:52
Ethylbenzene	---	0.0050	1	02/14/2018 16:52
Xylenes	---	0.0050	1	02/14/2018 16:52

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	91	62-126	02/14/2018 16:52

Analyst(s): IA

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/12/18	**Analytical Method:**	SW8015B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-0.5	**1802499-002A**	**Soil**	**02/09/2018 11:32**	**GC9a 02131826.D**	**153081**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**1.1**	1.0	1	02/13/2018 18:39
TPH-Motor Oil (C18-C36)	**8.4**	5.0	1	02/13/2018 18:39

Surrogates	REC (%)	Limits	Date Analyzed
C9	106	74-123	02/13/2018 18:39

Analyst(s): JIS

Analytical Comments: e7,e2

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A/8082
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A/8082

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Aldrin	ND	0.0010	-	-	-
a-BHC	ND	0.0010	-	-	-
b-BHC	ND	0.0010	-	-	-
d-BHC	ND	0.0010	-	-	-
g-BHC	ND	0.0010	-	-	-
Chlordane (Technical)	ND	0.025	-	-	-
a-Chlordane	ND	0.0010	-	-	-
g-Chlordane	ND	0.0010	-	-	-
p,p-DDD	ND	0.0010	-	-	-
p,p-DDE	ND	0.0010	-	-	-
p,p-DDT	ND	0.0010	-	-	-
Dieldrin	ND	0.0010	-	-	-
Endosulfan I	ND	0.0010	-	-	-
Endosulfan II	ND	0.0010	-	-	-
Endosulfan sulfate	ND	0.0010	-	-	-
Endrin	ND	0.0010	-	-	-
Endrin aldehyde	ND	0.0010	-	-	-
Endrin ketone	ND	0.0010	-	-	-
Heptachlor	ND	0.0010	-	-	-
Heptachlor epoxide	ND	0.0010	-	-	-
Hexachlorobenzene	ND	0.010	-	-	-
Hexachlorocyclopentadiene	ND	0.020	-	-	-
Methoxychlor	ND	0.0010	-	-	-
Toxaphene	ND	0.050	-	-	-
Aroclor1016	ND	0.050	-	-	-
Aroclor1221	ND	0.050	-	-	-
Aroclor1232	ND	0.050	-	-	-
Aroclor1242	ND	0.050	-	-	-
Aroclor1248	ND	0.050	-	-	-
Aroclor1254	ND	0.050	-	-	-
Aroclor1260	ND	0.050	-	-	-
PCBs, total	ND	0.050	-	-	-
Surrogate Recovery					
Decachlorobiphenyl	0.0600		0.050	120	70-130

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A/8082
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A/8082

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aldrin	0.0572	0.0567	0.050	114	113	70-130	0.985	20
a-BHC	0.0580	0.0576	0.050	116	115	70-130	0.780	20
b-BHC	0.0548	0.0546	0.050	110	109	70-130	0.366	20
d-BHC	0.0601	0.0598	0.050	120	120	70-130	0	20
g-BHC	0.0585	0.0582	0.050	117	116	70-130	0.548	20
a-Chlordane	0.0512	0.0511	0.050	102	102	70-130	0	20
g-Chlordane	0.0544	0.0540	0.050	109	108	70-130	0.886	20
p,p-DDD	0.0428	0.0426	0.050	86	85	70-130	0.600	20
p,p-DDE	0.0572	0.0571	0.050	114	114	70-130	0	20
p,p-DDT	0.0584	0.0584	0.050	117	117	70-130	0	20
Dieldrin	0.0589	0.0586	0.050	118	117	70-130	0.542	20
Endosulfan I	0.0572	0.0569	0.050	114	114	70-130	0	20
Endosulfan II	0.0532	0.0531	0.050	106	106	70-130	0	20
Endosulfan sulfate	0.0607	0.0608	0.050	121	122	70-130	0.203	20
Endrin	0.0585	0.0583	0.050	117	117	70-130	0	20
Endrin aldehyde	0.0479	0.0479	0.050	96	96	70-130	0	20
Endrin ketone	0.0493	0.0496	0.050	99	99	70-130	0	20
Heptachlor	0.0630	0.0627	0.050	126	125	70-130	0.434	20
Heptachlor epoxide	0.0558	0.0555	0.050	112	111	70-130	0.560	20
Hexachlorobenzene	0.0508	0.0505	0.050	102	101	50-150	0.626	20
Hexachlorocyclopentadiene	0.0619	0.0602	0.050	124	120	50-150	2.80	20
Methoxychlor	0.0532	0.0536	0.050	106	107	70-130	0.794	20
Aroclor1016	0.145	0.139	0.15	96	93	70-130	3.69	20
Aroclor1260	0.130	0.120	0.15	87	80	70-130	8.68	20
Surrogate Recovery								
Decachlorobiphenyl	0.0522	0.0534	0.050	104	107	70-130	2.20	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Aldrin	0.0494	0.0516	0.050	ND	99	103	70-130	4.50	20
a-BHC	0.0554	0.0579	0.050	ND	111	116	70-130	4.34	20
b-BHC	0.0564	0.0588	0.050	ND	113	118	70-130	4.17	20
d-BHC	0.0536	0.0556	0.050	ND	107	111	70-130	3.72	20
g-BHC	0.0509	0.0523	0.050	ND	102	105	70-130	2.73	20
a-Chlordane	0.0449	0.0470	0.050	ND	90	94	70-130	4.46	20
g-Chlordane	0.0498	0.0519	0.050	ND	100	104	70-130	4.15	20
p,p-DDD	0.0486	0.0508	0.050	ND	97	102	70-130	4.32	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A/8082
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A/8082

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
p,p-DDE	0.0492	0.0510	0.050	ND	98	102	70-130	3.66	20
p,p-DDT	0.0605	0.0636	0.050	ND	121	127	70-130	4.97	20
Dieldrin	0.0546	0.0569	0.050	ND	109	114	70-130	4.22	20
Endosulfan I	0.0500	0.0524	0.050	ND	100	105	70-130	4.58	20
Endosulfan II	0.0469	0.0489	0.050	ND	94	98	70-130	4.15	20
Endosulfan sulfate	0.0494	0.0524	0.050	ND	99	105	70-130	6.05	20
Endrin	0.0640	0.0665	0.050	ND	128	133,F1	70-130	3.80	20
Endrin aldehyde	0.0453	0.0477	0.050	ND	91	95	70-130	5.24	20
Endrin ketone	0.0465	0.0487	0.050	ND	93	97	70-130	4.65	20
Heptachlor	0.0588	0.0601	0.050	ND	118	120	70-130	2.31	30
Heptachlor epoxide	0.0492	0.0513	0.050	ND	98	103	70-130	4.24	20
Methoxychlor	0.0586	0.0629	0.050	ND	117	126	70-130	7.01	20
Aroclor1016	N/A	N/A		N/A	N/A	N/A	-	N/A	-
Aroclor1260	N/A	N/A		N/A	N/A	N/A	-	N/A	-
Surrogate Recovery									
Decachlorobiphenyl	0.0512	0.0538	0.050		102	108	70-130	4.98	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	1.02	0.10	1	-	102	48-156
tert-Amyl methyl ether (TAME)	ND	0.0348	0.0050	0.050	-	70	56-115
Benzene	ND	0.0466	0.0050	0.050	-	93	63-131
Bromobenzene	ND	0.0450	0.0050	0.050	-	90	66-127
Bromochloromethane	ND	0.0452	0.0050	0.050	-	90	64-124
Bromodichloromethane	ND	0.0395	0.0050	0.050	-	79	64-120
Bromoform	ND	0.0344	0.0050	0.050	-	69	48-92
Bromomethane	ND	0.0602	0.0050	0.050	-	120	25-163
2-Butanone (MEK)	ND	0.169	0.020	0.20	-	85	51-133
t-Butyl alcohol (TBA)	ND	0.161	0.050	0.20	-	80	52-129
n-Butyl benzene	ND	0.0736	0.0050	0.050	-	147	83-200
sec-Butyl benzene	ND	0.0707	0.0050	0.050	-	141	81-199
tert-Butyl benzene	ND	0.0701	0.0050	0.050	-	140	79-178
Carbon Disulfide	ND	0.0494	0.0050	0.050	-	99	64-136
Carbon Tetrachloride	ND	0.0461	0.0050	0.050	-	92	66-140
Chlorobenzene	ND	0.0442	0.0050	0.050	-	88	73-116
Chloroethane	ND	0.0451	0.0050	0.050	-	90	35-147
Chloroform	ND	0.0434	0.0050	0.050	-	87	65-130
Chloromethane	ND	0.0458	0.0050	0.050	-	92	30-137
2-Chlorotoluene	ND	0.0543	0.0050	0.050	-	109	75-152
4-Chlorotoluene	ND	0.0514	0.0050	0.050	-	103	71-148
Dibromochloromethane	ND	0.0387	0.0050	0.050	-	77	61-106
1,2-Dibromo-3-chloropropane	ND	0.0126	0.0040	0.020	-	63	36-120
1,2-Dibromoethane (EDB)	ND	0.0384	0.0040	0.050	-	77	67-118
Dibromomethane	ND	0.0387	0.0050	0.050	-	77	61-116
1,2-Dichlorobenzene	ND	0.0396	0.0050	0.050	-	79	59-106
1,3-Dichlorobenzene	ND	0.0514	0.0050	0.050	-	103	75-129
1,4-Dichlorobenzene	ND	0.0473	0.0050	0.050	-	95	66-127
Dichlorodifluoromethane	ND	0.0273	0.0050	0.050	-	55	13-74
1,1-Dichloroethane	ND	0.0453	0.0050	0.050	-	91	65-134
1,2-Dichloroethane (1,2-DCA)	ND	0.0404	0.0040	0.050	-	81	57-131
1,1-Dichloroethene	ND	0.0435	0.0050	0.050	-	87	62-127
cis-1,2-Dichloroethene	ND	0.0430	0.0050	0.050	-	86	66-130
trans-1,2-Dichloroethene	ND	0.0448	0.0050	0.050	-	90	60-131
1,2-Dichloropropane	ND	0.0426	0.0050	0.050	-	85	63-127
1,3-Dichloropropane	ND	0.0391	0.0050	0.050	-	78	68-124
2,2-Dichloropropane	ND	0.0431	0.0050	0.050	-	86	63-150

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	0.0410	0.0050	0.050	-	82	67-134
cis-1,3-Dichloropropene	ND	0.0428	0.0050	0.050	-	86	65-138
trans-1,3-Dichloropropene	ND	0.0434	0.0050	0.050	-	87	66-124
Diisopropyl ether (DIPE)	ND	0.0451	0.0050	0.050	-	90	58-129
Ethylbenzene	ND	0.0537	0.0050	0.050	-	107	73-145
Ethyl tert-butyl ether (ETBE)	ND	0.0416	0.0050	0.050	-	83	62-125
Freon 113	ND	0.0395	0.0050	0.050	-	79	55-116
Hexachlorobutadiene	ND	0.0600	0.0050	0.050	-	120	75-178
Hexachloroethane	ND	0.0547	0.0050	0.050	-	109	75-152
2-Hexanone	ND	0.0345	0.0050	0.050	-	69	41-113
Isopropylbenzene	ND	0.0570	0.0050	0.050	-	114	67-172
4-Isopropyl toluene	ND	0.0659	0.0050	0.050	-	132	88-171
Methyl-t-butyl ether (MTBE)	ND	0.0388	0.0050	0.050	-	77	58-122
Methylene chloride	ND	0.0447	0.0050	0.050	-	89	57-140
4-Methyl-2-pentanone (MIBK)	ND	0.0329	0.0050	0.050	-	66	42-117
Naphthalene	ND	0.0230	0.0050	0.050	-	46	29-65
n-Propyl benzene	ND	0.0605	0.0050	0.050	-	121	85-174
Styrene	ND	0.0500	0.0050	0.050	-	100	63-126
1,1,1,2-Tetrachloroethane	ND	0.0426	0.0050	0.050	-	85	68-131
1,1,2,2-Tetrachloroethane	ND	0.0381	0.0050	0.050	-	76	45-121
Tetrachloroethene	ND	0.0504	0.0050	0.050	-	101	65-150
Toluene	ND	0.0473	0.0050	0.050	-	95	72-135
1,2,3-Trichlorobenzene	ND	0.0260	0.0050	0.050	-	52	35-80
1,2,4-Trichlorobenzene	ND	0.0317	0.0050	0.050	-	63	45-103
1,1,1-Trichloroethane	ND	0.0447	0.0050	0.050	-	89	67-137
1,1,2-Trichloroethane	ND	0.0398	0.0050	0.050	-	79	67-117
Trichloroethene	ND	0.0452	0.0050	0.050	-	90	62-135
Trichlorofluoromethane	ND	0.0416	0.0050	0.050	-	83	56-124
1,2,3-Trichloropropane	ND	0.0440	0.0050	0.050	-	88	58-133
1,2,4-Trimethylbenzene	ND	0.0562	0.0050	0.050	-	112	78-161
1,3,5-Trimethylbenzene	ND	0.0609	0.0050	0.050	-	122	85-170
Vinyl Chloride	ND	0.0455	0.0050	0.050	-	91	32-142
Xylenes, Total	ND	0.149	0.0050	0.15	-	99	70-137

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.125	0.125		0.12	100	100	87-127
Toluene-d8	0.153	0.154		0.12	122	123	93-141
4-BFB	0.0120	0.0128		0.012	96	102	84-137
Benzene-d6	0.115	0.111		0.10	115	111	67-131
Ethylbenzene-d10	0.136	0.135		0.10	136	135	78-153
1,2-DCB-d4	0.0885	0.0864		0.10	89	86	63-109

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acetone	0.898	0.773	1	ND	90	77	36-141	15.0	20
tert-Amyl methyl ether (TAME)	0.0339	0.0296	0.050	ND	68	59	46-105	13.5	20
Benzene	0.0439	0.0385	0.050	ND	88	77	46-124	13.1	20
Bromobenzene	0.0423	0.0380	0.050	ND	85	76	50-119	10.6	20
Bromochloromethane	0.0423	0.0373	0.050	ND	85	75	42-122	12.6	20
Bromodichloromethane	0.0380	0.0336	0.050	ND	76	67	48-112	12.1	20
Bromoform	0.0334	0.0294	0.050	ND	67	59	36-90	12.7	20
Bromomethane	0.0490	0.0448	0.050	ND	98	90	10-149	9.05	20
2-Butanone (MEK)	0.159	0.146	0.20	ND	79	73	43-114	8.55	20
t-Butyl alcohol (TBA)	0.144	0.126	0.20	ND	72	63	33-123	13.9	20
n-Butyl benzene	0.0651	0.0549	0.050	ND	130	110	40-185	17.1	20
sec-Butyl benzene	0.0600	0.0502	0.050	ND	120	100	40-183	17.8	20
tert-Butyl benzene	0.0613	0.0526	0.050	ND	123	105	44-168	15.4	20
Carbon Disulfide	0.0439	0.0398	0.050	ND	88	80	23-139	9.93	20
Carbon Tetrachloride	0.0429	0.0379	0.050	ND	86	76	43-133	12.5	20
Chlorobenzene	0.0410	0.0359	0.050	ND	82	72	51-115	13.3	20
Chloroethane	0.0373	0.0346	0.050	ND	75	69	16-138	7.50	20
Chloroform	0.0413	0.0368	0.050	ND	83	74	54-117	11.7	20
Chloromethane	0.0381	0.0344	0.050	ND	76	69	14-128	10.3	20
2-Chlorotoluene	0.0487	0.0435	0.050	ND	97	87	54-141	11.3	20
4-Chlorotoluene	0.0465	0.0414	0.050	ND	93	83	52-134	11.6	20
Dibromochloromethane	0.0369	0.0323	0.050	ND	74	65	46-102	13.4	20
1,2-Dibromo-3-chloropropane	0.0124	0.0114	0.020	ND	62	57	16-120	8.21	20
1,2-Dibromoethane (EDB)	0.0372	0.0319	0.050	ND	74	64	48-113	15.4	20
Dibromomethane	0.0363	0.0324	0.050	ND	73	65	44-110	11.2	20
1,2-Dichlorobenzene	0.0373	0.0338	0.050	ND	75	68	43-106	9.68	20
1,3-Dichlorobenzene	0.0463	0.0412	0.050	ND	93	82	49-128	11.7	20
1,4-Dichlorobenzene	0.0430	0.0383	0.050	ND	86	77	48-120	11.5	20
Dichlorodifluoromethane	0.0211	0.0196	0.050	ND	42	39	8-63	7.28	20
1,1-Dichloroethane	0.0414	0.0373	0.050	ND	83	75	50-122	10.4	20
1,2-Dichloroethane (1,2-DCA)	0.0378	0.0336	0.050	ND	76	67	46-116	11.7	20
1,1-Dichloroethene	0.0396	0.0353	0.050	ND	79	71	37-124	11.6	20
cis-1,2-Dichloroethene	0.0401	0.0357	0.050	ND	80	71	47-123	11.5	20
trans-1,2-Dichloroethene	0.0412	0.0367	0.050	ND	82	73	31-131	11.4	20
1,2-Dichloropropane	0.0401	0.0357	0.050	ND	80	71	50-116	11.5	20
1,3-Dichloropropane	0.0376	0.0320	0.050	ND	75	64	52-115	15.9	20
2,2-Dichloropropane	0.0402	0.0356	0.050	ND	80	71	43-137	12.4	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
1,1-Dichloropropene	0.0387	0.0338	0.050	ND	77	68	43-126	13.5	20
cis-1,3-Dichloropropene	0.0413	0.0354	0.050	ND	83	71	35-134	15.4	20
trans-1,3-Dichloropropene	0.0409	0.0355	0.050	ND	82	71	35-124	14.1	20
Diisopropyl ether (DIPE)	0.0417	0.0378	0.050	ND	83	76	49-116	9.96	20
Ethylbenzene	0.0479	0.0412	0.050	ND	96	82	49-137	15.1	20
Ethyl tert-butyl ether (ETBE)	0.0390	0.0349	0.050	ND	78	70	50-113	11.1	20
Freon 113	0.0346	0.0309	0.050	ND	69	62	28-114	11.2	20
Hexachlorobutadiene	0.0535	0.0478	0.050	ND	107	96	22-180	11.1	20
Hexachloroethane	0.0515	0.0459	0.050	ND	103	92	28-158	11.4	20
2-Hexanone	0.0325	0.0282	0.050	ND	65	56	31-102	14.0	20
Isopropylbenzene	0.0483	0.0419	0.050	ND	97	84	50-153	14.2	20
4-Isopropyl toluene	0.0593	0.0502	0.050	ND	119	100	41-171	16.7	20
Methyl-t-butyl ether (MTBE)	0.0366	0.0321	0.050	ND	73	64	48-110	13.1	20
Methylene chloride	0.0429	0.0385	0.050	ND	86	77	42-127	10.9	20
4-Methyl-2-pentanone (MIBK)	0.0320	0.0268	0.050	ND	64	53	24-114	17.9	20
Naphthalene	0.0228	0.0220	0.050	ND	44	43	19-69	3.74	20
n-Propyl benzene	0.0536	0.0463	0.050	ND	107	93	46-168	14.5	20
Styrene	0.0425	0.0387	0.050	ND	85	77	42-122	9.41	20
1,1,1,2-Tetrachloroethane	0.0404	0.0361	0.050	ND	81	72	52-121	11.4	20
1,1,2,2-Tetrachloroethane	0.0386	0.0341	0.050	ND	77	68	27-116	12.5	20
Tetrachloroethene	0.0465	0.0410	0.050	ND	93	82	37-149	12.6	20
Toluene	0.0443	0.0387	0.050	ND	89	77	52-124	13.5	20
1,2,3-Trichlorobenzene	0.0248	0.0247	0.050	ND	50	49	20-86	0.522	20
1,2,4-Trichlorobenzene	0.0305	0.0297	0.050	ND	61	59	24-107	2.58	20
1,1,1-Trichloroethane	0.0416	0.0367	0.050	ND	83	73	48-128	12.6	20
1,1,2-Trichloroethane	0.0377	0.0327	0.050	ND	75	65	51-110	14.2	20
Trichloroethene	0.0417	0.0376	0.050	ND	83	75	42-128	10.4	20
Trichlorofluoromethane	0.0375	0.0334	0.050	ND	75	67	31-121	11.7	20
1,2,3-Trichloropropane	0.0433	0.0375	0.050	ND	87	75	50-115	14.2	20
1,2,4-Trimethylbenzene	0.0526	0.0460	0.050	ND	105	92	48-151	13.2	20
1,3,5-Trimethylbenzene	0.0568	0.0492	0.050	ND	114	98	51-159	14.3	20
Vinyl Chloride	0.0381	0.0360	0.050	ND	76	72	11-136	5.49	20
Xylenes, Total	0.128	0.111	0.15	ND	85	74	38-141	14.0	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	0.128	0.128	0.12		103	102	82-136	0.416	20
Toluene-d8	0.154	0.151	0.12		124	121	92-139	2.22	20
4-BFB	0.0131	0.0131	0.012		105	105	82-135	0	20
Benzene-d6	0.104	0.0913	0.10		104	91	55-122	13.1	20
Ethylbenzene-d10	0.119	0.102	0.10		119	101	58-141	16.2	20
1,2-DCB-d4	0.0822	0.0743	0.10		82	74	51-107	10.1	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	3.86	0.25	5	-	77	46-118
Acenaphthylene	ND	4.12	0.25	5	-	82	43-122
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	3.98	0.25	5	-	80	47-125
Benzidine	ND	1.96	1.3	5	-	39	13-83
Benzo (a) anthracene	ND	4.17	0.25	5	-	83	53-117
Benzo (a) pyrene	ND	4.44	0.25	5	-	89	53-138
Benzo (b) fluoranthene	ND	4.06	0.25	5	-	81	48-125
Benzo (g,h,i) perylene	ND	4.35	0.25	5	-	87	51-146
Benzo (k) fluoranthene	ND	4.10	0.25	5	-	82	53-124
Benzyl Alcohol	ND	4.48	1.3	5	-	90	51-105
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	4.26	0.25	5	-	85	48-115
Bis (2-chloroethyl) Ether	ND	4.06	0.25	5	-	81	51-105
Bis (2-chloroisopropyl) Ether	ND	5.36	0.25	5	-	107	85-119
Bis (2-ethylhexyl) Adipate	ND	4.37	0.25	5	-	87	46-117
Bis (2-ethylhexyl) Phthalate	ND	4.08	0.25	5	-	82	50-124
4-Bromophenyl Phenyl Ether	ND	3.81	0.25	5	-	76	70-112
Butylbenzyl Phthalate	ND	4.57	0.25	5	-	91	55-127
4-Chloroaniline	ND	2.72	0.50	5	-	54	18-77
4-Chloro-3-methylphenol	ND	4.60	0.25	5	-	92	49-123
2-Chloronaphthalene	ND	4.06	0.25	5	-	81	44-109
2-Chlorophenol	ND	4.55	0.25	5	-	91	55-116
4-Chlorophenyl Phenyl Ether	ND	3.99	0.25	5	-	80	45-122
Chrysene	ND	4.16	0.25	5	-	83	54-116
Dibenzo (a,h) anthracene	ND	4.05	0.25	5	-	81	52-141
Dibenzofuran	ND	4.05	0.25	5	-	81	46-117
Di-n-butyl Phthalate	ND	3.71	0.25	5	-	74	45-126
1,2-Dichlorobenzene	ND	4.45	0.25	5	-	89	55-105
1,3-Dichlorobenzene	ND	3.91	0.25	5	-	78	51-104
1,4-Dichlorobenzene	ND	3.70	0.25	5	-	74	50-102
3,3-Dichlorobenzidine	ND	3.18	0.50	5	-	64	20-84
2,4-Dichlorophenol	ND	4.88	0.25	5	-	98	54-124
Diethyl Phthalate	ND	3.81	0.25	5	-	76	42-118
2,4-Dimethylphenol	ND	5.22	0.25	5	-	105	53-120
Dimethyl Phthalate	ND	3.89	0.25	5	-	78	45-118
4,6-Dinitro-2-methylphenol	ND	3.28	1.3	5	-	65	32-126

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	2.58	6.3	5	-	52	20-130
2,4-Dinitrotoluene	ND	4.56	0.25	5	-	91	47-117
2,6-Dinitrotoluene	ND	4.23	0.25	5	-	85	48-121
Di-n-octyl Phthalate	ND	4.24	0.50	5	-	85	40-150
1,2-Diphenylhydrazine	ND	4.11	0.25	5	-	82, F2	88-117
Fluoranthene	ND	4.11	0.25	5	-	82	45-126
Fluorene	ND	4.07	0.25	5	-	81	43-118
Hexachlorobenzene	ND	3.55	0.25	5	-	71	47-130
Hexachlorobutadiene	ND	3.87	0.25	5	-	77	50-121
Hexachlorocyclopentadiene	ND	1.94	1.3	5	-	39	30-89
Hexachloroethane	ND	3.87	0.25	5	-	77	50-106
Indeno (1,2,3-cd) pyrene	ND	4.00	0.25	5	-	80	51-138
Isophorone	ND	3.31	0.25	5	-	66	38-92
2-Methylnaphthalene	ND	4.56	0.25	5	-	91	51-121
2-Methylphenol (o-Cresol)	ND	3.68	0.25	5	-	74	48-114
3 & 4-Methylphenol (m,p-Cresol)	ND	4.50	0.25	5	-	90	30-130
Naphthalene	ND	3.90	0.25	5	-	78	50-113
2-Nitroaniline	ND	4.67	1.3	5	-	93	45-115
3-Nitroaniline	ND	3.57	1.3	5	-	71	31-93
4-Nitroaniline	ND	4.47	1.3	5	-	89	41-108
Nitrobenzene	ND	4.29	0.25	5	-	86	49-122
2-Nitrophenol	ND	4.65	1.3	5	-	93	54-121
4-Nitrophenol	ND	3.59	1.3	5	-	72	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	5.03	0.25	5	-	101	47-108
Pentachlorophenol	ND	4.51	1.3	5	-	90	39-134
Phenanthrene	ND	3.76	0.25	5	-	75	49-123
Phenol	ND	4.56	0.25	5	-	91	49-107
Pyrene	ND	4.30	0.25	5	-	86	55-124
Pyridine	ND	6.23	0.25	5	-	125	70-130
1,2,4-Trichlorobenzene	ND	4.15	0.25	5	-	83	51-121
2,4,5-Trichlorophenol	ND	4.56	0.25	5	-	91	45-126
2,4,6-Trichlorophenol	ND	4.12	0.25	5	-	82	46-128

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.06	4.70		5	101	94	47-125
Phenol-d5	5.06	4.87		5	101	97	45-117
Nitrobenzene-d5	3.94	4.56		5	79	91	39-121
2-Fluorobiphenyl	3.77	4.08		5	75	82	35-120
2,4,6-Tribromophenol	4.70	5.43		5	94	109	32-111
4-Terphenyl-d14	3.60	4.48		5	72	90	32-128

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acenaphthene	NR	NR		ND<2	NR	NR	-	NR	-
Acenaphthylene	NR	NR		ND<2	NR	NR	-	NR	-
Anthracene	NR	NR		ND<2	NR	NR	-	NR	-
Benzidine	NR	NR		ND<10	NR	NR	-	NR	-
Benzo (a) anthracene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (a) pyrene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (b) fluoranthene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (g,h,i) perylene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (k) fluoranthene	NR	NR		ND<2	NR	NR	-	NR	-
Benzyl Alcohol	NR	NR		ND<10	NR	NR	-	NR	-
Bis (2-chloroethoxy) Methane	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-chloroethyl) Ether	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-chloroisopropyl) Ether	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-ethylhexyl) Adipate	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-ethylhexyl) Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
4-Bromophenyl Phenyl Ether	NR	NR		ND<2	NR	NR	-	NR	-
Butylbenzyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
4-Chloroaniline	NR	NR		ND<4	NR	NR	-	NR	-
4-Chloro-3-methylphenol	NR	NR		ND<2	NR	NR	-	NR	-
2-Chloronaphthalene	NR	NR		ND<2	NR	NR	-	NR	-
2-Chlorophenol	NR	NR		ND<2	NR	NR	-	NR	-
4-Chlorophenyl Phenyl Ether	NR	NR		ND<2	NR	NR	-	NR	-
Chrysene	NR	NR		ND<2	NR	NR	-	NR	-
Dibenzo (a,h) anthracene	NR	NR		ND<2	NR	NR	-	NR	-
Dibenzofuran	NR	NR		ND<2	NR	NR	-	NR	-
Di-n-butyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
1,2-Dichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
1,3-Dichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
1,4-Dichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
3,3-Dichlorobenzidine	NR	NR		ND<4	NR	NR	-	NR	-
2,4-Dichlorophenol	NR	NR		ND<2	NR	NR	-	NR	-
Diethyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
2,4-Dimethylphenol	NR	NR		ND<2	NR	NR	-	NR	-
Dimethyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
4,6-Dinitro-2-methylphenol	NR	NR		ND<10	NR	NR	-	NR	-
2,4-Dinitrophenol	NR	NR		ND<50	NR	NR	-	NR	-
2,4-Dinitrotoluene	NR	NR		ND<2	NR	NR	-	NR	-

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
2,6-Dinitrotoluene	NR	NR		ND<2	NR	NR	-	NR	-
Di-n-octyl Phthalate	NR	NR		ND<4	NR	NR	-	NR	-
1,2-Diphenylhydrazine	NR	NR		ND<2	NR	NR	-	NR	-
Fluoranthene	NR	NR		ND<2	NR	NR	-	NR	-
Fluorene	NR	NR		ND<2	NR	NR	-	NR	-
Hexachlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
Hexachlorobutadiene	NR	NR		ND<2	NR	NR	-	NR	-
Hexachlorocyclopentadiene	NR	NR		ND<10	NR	NR	-	NR	-
Hexachloroethane	NR	NR		ND<2	NR	NR	-	NR	-
Indeno (1,2,3-cd) pyrene	NR	NR		ND<2	NR	NR	-	NR	-
Isophorone	NR	NR		ND<2	NR	NR	-	NR	-
2-Methylnaphthalene	NR	NR		ND<2	NR	NR	-	NR	-
2-Methylphenol (o-Cresol)	NR	NR		ND<2	NR	NR	-	NR	-
3 & 4-Methylphenol (m,p-Cresol)	NR	NR		ND<2	NR	NR	-	NR	-
Naphthalene	NR	NR		ND<2	NR	NR	-	NR	-
2-Nitroaniline	NR	NR		ND<10	NR	NR	-	NR	-
3-Nitroaniline	NR	NR		ND<10	NR	NR	-	NR	-
4-Nitroaniline	NR	NR		ND<10	NR	NR	-	NR	-
Nitrobenzene	NR	NR		ND<2	NR	NR	-	NR	-
2-Nitrophenol	NR	NR		ND<10	NR	NR	-	NR	-
4-Nitrophenol	NR	NR		ND<10	NR	NR	-	NR	-
N-Nitrosodi-n-propylamine	NR	NR		ND<2	NR	NR	-	NR	-
Pentachlorophenol	NR	NR		ND<10	NR	NR	-	NR	-
Phenanthrene	NR	NR		ND<2	NR	NR	-	NR	-
Phenol	NR	NR		ND<2	NR	NR	-	NR	-
Pyrene	NR	NR		ND<2	NR	NR	-	NR	-
Pyridine	NR	NR		ND<2	NR	NR	-	NR	-
1,2,4-Trichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
2,4,5-Trichlorophenol	NR	NR		ND<2	NR	NR	-	NR	-
2,4,6-Trichlorophenol	NR	NR		ND<2	NR	NR	-	NR	-

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
2-Fluorophenol	NR	NR			NR	NR	-	NR	-
Phenol-d5	NR	NR			NR	NR	-	NR	-
Nitrobenzene-d5	NR	NR			NR	NR	-	NR	-
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	-
2,4,6-Tribromophenol	NR	NR			NR	NR	-	NR	-
4-Terphenyl-d14	NR	NR			NR	NR	-	NR	-

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153077
Date Analyzed:	2/13/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153077 1802523-001AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	52.3	0.50	50	-	105	75-125
Arsenic	ND	53.9	0.50	50	-	108	75-125
Barium	ND	525	5.0	500	-	105	75-125
Beryllium	ND	50.6	0.50	50	-	101	75-125
Cadmium	ND	49.8	0.25	50	-	100	75-125
Chromium	ND	49.8	0.50	50	-	100	75-125
Cobalt	ND	50.3	0.50	50	-	101	75-125
Copper	ND	50.6	0.50	50	-	101	75-125
Lead	ND	51.5	0.50	50	-	103	75-125
Mercury	ND	1.13	0.050	1.25	-	91	75-125
Molybdenum	ND	49.8	0.50	50	-	100	75-125
Nickel	ND	51.5	0.50	50	-	103	75-125
Selenium	ND	53.2	0.50	50	-	106	75-125
Silver	ND	51.3	0.50	50	-	103	75-125
Thallium	ND	49.2	0.50	50	-	98	75-125
Vanadium	ND	50.1	0.50	50	-	100	75-125
Zinc	ND	506	5.0	500	-	101	75-125
Surrogate Recovery							
Terbium	512	534		500	102	107	70-130

(Cont.)

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153077
Date Analyzed:	2/13/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153077 1802523-001AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	53.1	53.9	50	1.916	102	104	75-125	1.44	20
Arsenic	52.5	54.4	50	4.271	96	100	75-125	3.63	20
Barium	696	707	500	165.1	106	108	75-125	1.55	20
Beryllium	48.4	48.4	50	0.7526	95	95	75-125	0	20
Cadmium	51.7	51.6	50	ND	103	103	75-125	0	20
Chromium	108	105	50	54.07	108	102	75-125	2.91	20
Cobalt	68.4	66.2	50	17.81	101	97	75-125	3.27	20
Copper	80.7	85.4	50	30.41	101	110	75-125	5.71	20
Lead	61.4	61.4	50	55.86	11,F10	11,F10	75-125	0	20
Mercury	1.25	1.28	1.25	ND	96	98	75-125	1.90	20
Molybdenum	52.7	53.6	50	ND	105	106	75-125	1.58	20
Nickel	163	162	50	100.4	124	124	75-125	0	20
Selenium	49.9	50.4	50	ND	99	100	75-125	0.977	20
Silver	50.7	51.6	50	ND	101	103	75-125	1.74	20
Thallium	52.0	53.0	50	ND	104	106	75-125	1.87	20
Vanadium	118	114	50	61.68	112	105	75-125	2.76	20
Zinc	596	600	500	73.76	104	105	75-125	0.619	20
Surrogate Recovery									
Terbium	560	570	500		112	114	70-130	1.84	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	2.02	1.916	5.43	-
Arsenic	3.80	4.271	11.0	-
Barium	158	165.1	4.30	20
Beryllium	0.965	0.7526	28.2	-
Cadmium	ND<1.2	ND	-	-
Chromium	55.4	54.07	2.46	20
Cobalt	18.6	17.81	4.44	20
Copper	30.4	30.41	0.0329	20
Lead	53.6	55.86	4.05	20
Mercury	0.0355	ND	-	-
Molybdenum	ND<2.5	ND	-	-
Nickel	96.3	100.4	4.08	20
Selenium	ND<2.5	ND	-	-

(Cont.)

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153077
Date Analyzed:	2/13/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153077 1802523-001AMS/MSD

QC Summary Report for Metals

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Silver	ND<2.5	ND	-	-
Thallium	ND<2.5	ND	-	-
Vanadium	62.6	61.68	1.49	20
Zinc	72.3	73.76	1.98	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153082
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153082 1802525-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	1.0	-	-	-
MTBE	ND	0.050	-	-	-
Benzene	ND	0.0050	-	-	-
Toluene	ND	0.0050	-	-	-
Ethylbenzene	ND	0.0050	-	-	-
Xylenes	ND	0.0050	-	-	-
Surrogate Recovery					
2-Fluorotoluene	0.107		0.10	107	75-134

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.688	0.715	0.60	115	119, F2	82-118	3.75	20
MTBE	0.0900	0.0927	0.10	90	93	61-119	2.95	20
Benzene	0.108	0.109	0.10	108	109	77-128	0.293	20
Toluene	0.112	0.111	0.10	112	111	74-132	0.619	20
Ethylbenzene	0.111	0.110	0.10	111	110	84-127	0.698	20
Xylenes	0.336	0.333	0.30	112	111	86-129	0.772	20
Surrogate Recovery								
2-Fluorotoluene	0.106	0.104	0.10	106	104	75-134	2.12	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	0.647	0.667	0.60	ND	108	111	58-129	3.08	20
MTBE	0.102	0.0823	0.10	ND	102	82	47-118	21.6,F1	20
Benzene	0.0973	0.117	0.10	ND	97	117	55-129	18.4	20
Toluene	0.102	0.117	0.10	ND	102	117	56-130	13.8	20
Ethylbenzene	0.102	0.118	0.10	ND	103	118	63-129	14.2	20
Xylenes	0.308	0.354	0.30	ND	103	118	64-131	14.1	20
Surrogate Recovery									
2-Fluorotoluene	0.0959	0.114	0.10		96	114	62-126	17.1	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802499
Date Prepared:	2/12/18	**BatchID:**	153081
Date Analyzed:	2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC6A	**Analytical Method:**	SW8015B
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153081 1802525-001AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	40.0	1.0	40	-	100	75-128
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.5	24.0		25	98	96	72-122

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR		14	NR	NR	-	NR	-
Surrogate Recovery									
C9	NR	NR			NR	NR	-	NR	-

McCampbell Analytical, Inc.

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1802499 **ClientCode: AELS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

☐ Detection Summary ☐ Dry-Weight

Report to:
Nina Abdollahian
AEI Consultants
3880 S. Bascom Ave, Suite 109
San Jose, CA 95124
408-559-7600 FAX:

Email: nabdollahian@aeiconsultants.com
cc/3rd Party: jasmith@aeiconsultants.com;
PO: 152768
Project: 383559; Emerald Buy Homes Palo Alto

Bill to:
Accounts Payable
AEI Consultants
2500 Camino Diablo, Ste. #200
Walnut Creek, CA 94597
AccountsPayable@AEIConsultants.com

Requested TAT: **5 days;**

Date Received: **02/09/2018**
Date Logged: **02/09/2018**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1802499-001	SB-1A-W	Water	2/9/2018 12:10	☑			B					A		A		
1802499-002	SB-5-0.5	Soil	2/9/2018 11:32	☐	A	A		A	A	A	A		A			

Test Legend:

1	8081PCB_S	2	8260B_S	3	8260B_W	4	8270_S
5	ASBESTOS_E600PLM_S	6	CAM17MS_TTLC_S	7	G-MBTEX_S	8	G-MBTEX_W
9	TPH(DMO)_S	10	TPH(DMO)_W	11		12	

Prepared by: Nancy Palacios

The following SampID: 002A contains testgroup Multi Range_S.; The following SampID: 001A contains testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: AEI CONSULTANTS **Project:** 383559; Emerald Buy Homes Palo Alto **Work Order:** 1802499
Client Contact: Nina Abdollahian **QC Level:** LEVEL 2
Contact's Email: nabdollahian@aeiconsultants.com **Comments:** **Date Logged:** 2/9/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1802499-001A	SB-1A-W	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	2	VOA w/ HCl	☐	2/9/2018 12:10	5 days	1%+	☑	
1802499-001B	SB-1A-W	Water	SW8260B (VOCs)	1	VOA w/ HCl	☐	2/9/2018 12:10	5 days	1%+	☑	
1802499-002A	SB-5-0.5	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	☐	2/9/2018 11:32	5 days		☐	
			SW6020 (CAM 17) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc>			☐		5 days		☐	
			Asbestos - PLM			☐		5 days		☐	SubOut
			SW8270C (SVOCs)			☐		5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
			SW8081A/8082 (OC Pesticides+PCBs)			☐		5 days		☐	
1802499-003A	SB-5-3.5	Soil		1	Acetate Liner	☐	2/9/2018 11:29			☑	
1802499-004A	SB-5-7.5	Soil		1	Acetate Liner	☐	2/9/2018 11:34			☑	
1802499-005A	SB-5-11.5	Soil		1	Acetate Liner	☐	2/9/2018 11:40			☑	
1802499-006A	SB-5-14.5	Soil		1	Acetate Liner	☐	2/9/2018 11:46			☑	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1802499

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CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	●	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format:	PDF	●	GeoTracker EDF		EDD		Write On (DW)		EQuIS

Report To: Nina Abdollahian Bill To: AEI Consultants
Company: AEI Consultants
Email: nabdollahian@aeiconsultants.com
Alt Email: jasmith@aeiconsultants.com Tele: 408-559-7600
Project Name: Emerald Buy Homes Project #:383559
Project Location: Palo Alto PO # 152768
Sampler Signature:

Analysis Requested

	SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	TPH-mo, TPH-g, and TPH-d by 8015M	EPA 8081A (Cl Pesticides)	Arsenic and Lead using 6010B	VOCs using 8260B	SVOCs using 8270C	PCBs using 8082	Title 22 Metals using 6010B and 7471A	Asbestos by PLM	HOLD		OC Pesticides 8081 + PCBs 8082							
HOLD	SB-1A-W	2/9/18	1210	3	GW	1,2	~~X~~			~~X~~					X									
→	SB-5-0.5	2/9/18	1152	1	S	1	X			X	X		X	X	X		X							
	SB-5-3.5	2/9/18	1129	1	S	1									X									
	SB-5-7.5	2/9/18	1134	1	S	1									X									
	SB-5-11.5	2/9/18	1140	1	S	1									X									
	SB-5-14.5	2/9/18	1146	1	S	1									X									

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
[signature]	2/9/18	1406	L Moore	2/9/18	1450
L Moore	2/9/18	1740	Nancy Palacios	2/9/18	1740

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ____ °C Initials ____

4.7 WET

Page ___ of ___

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Sample Receipt Checklist

Client Name:	**AEI Consultants**	Date and Time Received	**2/9/2018 17:40**
Project:	**383559; Emerald Buy Homes Palo Alto**	Date Logged:	**2/9/2018**
		Received by:	Nancy Palacios
WorkOrder №:	**1802499** Matrix: Soil/Water	Logged by:	Nancy Palacios
Carrier:	Laurie Moore (MAI Courier)		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☐	☑	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☐	☐	☑
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☑	☐	☐
Sample/Temp Blank temperature	Temp: 4.7°C		☐
Water - VOA vials have zero headspace / no bubbles?	☑	☐	☐
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	☐	☐	☑
Samples Received on Ice?	☑	☐	
(Ice Type: WET ICE)			

UCMR Samples:

	Yes	No	NA
pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	☐	☐	☑

Comments: Method SW8021B/8015Bm (G/MBTEX) was received with temperature condition not met. Method SW8015B (Diesel & Motor Oil) was received with temperature condition not met. Method SW8260B (VOCs) was received with temperature condition not met. Method SW8270C (SVOCs) was received with temperature condition not met. Method SW7471B (Mercury) was received with temperature condition not met. Method SW8081A/8082 (OC Pesticides+PCBs) was received with temperature condition not met.

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1802512

Report Created for: AEI Consultants

3880 S. Bascom Ave, Suite 109
San Jose, CA 95124

Project Contact: Nina Abdollahian
Project P.O.: 152768
Project: 383559; Emerald Buy Homes Palo Alto

Project Received: 02/09/2018

Analytical Report reviewed & approved for release on 02/16/2018 by:

Christine Askari
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

NELAP ACCREDITED TNI LABORATORY

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Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes Palo Alto
WorkOrder: 1802512

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes Palo Alto
WorkOrder: 1802512

Analytical Qualifiers

S	Surrogate spike recovery outside accepted recovery limits
b1	Aqueous sample that contains greater than ~1 vol. % sediment
c11	The surrogate recovery is above the upper control limit. The target analyte(s) were Not Detected (ND); therefore, the data has been reported.
e2	Diesel range compounds are significant; no recognizable pattern
e7	Oil range compounds are significant

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18-2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-W	**1802512-002B**	**Water**	**02/09/2018 14:25**	**GC16 02141828.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/15/2018 01:30
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/15/2018 01:30
Benzene	ND	0.50	1	02/15/2018 01:30
Bromobenzene	ND	0.50	1	02/15/2018 01:30
Bromochloromethane	ND	0.50	1	02/15/2018 01:30
Bromodichloromethane	ND	0.50	1	02/15/2018 01:30
Bromoform	ND	0.50	1	02/15/2018 01:30
Bromomethane	ND	0.50	1	02/15/2018 01:30
2-Butanone (MEK)	ND	2.0	1	02/15/2018 01:30
t-Butyl alcohol (TBA)	ND	2.0	1	02/15/2018 01:30
n-Butyl benzene	ND	0.50	1	02/15/2018 01:30
sec-Butyl benzene	ND	0.50	1	02/15/2018 01:30
tert-Butyl benzene	ND	0.50	1	02/15/2018 01:30
Carbon Disulfide	ND	0.50	1	02/15/2018 01:30
Carbon Tetrachloride	ND	0.50	1	02/15/2018 01:30
Chlorobenzene	ND	0.50	1	02/15/2018 01:30
Chloroethane	ND	0.50	1	02/15/2018 01:30
Chloroform	ND	0.50	1	02/15/2018 01:30
Chloromethane	ND	0.50	1	02/15/2018 01:30
2-Chlorotoluene	ND	0.50	1	02/15/2018 01:30
4-Chlorotoluene	ND	0.50	1	02/15/2018 01:30
Dibromochloromethane	ND	0.50	1	02/15/2018 01:30
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/15/2018 01:30
1,2-Dibromoethane (EDB)	ND	0.50	1	02/15/2018 01:30
Dibromomethane	ND	0.50	1	02/15/2018 01:30
1,2-Dichlorobenzene	ND	0.50	1	02/15/2018 01:30
1,3-Dichlorobenzene	ND	0.50	1	02/15/2018 01:30
1,4-Dichlorobenzene	ND	0.50	1	02/15/2018 01:30
Dichlorodifluoromethane	ND	0.50	1	02/15/2018 01:30
1,1-Dichloroethane	ND	0.50	1	02/15/2018 01:30
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/15/2018 01:30
1,1-Dichloroethene	ND	0.50	1	02/15/2018 01:30
cis-1,2-Dichloroethene	**0.98**	0.50	1	02/15/2018 01:30
trans-1,2-Dichloroethene	ND	0.50	1	02/15/2018 01:30
1,2-Dichloropropane	ND	0.50	1	02/15/2018 01:30
1,3-Dichloropropane	ND	0.50	1	02/15/2018 01:30
2,2-Dichloropropane	ND	0.50	1	02/15/2018 01:30

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18-2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-W	**1802512-002B**	**Water**	**02/09/2018 14:25**	**GC16 02141828.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	02/15/2018 01:30
cis-1,3-Dichloropropene	ND	0.50	1	02/15/2018 01:30
trans-1,3-Dichloropropene	ND	0.50	1	02/15/2018 01:30
Diisopropyl ether (DIPE)	ND	0.50	1	02/15/2018 01:30
Ethylbenzene	ND	0.50	1	02/15/2018 01:30
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/15/2018 01:30
Freon 113	ND	0.50	1	02/15/2018 01:30
Hexachlorobutadiene	ND	0.50	1	02/15/2018 01:30
Hexachloroethane	ND	0.50	1	02/15/2018 01:30
2-Hexanone	ND	0.50	1	02/15/2018 01:30
Isopropylbenzene	ND	0.50	1	02/15/2018 01:30
4-Isopropyl toluene	ND	0.50	1	02/15/2018 01:30
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/15/2018 01:30
Methylene chloride	ND	0.50	1	02/15/2018 01:30
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/15/2018 01:30
Naphthalene	ND	0.50	1	02/15/2018 01:30
n-Propyl benzene	ND	0.50	1	02/15/2018 01:30
Styrene	ND	0.50	1	02/15/2018 01:30
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/15/2018 01:30
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/15/2018 01:30
Tetrachloroethene	ND	0.50	1	02/15/2018 01:30
Toluene	ND	0.50	1	02/15/2018 01:30
1,2,3-Trichlorobenzene	ND	0.50	1	02/15/2018 01:30
1,2,4-Trichlorobenzene	ND	0.50	1	02/15/2018 01:30
1,1,1-Trichloroethane	ND	0.50	1	02/15/2018 01:30
1,1,2-Trichloroethane	ND	0.50	1	02/15/2018 01:30
Trichloroethene	**2.9**	0.50	1	02/15/2018 01:30
Trichlorofluoromethane	ND	0.50	1	02/15/2018 01:30
1,2,3-Trichloropropane	ND	0.50	1	02/15/2018 01:30
1,2,4-Trimethylbenzene	ND	0.50	1	02/15/2018 01:30
1,3,5-Trimethylbenzene	ND	0.50	1	02/15/2018 01:30
Vinyl Chloride	ND	0.50	1	02/15/2018 01:30
Xylenes, Total	ND	0.50	1	02/15/2018 01:30

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18-2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-W	**1802512-002B**	**Water**	**02/09/2018 14:25**	**GC16 02141828.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	103	78-134		02/15/2018 01:30
Toluene-d8	108	82-120		02/15/2018 01:30
4-BFB	92	69-131		02/15/2018 01:30

Analyst(s): AK   Analytical Comments: b1

(Cont.)

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Analytical Report

Client: AEI Consultants
Date Received: 2/9/18 17:40
Date Prepared: 2/14/18-2/15/18
Project: 383559; Emerald Buy Homes Palo Alto
WorkOrder: 1802512
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-3-W	1802512-003B	Water	02/09/2018 13:36	GC16 02141815.D	153256

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	02/14/2018 16:57
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/14/2018 16:57
Benzene	ND	0.50	1	02/14/2018 16:57
Bromobenzene	ND	0.50	1	02/14/2018 16:57
Bromochloromethane	ND	0.50	1	02/14/2018 16:57
Bromodichloromethane	ND	0.50	1	02/14/2018 16:57
Bromoform	ND	0.50	1	02/14/2018 16:57
Bromomethane	ND	0.50	1	02/14/2018 16:57
2-Butanone (MEK)	ND	2.0	1	02/14/2018 16:57
t-Butyl alcohol (TBA)	ND	2.0	1	02/14/2018 16:57
n-Butyl benzene	ND	0.50	1	02/14/2018 16:57
sec-Butyl benzene	ND	0.50	1	02/14/2018 16:57
tert-Butyl benzene	ND	0.50	1	02/14/2018 16:57
Carbon Disulfide	ND	0.50	1	02/14/2018 16:57
Carbon Tetrachloride	ND	0.50	1	02/14/2018 16:57
Chlorobenzene	ND	0.50	1	02/14/2018 16:57
Chloroethane	ND	0.50	1	02/14/2018 16:57
Chloroform	ND	0.50	1	02/14/2018 16:57
Chloromethane	ND	0.50	1	02/14/2018 16:57
2-Chlorotoluene	ND	0.50	1	02/14/2018 16:57
4-Chlorotoluene	ND	0.50	1	02/14/2018 16:57
Dibromochloromethane	ND	0.50	1	02/14/2018 16:57
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/14/2018 16:57
1,2-Dibromoethane (EDB)	ND	0.50	1	02/14/2018 16:57
Dibromomethane	ND	0.50	1	02/14/2018 16:57
1,2-Dichlorobenzene	ND	0.50	1	02/14/2018 16:57
1,3-Dichlorobenzene	ND	0.50	1	02/14/2018 16:57
1,4-Dichlorobenzene	ND	0.50	1	02/14/2018 16:57
Dichlorodifluoromethane	ND	0.50	1	02/14/2018 16:57
1,1-Dichloroethane	ND	0.50	1	02/14/2018 16:57
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/14/2018 16:57
1,1-Dichloroethene	ND	0.50	1	02/14/2018 16:57
cis-1,2-Dichloroethene	ND	0.50	1	02/14/2018 16:57
trans-1,2-Dichloroethene	ND	0.50	1	02/14/2018 16:57
1,2-Dichloropropane	ND	0.50	1	02/14/2018 16:57
1,3-Dichloropropane	ND	0.50	1	02/14/2018 16:57
2,2-Dichloropropane	ND	0.50	1	02/14/2018 16:57

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18-2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-3-W	**1802512-003B**	**Water**	**02/09/2018 13:36**	**GC16 02141815.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	02/14/2018 16:57
cis-1,3-Dichloropropene	ND	0.50	1	02/14/2018 16:57
trans-1,3-Dichloropropene	ND	0.50	1	02/14/2018 16:57
Diisopropyl ether (DIPE)	ND	0.50	1	02/14/2018 16:57
Ethylbenzene	ND	0.50	1	02/14/2018 16:57
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/14/2018 16:57
Freon 113	ND	0.50	1	02/14/2018 16:57
Hexachlorobutadiene	ND	0.50	1	02/14/2018 16:57
Hexachloroethane	ND	0.50	1	02/14/2018 16:57
2-Hexanone	ND	0.50	1	02/14/2018 16:57
Isopropylbenzene	ND	0.50	1	02/14/2018 16:57
4-Isopropyl toluene	ND	0.50	1	02/14/2018 16:57
Methyl-t-butyl ether (MTBE)	ND	0.50	1	02/14/2018 16:57
Methylene chloride	ND	0.50	1	02/14/2018 16:57
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/14/2018 16:57
Naphthalene	ND	0.50	1	02/14/2018 16:57
n-Propyl benzene	ND	0.50	1	02/14/2018 16:57
Styrene	ND	0.50	1	02/14/2018 16:57
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/14/2018 16:57
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/14/2018 16:57
Tetrachloroethene	ND	0.50	1	02/14/2018 16:57
Toluene	ND	0.50	1	02/14/2018 16:57
1,2,3-Trichlorobenzene	ND	0.50	1	02/14/2018 16:57
1,2,4-Trichlorobenzene	ND	0.50	1	02/14/2018 16:57
1,1,1-Trichloroethane	ND	0.50	1	02/14/2018 16:57
1,1,2-Trichloroethane	ND	0.50	1	02/14/2018 16:57
Trichloroethene	**0.67**	0.50	1	02/14/2018 16:57
Trichlorofluoromethane	ND	0.50	1	02/14/2018 16:57
1,2,3-Trichloropropane	ND	0.50	1	02/14/2018 16:57
1,2,4-Trimethylbenzene	ND	0.50	1	02/14/2018 16:57
1,3,5-Trimethylbenzene	ND	0.50	1	02/14/2018 16:57
Vinyl Chloride	ND	0.50	1	02/14/2018 16:57
Xylenes, Total	ND	0.50	1	02/14/2018 16:57

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/14/18-2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-3-W	**1802512-003B**	**Water**	**02/09/2018 13:36**	**GC16 02141815.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	103	78-134		02/14/2018 16:57
Toluene-d8	106	82-120		02/14/2018 16:57
4-BFB	95	69-131		02/14/2018 16:57

Analyst(s): AK

Analytical Comments: b1

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18-2/13/18	**Analytical Method:**	SW8021B/8015Bm
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-W	**1802512-002A**	**Water**	**02/09/2018 14:25**	**GC3 02121814.D**	**153130**

Analytes	Result		RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND		50	1	02/12/2018 18:43
MTBE	---		5.0	1	02/12/2018 18:43
Benzene	---		0.50	1	02/12/2018 18:43
Toluene	---		0.50	1	02/12/2018 18:43
Ethylbenzene	---		0.50	1	02/12/2018 18:43
Xylenes	---		0.50	1	02/12/2018 18:43
Surrogates	**REC (%)**	**Qualifiers**	**Limits**		
aaa-TFT	137	S	90-117		02/12/2018 18:43

Analyst(s): IA — Analytical Comments: c11,b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-3-W	**1802512-003A**	**Water**	**02/09/2018 13:36**	**GC3 02131812.D**	**153197**

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	50	1	02/13/2018 15:11
MTBE	---	5.0	1	02/13/2018 15:11
Benzene	---	0.50	1	02/13/2018 15:11
Toluene	---	0.50	1	02/13/2018 15:11
Ethylbenzene	---	0.50	1	02/13/2018 15:11
Xylenes	---	0.50	1	02/13/2018 15:11
Surrogates	**REC (%)**	**Limits**		
aaa-TFT	106	90-117		02/13/2018 15:11

Analyst(s): IA — Analytical Comments: b1

NELAP 4033ORELAP

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3510C
Date Prepared:	2/12/18-2/14/18	**Analytical Method:**	SW8015B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-5-W	**1802512-002A**	**Water**	**02/09/2018 14:25**	**GC9b 02141821.D**	**153165**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	02/14/2018 17:15
TPH-Motor Oil (C18-C36)	ND	250	1	02/14/2018 17:15

Surrogates	REC (%)	Limits	
C9	93	61-139	02/14/2018 17:15

Analyst(s): JIS   Analytical Comments: b1

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-3-W	**1802512-003A**	**Water**	**02/09/2018 13:36**	**GC11B 02131849.D**	**153072**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**400**	50	1	02/14/2018 07:05
TPH-Motor Oil (C18-C36)	**4400**	250	1	02/14/2018 07:05

Surrogates	REC (%)	Limits	
C9	96	61-139	02/14/2018 07:05

Analyst(s): JIS   Analytical Comments: e7,e2,b1

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	170	10	200	-	85	47-122
tert-Amyl methyl ether (TAME)	ND	9.33	0.50	10	-	93	62-121
Benzene	ND	9.19	0.50	10	-	92	74-121
Bromobenzene	ND	9.50	0.50	10	-	95	63-127
Bromochloromethane	ND	9.00	0.50	10	-	90	70-126
Bromodichloromethane	ND	9.05	0.50	10	-	90	66-127
Bromoform	ND	9.34	0.50	10	-	93	60-119
Bromomethane	ND	9.78	0.50	10	-	98	32-155
2-Butanone (MEK)	ND	35.1	2.0	40	-	88	51-117
t-Butyl alcohol (TBA)	ND	34.0	2.0	40	-	85	41-122
n-Butyl benzene	ND	10.5	0.50	10	-	105	73-137
sec-Butyl benzene	ND	10.1	0.50	10	-	101	71-137
tert-Butyl benzene	ND	10.0	0.50	10	-	100	61-136
Carbon Disulfide	ND	9.28	0.50	10	-	93	61-139
Carbon Tetrachloride	ND	10.2	0.50	10	-	102	69-137
Chlorobenzene	ND	9.62	0.50	10	-	96	71-122
Chloroethane	ND	9.42	0.50	10	-	94	54-132
Chloroform	ND	9.63	0.50	10	-	96	73-122
Chloromethane	ND	8.45	0.50	10	-	84	48-136
2-Chlorotoluene	ND	10.2	0.50	10	-	101	65-134
4-Chlorotoluene	ND	10.1	0.50	10	-	101	65-130
Dibromochloromethane	ND	8.85	0.50	10	-	89	65-121
1,2-Dibromo-3-chloropropane	ND	3.27	0.20	4	-	82	41-132
1,2-Dibromoethane (EDB)	ND	9.21	0.50	10	-	92	67-125
Dibromomethane	ND	9.02	0.50	10	-	90	68-121
1,2-Dichlorobenzene	ND	9.41	0.50	10	-	94	69-128
1,3-Dichlorobenzene	ND	10.2	0.50	10	-	102	71-131
1,4-Dichlorobenzene	ND	9.61	0.50	10	-	96	70-128
Dichlorodifluoromethane	ND	7.65	0.50	10	-	76	21-158
1,1-Dichloroethane	ND	9.42	0.50	10	-	94	73-123
1,2-Dichloroethane (1,2-DCA)	ND	9.16	0.50	10	-	92	61-127
1,1-Dichloroethene	ND	9.44	0.50	10	-	94	68-130
cis-1,2-Dichloroethene	ND	9.35	0.50	10	-	93	72-123
trans-1,2-Dichloroethene	ND	9.36	0.50	10	-	94	64-138
1,2-Dichloropropane	ND	9.17	0.50	10	-	92	71-121
1,3-Dichloropropane	ND	9.11	0.50	10	-	91	69-120
2,2-Dichloropropane	ND	9.96	0.50	10	-	100	64-142

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	10.1	0.50	10	-	101	70-130
cis-1,3-Dichloropropene	ND	9.29	0.50	10	-	93	58-136
trans-1,3-Dichloropropene	ND	9.73	0.50	10	-	97	66-119
Diisopropyl ether (DIPE)	ND	9.32	0.50	10	-	93	66-123
Ethylbenzene	ND	9.80	0.50	10	-	98	71-125
Ethyl tert-butyl ether (ETBE)	ND	9.22	0.50	10	-	92	67-122
Freon 113	ND	9.75	0.50	10	-	97	68-132
Hexachlorobutadiene	ND	9.75	0.50	10	-	97	56-155
Hexachloroethane	ND	10.5	0.50	10	-	105	61-129
2-Hexanone	ND	8.01	0.50	10	-	80	51-115
Isopropylbenzene	ND	10.2	0.50	10	-	102	66-134
4-Isopropyl toluene	ND	10.3	0.50	10	-	103	70-136
Methyl-t-butyl ether (MTBE)	ND	9.02	0.50	10	-	90	64-118
Methylene chloride	ND	9.18	0.50	10	-	92	62-121
4-Methyl-2-pentanone (MIBK)	ND	7.99	0.50	10	-	80	51-115
Naphthalene	ND	8.55	0.50	10	-	86	55-137
n-Propyl benzene	ND	10.1	0.50	10	-	101	63-140
Styrene	ND	9.58	0.50	10	-	96	62-133
1,1,1,2-Tetrachloroethane	ND	9.57	0.50	10	-	96	69-128
1,1,2,2-Tetrachloroethane	ND	8.72	0.50	10	-	87	60-118
Tetrachloroethene	ND	9.30	0.50	10	-	93	63-136
Toluene	ND	9.41	0.50	10	-	94	67-124
1,2,3-Trichlorobenzene	ND	9.08	0.50	10	-	91	57-145
1,2,4-Trichlorobenzene	ND	9.31	0.50	10	-	93	60-144
1,1,1-Trichloroethane	ND	9.68	0.50	10	-	97	70-133
1,1,2-Trichloroethane	ND	8.69	0.50	10	-	87	65-125
Trichloroethene	ND	9.34	0.50	10	-	93	67-133
Trichlorofluoromethane	ND	9.89	0.50	10	-	99	59-145
1,2,3-Trichloropropane	ND	9.17	0.50	10	-	92	65-115
1,2,4-Trimethylbenzene	ND	10.2	0.50	10	-	102	67-136
1,3,5-Trimethylbenzene	ND	9.88	0.50	10	-	99	68-135
Vinyl Chloride	ND	9.74	0.50	10	-	97	53-146
Xylenes, Total	ND	30.0	0.50	30	-	100	68-128

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	25.1	25.0		25	100	100	91-133
Toluene-d8	26.4	26.6		25	106	107	87-127
4-BFB	2.49	2.56		2.5	100	103	66-140

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acetone	214	226	200	ND	105	110	56-141	5.31	20
tert-Amyl methyl ether (TAME)	10.1	10.4	10	ND	101	104	78-120	3.41	20
Benzene	9.19	9.53	10	ND	91	95	81-118	3.60	20
Bromobenzene	8.84	9.27	10	ND	88	93	71-119	4.74	20
Bromochloromethane	9.22	9.62	10	ND	92	96	80-124	4.26	20
Bromodichloromethane	9.19	9.57	10	ND	92	96	78-124	4.07	20
Bromoform	9.98	10.2	10	ND	100	102	65-127	1.84	20
Bromomethane	10.5	11.5	10	ND	105	115	22-175	9.08	20
2-Butanone (MEK)	43.5	45.2	40	ND	106	110	50-152	3.75	20
t-Butyl alcohol (TBA)	41.7	43.4	40	ND	104	108	49-141	3.92	20
n-Butyl benzene	10.2	10.6	10	ND	101	105	77-127	3.73	20
sec-Butyl benzene	9.66	10.0	10	ND	97	100	74-123	3.42	20
tert-Butyl benzene	9.42	9.70	10	ND	94	97	68-122	2.85	20
Carbon Disulfide	9.13	9.44	10	ND	91	94	74-123	3.32	20
Carbon Tetrachloride	10.0	10.4	10	ND	100	104	78-124	3.24	20
Chlorobenzene	9.36	9.64	10	ND	94	96	79-116	2.97	20
Chloroethane	10.9	12.2	10	ND	109	122	56-134	11.9	20
Chloroform	9.74	10.0	10	ND	97	100	82-119	2.95	20
Chloromethane	8.06	9.18	10	ND	81	92	39-147	13.0	20
2-Chlorotoluene	9.38	9.70	10	ND	94	97	69-124	3.32	20
4-Chlorotoluene	9.50	9.74	10	ND	95	97	71-121	2.48	20
Dibromochloromethane	9.36	9.44	10	ND	94	94	76-119	0	20
1,2-Dibromo-3-chloropropane	3.92	3.93	4	ND	98	98	48-138	0	20
1,2-Dibromoethane (EDB)	10.0	10.2	10	ND	100	102	81-122	1.50	20
Dibromomethane	9.63	10.0	10	ND	96	100	83-121	3.89	20
1,2-Dichlorobenzene	9.54	9.89	10	ND	95	99	77-122	3.63	20
1,3-Dichlorobenzene	10.1	10.4	10	ND	101	103	76-125	2.83	20
1,4-Dichlorobenzene	9.72	9.96	10	ND	97	100	78-120	2.35	20
Dichlorodifluoromethane	7.03	7.29	10	ND	70	73	38-135	3.57	20
1,1-Dichloroethane	9.43	9.68	10	ND	93	96	80-120	2.58	20
1,2-Dichloroethane (1,2-DCA)	9.69	10.1	10	ND	97	101	78-122	4.15	20
1,1-Dichloroethene	9.27	9.61	10	ND	93	96	77-120	3.56	20
cis-1,2-Dichloroethene	9.31	9.58	10	ND	90	92	79-123	2.87	20
trans-1,2-Dichloroethene	9.31	9.57	10	ND	92	94	77-125	2.74	20
1,2-Dichloropropane	9.35	9.72	10	ND	94	97	80-121	3.85	20
1,3-Dichloropropane	9.76	9.94	10	ND	98	99	80-120	1.76	20
2,2-Dichloropropane	9.90	10.1	10	ND	99	101	70-132	1.69	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
1,1-Dichloropropene	9.34	9.59	10	ND	93	96	78-122	2.63	20
cis-1,3-Dichloropropene	9.60	9.72	10	ND	96	97	73-121	1.20	20
trans-1,3-Dichloropropene	10.4	10.5	10	ND	104	105	77-116	1.19	20
Diisopropyl ether (DIPE)	9.69	10.1	10	ND	97	101	77-125	4.30	20
Ethylbenzene	9.54	9.89	10	ND	95	99	77-119	3.58	20
Ethyl tert-butyl ether (ETBE)	9.93	10.3	10	ND	99	103	81-122	3.46	20
Freon 113	9.59	9.94	10	ND	96	99	77-120	3.56	20
Hexachlorobutadiene	9.32	9.55	10	ND	93	95	57-141	2.46	20
Hexachloroethane	9.98	10.3	10	ND	97	100	26-168	2.80	20
2-Hexanone	9.57	9.77	10	ND	96	98	58-135	2.00	20
Isopropylbenzene	9.77	10.1	10	ND	98	101	74-120	3.12	20
4-Isopropyl toluene	9.79	10.1	10	ND	98	101	75-124	3.06	20
Methyl-t-butyl ether (MTBE)	10.0	10.5	10	ND	95	100	74-128	4.87	20
Methylene chloride	9.22	9.63	10	ND	92	96	55-130	4.33	20
4-Methyl-2-pentanone (MIBK)	9.73	10.1	10	ND	94	97	59-131	3.62	20
Naphthalene	9.26	9.77	10	ND	91	96	65-136	5.29	20
n-Propyl benzene	9.30	9.59	10	ND	93	96	67-128	3.12	20
Styrene	9.35	9.71	10	ND	93	96	64-133	3.80	20
1,1,1,2-Tetrachloroethane	9.56	9.75	10	ND	96	97	78-122	1.95	20
1,1,2,2-Tetrachloroethane	9.18	9.41	10	ND	92	94	72-123	2.50	20
Tetrachloroethene	8.92	9.11	10	ND	89	91	72-123	2.06	20
Toluene	9.35	9.52	10	ND	92	94	74-117	1.82	20
1,2,3-Trichlorobenzene	8.78	9.05	10	ND	88	91	61-141	3.12	20
1,2,4-Trichlorobenzene	9.04	9.29	10	ND	90	93	69-136	2.70	20
1,1,1-Trichloroethane	9.55	9.93	10	ND	96	99	78-122	3.88	20
1,1,2-Trichloroethane	9.42	9.53	10	ND	94	95	79-120	1.09	20
Trichloroethene	9.11	9.43	10	0.6658	84	88	76-122	3.47	20
Trichlorofluoromethane	9.80	10.2	10	ND	98	102	72-125	4.26	20
1,2,3-Trichloropropane	9.88	10.0	10	ND	99	100	72-123	1.64	20
1,2,4-Trimethylbenzene	9.51	9.85	10	ND	95	99	74-123	3.53	20
1,3,5-Trimethylbenzene	9.06	9.44	10	ND	91	94	73-123	4.03	20
Vinyl Chloride	9.27	10.0	10	ND	93	100	57-134	7.60	20
Xylenes, Total	28.7	29.6	30	ND	96	99	76-119	3.00	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	25.2	25.4	25		101	102	78-134	0.863	20
Toluene-d8	26.9	26.6	25		108	106	82-120	1.27	20
4-BFB	2.34	2.38	2.5		94	95	69-131	1.52	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/12/18	**BatchID:**	153130
Date Analyzed:	2/12/18	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153130 1802337-018AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	50	-	-	-
MTBE	ND	5.0	-	-	-
Benzene	ND	0.50	-	-	-
Toluene	ND	0.50	-	-	-
Ethylbenzene	ND	0.50	-	-	-
Xylenes	ND	0.50	-	-	-
Surrogate Recovery					
aaa-TFT	10.3		10	103	89-116

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	63.4	-	60	106	-	78-116	-	-
MTBE	9.38	-	10	94	-	72-122	-	-
Benzene	10.3	-	10	103	-	81-123	-	-
Toluene	10.9	-	10	109	-	83-129	-	-
Ethylbenzene	10.8	-	10	108	-	88-126	-	-
Xylenes	32.5	-	30	108	-	87-131	-	-
Surrogate Recovery								
aaa-TFT	10.1	-	10	101	-	89-116	-	-

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	64.9	64.5	60	ND	108	108	63-133	0	20
MTBE	9.23	9.38	10	ND	92	94	69-122	1.68	20
Benzene	10.2	10.2	10	ND	102	102	84-125	0	20
Toluene	10.9	10.8	10	ND	109	108	87-131	0.593	20
Ethylbenzene	10.8	10.8	10	ND	109	108	92-126	0.886	20
Xylenes	32.7	32.4	30	ND	109	108	88-132	0.777	20
Surrogate Recovery									
aaa-TFT	10.2	10.1	10		102	101	90-117	0.197	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/13/18 - 2/14/18	**BatchID:**	153197
Date Analyzed:	2/13/18 - 2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153197 1802512-003AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	50	-	-	-
MTBE	ND	5.0	-	-	-
Benzene	ND	0.50	-	-	-
Toluene	ND	0.50	-	-	-
Ethylbenzene	ND	0.50	-	-	-
Xylenes	ND	0.50	-	-	-
Surrogate Recovery					
aaa-TFT	9.95		10	99	89-116

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	62.2	-	60	104	-	78-116	-	-
MTBE	11.1	-	10	111	-	72-122	-	-
Benzene	10.2	-	10	102	-	81-123	-	-
Toluene	10.5	-	10	105	-	83-129	-	-
Ethylbenzene	10.3	-	10	103	-	88-126	-	-
Xylenes	31.1	-	30	104	-	87-131	-	-
Surrogate Recovery								
aaa-TFT	9.90	-	10	99	-	89-116	-	-

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	70.5	67.5	60	ND	118	112	63-133	4.42	20
MTBE	8.92	8.90	10	ND	82	81	69-122	0.212	20
Benzene	10.3	10.4	10	ND	102	103	84-125	0.982	20
Toluene	10.6	10.6	10	ND	106	106	87-131	0	20
Ethylbenzene	10.6	10.6	10	ND	106	106	92-126	0	20
Xylenes	32.1	31.7	30	ND	107	105	88-132	1.26	20
Surrogate Recovery									
aaa-TFT	9.81	9.83	10		98	98	90-117	0	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/12/18	**BatchID:**	153072
Date Analyzed:	2/12/18	**Extraction Method:**	SW3510C
Instrument:	GC11A	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153072

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	634		625	101	68-127

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1070	1030	1000	107	103	86-142	3.55	30
Surrogate Recovery								
C9	619	630	625	99	101	68-127	1.69	30

(Cont.)

NELAP 4033ORELAP

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802512
Date Prepared:	2/13/18	**BatchID:**	153165
Date Analyzed:	2/13/18 - 2/14/18	**Extraction Method:**	SW3510C
Instrument:	GC6B	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153165

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	627		625	100	68-127

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	980	1000	1000	98	100	86-142	2.10	30
Surrogate Recovery								
C9	640	638	625	102	102	68-127	0	30

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1802512 **ClientCode: AELS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Dry-Weight

Report to:
Nina Abdollahian
AEI Consultants
3880 S. Bascom Ave, Suite 109
San Jose, CA 95124
408-559-7600 FAX:

Email: nabdollahian@aeiconsultants.com
cc/3rd Party: jasmith@aeiconsultants.com;
PO: 152768
Project: 383559; Emerald Buy Homes Palo Alto

Bill to:
Accounts Payable
AEI Consultants
2500 Camino Diablo, Ste. #200
Walnut Creek, CA 94597
AccountsPayable@AEIConsultants.com

Requested TAT: **5 days;**

Date Received: **02/09/2018**
Date Logged: **02/09/2018**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1802512-002	SB-5-W	Water	2/9/2018 14:25	☐	B	A	A									
1802512-003	SB-3-W	Water	2/9/2018 13:36	☐	B	A	A									

Test Legend:

1	8260B_W	2	G-MBTEX_W	3	TPH(DMO)_W	4	
5		6		7		8	
9		10		11		12	

Prepared by: Nancy Palacios

The following SampIDs: 002A, 003A contain testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: AEI CONSULTANTS **Project:** 383559; Emerald Buy Homes Palo Alto **Work Order:** 1802512
Client Contact: Nina Abdollahian **QC Level:** LEVEL 2
Contact's Email: nabdollahian@aeiconsultants.com **Comments:** **Date Logged:** 2/9/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1802512-001A	SB-3-15-5	Soil		1	Acetate Liner	☐	2/9/2018 13:36			☑	
1802512-002A	SB-5-W	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	3	VOA w/ HCl	☐	2/9/2018 14:25	5 days	1%+	☐	
1802512-002B	SB-5-W	Water	SW8260B (VOCs)	3	VOA w/ HCl	☐	2/9/2018 14:25	5 days	1%+	☐	
1802512-003A	SB-3-W	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	3	VOA w/ HCl	☐	2/9/2018 13:36	5 days	10%+	☐	
1802512-003B	SB-3-W	Water	SW8260B (VOCs)	3	VOA w/ HCl	☐	2/9/2018 13:36	5 days	10%+	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1802512

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CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush		2 Day Rush		3 Day Rush		STD	●	Quote #	
J-Flag / MDL		ESL		Cleanup Approved				Bottle Order #	
Delivery Format:	PDF	●	GeoTracker EDF		EDD		Write On (DW)		EQuIS

Report To: Nina Abdollahian Bill To: AEI Consultants
Company: AEI Consultants
Email: nabdollahian@aeiconsultants.com
Alt Email: jasmith@aeiconsultants.com Tele: 408-559-7600
Project Name: Emerald Buy Homes Project #:383559
Project Location: Palo Alto PO # 152768
Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	TPH-mo, TPH-g, and TPH-d by 8015M	EPA 8081A (Cl Pesticides)	Arsenic and Lead using 6010B	VOCs using 8260B	SVOCs using 8270C	PCBs using 8082	Title 22 Metals using 6010B and 7471A	Asbestos by PLM	HOLD										
SB-3-15.5	2/9/2018	1336	1	S	1									●										
* SB-3-W	2/9/2018	1607	6	GW	1,2	●			●															
SB-5-W	2/9/2018	1425	6	GW	1,2	●			●															
	2/9/2018																							
	2/9/2018																							
	2/9/2018																							
	2/9/2018																							
	2/9/2018																							
	2/9/2018																							
	2/9/2018																							

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.
Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
[signature]	2/9/18	1245	Nancy Palacios	2/9/18	1740
[signature]	2/12/18	1055	L Moore	2/12/18	1055
L Moore	2/12/18	1335	Nancy Palacios	2/12/18	1335

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other
Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

DID NOT RECEIVE SAMPLES FOR SAMPLE ID SB-3-W

Page __ of __

* RECEIVED SB-3-W ON 2/12/18 @ 1335

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Sample Receipt Checklist

Client Name:	**AEI Consultants**	Date and Time Received	**2/9/2018 17:40**
Project:	**383559; Emerald Buy Homes Palo Alto**	Date Logged:	**2/9/2018**
		Received by:	Nancy Palacios
WorkOrder №:	**1802512** Matrix: Soil/Water	Logged by:	Nancy Palacios
Carrier:	Laurie Moore (MAI Courier)		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	✔		
Chain of custody signed when relinquished and received?	✔		
Chain of custody agrees with sample labels?	✔		
Sample IDs noted by Client on COC?	✔		
Date and Time of collection noted by Client on COC?	✔		
Sampler's name noted on COC?		✔	
COC agrees with Quote?			✔

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?			✔
Shipping container/cooler in good condition?	✔		
Samples in proper containers/bottles?	✔		
Sample containers intact?	✔		
Sufficient sample volume for indicated test?	✔		

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	✔		
Sample/Temp Blank temperature	Temp: 4.7°C		
Water - VOA vials have zero headspace / no bubbles?	✔		
Sample labels checked for correct preservation?	✔		
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?			✔
Samples Received on Ice?	✔		
(Ice Type: WET ICE)			

UCMR Samples:

	Yes	No	NA
pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?			✔
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?			✔

Comments: Method SW8260B (VOCs) was received with temperature condition not met. Method SW8021B/8015Bm (G/MBTEX) was received with temperature condition not met. Method SW8015B (Diesel & Motor Oil) was received with temperature condition not met.

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Analytical Report

WorkOrder: 1802513

Report Created for: AEI Consultants

3880 S. Bascom Ave, Suite 109
San Jose, CA 95124

Project Contact: Nina Abdollahian
Project P.O.: 152768
Project: 383559; Emerald Buy Homes Palo Alto

Project Received: 02/09/2018

Analytical Report reviewed & approved for release on 02/16/2018 by:

Yen Cao

Yen Cao
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

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Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes Palo Alto
WorkOrder: 1802513

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

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Glossary of Terms & Qualifier Definitions

Client: AEI Consultants
Project: 383559; Emerald Buy Homes Palo Alto
WorkOrder: 1802513

Analytical Qualifiers

a3	Sample diluted due to high organic content.
a4	Reporting limits raised due to the sample's matrix prohibiting a full volume extraction.
b1	Aqueous sample that contains greater than ~1 vol. % sediment.
e2	Diesel range compounds are significant; no recognizable pattern.
e7	Oil range compounds are significant.

Quality Control Qualifiers

F1	MS/MSD recovery and/or RPD is out of acceptance criteria; LCS validates the prep batch.
F2	LCS/LCSD recovery and/or RPD is out of acceptance criteria.
F10	MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix.

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/12/18	**Analytical Method:**	SW8081A/8082
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Organochlorine Pesticides + PCBs

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	1802513-001A	Soil	02/09/2018 14:12	GC22 02141810.D	153086

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.050	50	02/14/2018 17:42
a-BHC	ND	0.050	50	02/14/2018 17:42
b-BHC	ND	0.050	50	02/14/2018 17:42
d-BHC	ND	0.050	50	02/14/2018 17:42
g-BHC	ND	0.050	50	02/14/2018 17:42
Chlordane (Technical)	ND	1.2	50	02/14/2018 17:42
a-Chlordane	ND	0.050	50	02/14/2018 17:42
g-Chlordane	ND	0.050	50	02/14/2018 17:42
p,p-DDD	ND	0.050	50	02/14/2018 17:42
p,p-DDE	ND	0.050	50	02/14/2018 17:42
p,p-DDT	ND	0.050	50	02/14/2018 17:42
Dieldrin	ND	0.050	50	02/14/2018 17:42
Endosulfan I	ND	0.050	50	02/14/2018 17:42
Endosulfan II	ND	0.050	50	02/14/2018 17:42
Endosulfan sulfate	ND	0.050	50	02/14/2018 17:42
Endrin	ND	0.050	50	02/14/2018 17:42
Endrin aldehyde	ND	0.050	50	02/14/2018 17:42
Endrin ketone	ND	0.050	50	02/14/2018 17:42
Heptachlor	ND	0.050	50	02/14/2018 17:42
Heptachlor epoxide	ND	0.050	50	02/14/2018 17:42
Hexachlorobenzene	ND	0.50	50	02/14/2018 17:42
Hexachlorocyclopentadiene	ND	1.0	50	02/14/2018 17:42
Methoxychlor	ND	0.050	50	02/14/2018 17:42
Toxaphene	ND	2.5	50	02/14/2018 17:42
Aroclor1016	ND	2.5	50	02/14/2018 17:42
Aroclor1221	ND	2.5	50	02/14/2018 17:42
Aroclor1232	ND	2.5	50	02/14/2018 17:42
Aroclor1242	ND	2.5	50	02/14/2018 17:42
Aroclor1248	ND	2.5	50	02/14/2018 17:42
Aroclor1254	ND	2.5	50	02/14/2018 17:42
Aroclor1260	ND	2.5	50	02/14/2018 17:42
PCBs, total	ND	2.5	50	02/14/2018 17:42

Surrogates	REC (%)	Limits		
Decachlorobiphenyl	106	70-130		02/14/2018 17:42

Analyst(s): CK

Analytical Comments: a3

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/13/18	**Analytical Method:**	SW8081A
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Organochlorine Pesticides

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-3-0.5	1802513-006A	Soil	02/09/2018 13:18	GC22 02131830.D	153086

Analytes	Result	RL	DF	Date Analyzed
Aldrin	ND	0.0050	5	02/14/2018 03:34
a-BHC	ND	0.0050	5	02/14/2018 03:34
b-BHC	ND	0.0050	5	02/14/2018 03:34
d-BHC	ND	0.0050	5	02/14/2018 03:34
g-BHC	ND	0.0050	5	02/14/2018 03:34
Chlordane (Technical)	ND	0.12	5	02/14/2018 03:34
a-Chlordane	ND	0.0050	5	02/14/2018 03:34
g-Chlordane	ND	0.0050	5	02/14/2018 03:34
p,p-DDD	ND	0.0050	5	02/14/2018 03:34
p,p-DDE	ND	0.0050	5	02/14/2018 03:34
p,p-DDT	ND	0.0050	5	02/14/2018 03:34
Dieldrin	ND	0.0050	5	02/14/2018 03:34
Endosulfan I	ND	0.0050	5	02/14/2018 03:34
Endosulfan II	ND	0.0050	5	02/14/2018 03:34
Endosulfan sulfate	ND	0.0050	5	02/14/2018 03:34
Endrin	ND	0.0050	5	02/14/2018 03:34
Endrin aldehyde	ND	0.0050	5	02/14/2018 03:34
Endrin ketone	ND	0.0050	5	02/14/2018 03:34
Heptachlor	ND	0.0050	5	02/14/2018 03:34
Heptachlor epoxide	ND	0.0050	5	02/14/2018 03:34
Hexachlorobenzene	ND	0.050	5	02/14/2018 03:34
Hexachlorocyclopentadiene	ND	0.10	5	02/14/2018 03:34
Methoxychlor	ND	0.0050	5	02/14/2018 03:34
Toxaphene	ND	0.25	5	02/14/2018 03:34

Surrogates	REC (%)	Limits	
Decachlorobiphenyl	99	70-130	02/14/2018 03:34

Analyst(s): CK   Analytical Comments: a3

NELAP 4033ORELAP

Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	1802513-001A	Soil	02/09/2018 14:12	GC38 02141819.D	153085

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	0.10	1	02/14/2018 20:06
tert-Amyl methyl ether (TAME)	ND	0.0050	1	02/14/2018 20:06
Benzene	ND	0.0050	1	02/14/2018 20:06
Bromobenzene	ND	0.0050	1	02/14/2018 20:06
Bromochloromethane	ND	0.0050	1	02/14/2018 20:06
Bromodichloromethane	ND	0.0050	1	02/14/2018 20:06
Bromoform	ND	0.0050	1	02/14/2018 20:06
Bromomethane	ND	0.0050	1	02/14/2018 20:06
2-Butanone (MEK)	ND	0.020	1	02/14/2018 20:06
t-Butyl alcohol (TBA)	ND	0.050	1	02/14/2018 20:06
n-Butyl benzene	ND	0.0050	1	02/14/2018 20:06
sec-Butyl benzene	ND	0.0050	1	02/14/2018 20:06
tert-Butyl benzene	ND	0.0050	1	02/14/2018 20:06
Carbon Disulfide	ND	0.0050	1	02/14/2018 20:06
Carbon Tetrachloride	ND	0.0050	1	02/14/2018 20:06
Chlorobenzene	ND	0.0050	1	02/14/2018 20:06
Chloroethane	ND	0.0050	1	02/14/2018 20:06
Chloroform	ND	0.0050	1	02/14/2018 20:06
Chloromethane	ND	0.0050	1	02/14/2018 20:06
2-Chlorotoluene	ND	0.0050	1	02/14/2018 20:06
4-Chlorotoluene	ND	0.0050	1	02/14/2018 20:06
Dibromochloromethane	ND	0.0050	1	02/14/2018 20:06
1,2-Dibromo-3-chloropropane	ND	0.0040	1	02/14/2018 20:06
1,2-Dibromoethane (EDB)	ND	0.0040	1	02/14/2018 20:06
Dibromomethane	ND	0.0050	1	02/14/2018 20:06
1,2-Dichlorobenzene	ND	0.0050	1	02/14/2018 20:06
1,3-Dichlorobenzene	ND	0.0050	1	02/14/2018 20:06
1,4-Dichlorobenzene	ND	0.0050	1	02/14/2018 20:06
Dichlorodifluoromethane	ND	0.0050	1	02/14/2018 20:06
1,1-Dichloroethane	ND	0.0050	1	02/14/2018 20:06
1,2-Dichloroethane (1,2-DCA)	ND	0.0040	1	02/14/2018 20:06
1,1-Dichloroethene	ND	0.0050	1	02/14/2018 20:06
cis-1,2-Dichloroethene	ND	0.0050	1	02/14/2018 20:06
trans-1,2-Dichloroethene	ND	0.0050	1	02/14/2018 20:06
1,2-Dichloropropane	ND	0.0050	1	02/14/2018 20:06
1,3-Dichloropropane	ND	0.0050	1	02/14/2018 20:06
2,2-Dichloropropane	ND	0.0050	1	02/14/2018 20:06

(Cont.)

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	1802513-001A	Soil	02/09/2018 14:12	GC38 02141819.D	153085

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.0050	1	02/14/2018 20:06
cis-1,3-Dichloropropene	ND	0.0050	1	02/14/2018 20:06
trans-1,3-Dichloropropene	ND	0.0050	1	02/14/2018 20:06
Diisopropyl ether (DIPE)	ND	0.0050	1	02/14/2018 20:06
Ethylbenzene	ND	0.0050	1	02/14/2018 20:06
Ethyl tert-butyl ether (ETBE)	ND	0.0050	1	02/14/2018 20:06
Freon 113	ND	0.0050	1	02/14/2018 20:06
Hexachlorobutadiene	ND	0.0050	1	02/14/2018 20:06
Hexachloroethane	ND	0.0050	1	02/14/2018 20:06
2-Hexanone	ND	0.0050	1	02/14/2018 20:06
Isopropylbenzene	ND	0.0050	1	02/14/2018 20:06
4-Isopropyl toluene	ND	0.0050	1	02/14/2018 20:06
Methyl-t-butyl ether (MTBE)	ND	0.0050	1	02/14/2018 20:06
Methylene chloride	ND	0.0050	1	02/14/2018 20:06
4-Methyl-2-pentanone (MIBK)	ND	0.0050	1	02/14/2018 20:06
Naphthalene	ND	0.0050	1	02/14/2018 20:06
n-Propyl benzene	ND	0.0050	1	02/14/2018 20:06
Styrene	ND	0.0050	1	02/14/2018 20:06
1,1,1,2-Tetrachloroethane	ND	0.0050	1	02/14/2018 20:06
1,1,2,2-Tetrachloroethane	ND	0.0050	1	02/14/2018 20:06
Tetrachloroethene	ND	0.0050	1	02/14/2018 20:06
Toluene	ND	0.0050	1	02/14/2018 20:06
1,2,3-Trichlorobenzene	ND	0.0050	1	02/14/2018 20:06
1,2,4-Trichlorobenzene	ND	0.0050	1	02/14/2018 20:06
1,1,1-Trichloroethane	ND	0.0050	1	02/14/2018 20:06
1,1,2-Trichloroethane	ND	0.0050	1	02/14/2018 20:06
Trichloroethene	ND	0.0050	1	02/14/2018 20:06
Trichlorofluoromethane	ND	0.0050	1	02/14/2018 20:06
1,2,3-Trichloropropane	ND	0.0050	1	02/14/2018 20:06
1,2,4-Trimethylbenzene	ND	0.0050	1	02/14/2018 20:06
1,3,5-Trimethylbenzene	ND	0.0050	1	02/14/2018 20:06
Vinyl Chloride	ND	0.0050	1	02/14/2018 20:06
Xylenes, Total	ND	0.0050	1	02/14/2018 20:06

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	**1802513-001A**	**Soil**	**02/09/2018 14:12**	**GC38 02141819.D**	**153085**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	107	82-136		02/14/2018 20:06
Toluene-d8	110	92-139		02/14/2018 20:06
4-BFB	105	82-135		02/14/2018 20:06
Benzene-d6	96	55-122		02/14/2018 20:06
Ethylbenzene-d10	93	58-141		02/14/2018 20:06
1,2-DCB-d4	75	51-107		02/14/2018 20:06

Analyst(s): AK

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-W	**1802513-010B**	**Water**	**02/09/2018 15:10**	**GC16 02141829.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Acetone	**11**	10	1	02/15/2018 02:09
tert-Amyl methyl ether (TAME)	ND	0.50	1	02/15/2018 02:09
Benzene	ND	0.50	1	02/15/2018 02:09
Bromobenzene	ND	0.50	1	02/15/2018 02:09
Bromochloromethane	ND	0.50	1	02/15/2018 02:09
Bromodichloromethane	ND	0.50	1	02/15/2018 02:09
Bromoform	ND	0.50	1	02/15/2018 02:09
Bromomethane	ND	0.50	1	02/15/2018 02:09
2-Butanone (MEK)	**3.2**	2.0	1	02/15/2018 02:09
t-Butyl alcohol (TBA)	ND	2.0	1	02/15/2018 02:09
n-Butyl benzene	ND	0.50	1	02/15/2018 02:09
sec-Butyl benzene	ND	0.50	1	02/15/2018 02:09
tert-Butyl benzene	ND	0.50	1	02/15/2018 02:09
Carbon Disulfide	ND	0.50	1	02/15/2018 02:09
Carbon Tetrachloride	ND	0.50	1	02/15/2018 02:09
Chlorobenzene	ND	0.50	1	02/15/2018 02:09
Chloroethane	ND	0.50	1	02/15/2018 02:09
Chloroform	ND	0.50	1	02/15/2018 02:09
Chloromethane	ND	0.50	1	02/15/2018 02:09
2-Chlorotoluene	ND	0.50	1	02/15/2018 02:09
4-Chlorotoluene	ND	0.50	1	02/15/2018 02:09
Dibromochloromethane	ND	0.50	1	02/15/2018 02:09
1,2-Dibromo-3-chloropropane	ND	0.20	1	02/15/2018 02:09
1,2-Dibromoethane (EDB)	ND	0.50	1	02/15/2018 02:09
Dibromomethane	ND	0.50	1	02/15/2018 02:09
1,2-Dichlorobenzene	ND	0.50	1	02/15/2018 02:09
1,3-Dichlorobenzene	ND	0.50	1	02/15/2018 02:09
1,4-Dichlorobenzene	ND	0.50	1	02/15/2018 02:09
Dichlorodifluoromethane	ND	0.50	1	02/15/2018 02:09
1,1-Dichloroethane	ND	0.50	1	02/15/2018 02:09
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	02/15/2018 02:09
1,1-Dichloroethene	ND	0.50	1	02/15/2018 02:09
cis-1,2-Dichloroethene	ND	0.50	1	02/15/2018 02:09
trans-1,2-Dichloroethene	ND	0.50	1	02/15/2018 02:09
1,2-Dichloropropane	ND	0.50	1	02/15/2018 02:09
1,3-Dichloropropane	ND	0.50	1	02/15/2018 02:09
2,2-Dichloropropane	ND	0.50	1	02/15/2018 02:09

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-W	**1802513-010B**	**Water**	**02/09/2018 15:10**	**GC16 02141829.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
1,1-Dichloropropene	ND	0.50	1	02/15/2018 02:09
cis-1,3-Dichloropropene	ND	0.50	1	02/15/2018 02:09
trans-1,3-Dichloropropene	ND	0.50	1	02/15/2018 02:09
Diisopropyl ether (DIPE)	ND	0.50	1	02/15/2018 02:09
Ethylbenzene	ND	0.50	1	02/15/2018 02:09
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	02/15/2018 02:09
Freon 113	ND	0.50	1	02/15/2018 02:09
Hexachlorobutadiene	ND	0.50	1	02/15/2018 02:09
Hexachloroethane	ND	0.50	1	02/15/2018 02:09
2-Hexanone	ND	0.50	1	02/15/2018 02:09
Isopropylbenzene	ND	0.50	1	02/15/2018 02:09
4-Isopropyl toluene	ND	0.50	1	02/15/2018 02:09
Methyl-t-butyl ether (MTBE)	**1.3**	0.50	1	02/15/2018 02:09
Methylene chloride	ND	0.50	1	02/15/2018 02:09
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	02/15/2018 02:09
Naphthalene	ND	0.50	1	02/15/2018 02:09
n-Propyl benzene	ND	0.50	1	02/15/2018 02:09
Styrene	ND	0.50	1	02/15/2018 02:09
1,1,1,2-Tetrachloroethane	ND	0.50	1	02/15/2018 02:09
1,1,2,2-Tetrachloroethane	ND	0.50	1	02/15/2018 02:09
Tetrachloroethene	ND	0.50	1	02/15/2018 02:09
Toluene	ND	0.50	1	02/15/2018 02:09
1,2,3-Trichlorobenzene	ND	0.50	1	02/15/2018 02:09
1,2,4-Trichlorobenzene	ND	0.50	1	02/15/2018 02:09
1,1,1-Trichloroethane	ND	0.50	1	02/15/2018 02:09
1,1,2-Trichloroethane	ND	0.50	1	02/15/2018 02:09
Trichloroethene	ND	0.50	1	02/15/2018 02:09
Trichlorofluoromethane	ND	0.50	1	02/15/2018 02:09
1,2,3-Trichloropropane	ND	0.50	1	02/15/2018 02:09
1,2,4-Trimethylbenzene	ND	0.50	1	02/15/2018 02:09
1,3,5-Trimethylbenzene	ND	0.50	1	02/15/2018 02:09
Vinyl Chloride	ND	0.50	1	02/15/2018 02:09
Xylenes, Total	ND	0.50	1	02/15/2018 02:09

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/15/18	**Analytical Method:**	SW8260B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-W	**1802513-010B**	**Water**	**02/09/2018 15:10**	**GC16 02141829.D**	**153256**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	102	78-134		02/15/2018 02:09
Toluene-d8	107	82-120		02/15/2018 02:09
4-BFB	94	69-131		02/15/2018 02:09

Analyst(s): AK

Analytical Comments: b1

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/13/18	**Analytical Method:**	SW8270C
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	1802513-001A	Soil	02/09/2018 14:12	GC21 02141814.D	153166

Analytes	Result	RL	DF	Date Analyzed
Acenaphthene	ND	2.0	1	02/14/2018 15:21
Acenaphthylene	ND	2.0	1	02/14/2018 15:21
Acetochlor	ND	2.0	1	02/14/2018 15:21
Anthracene	ND	2.0	1	02/14/2018 15:21
Benzidine	ND	10	1	02/14/2018 15:21
Benzo (a) anthracene	ND	2.0	1	02/14/2018 15:21
Benzo (a) pyrene	ND	2.0	1	02/14/2018 15:21
Benzo (b) fluoranthene	ND	2.0	1	02/14/2018 15:21
Benzo (g,h,i) perylene	ND	2.0	1	02/14/2018 15:21
Benzo (k) fluoranthene	ND	2.0	1	02/14/2018 15:21
Benzyl Alcohol	ND	10	1	02/14/2018 15:21
1,1-Biphenyl	ND	2.0	1	02/14/2018 15:21
Bis (2-chloroethoxy) Methane	ND	2.0	1	02/14/2018 15:21
Bis (2-chloroethyl) Ether	ND	2.0	1	02/14/2018 15:21
Bis (2-chloroisopropyl) Ether	ND	2.0	1	02/14/2018 15:21
Bis (2-ethylhexyl) Adipate	ND	2.0	1	02/14/2018 15:21
Bis (2-ethylhexyl) Phthalate	ND	2.0	1	02/14/2018 15:21
4-Bromophenyl Phenyl Ether	ND	2.0	1	02/14/2018 15:21
Butylbenzyl Phthalate	ND	2.0	1	02/14/2018 15:21
4-Chloroaniline	ND	4.0	1	02/14/2018 15:21
4-Chloro-3-methylphenol	ND	2.0	1	02/14/2018 15:21
2-Chloronaphthalene	ND	2.0	1	02/14/2018 15:21
2-Chlorophenol	ND	2.0	1	02/14/2018 15:21
4-Chlorophenyl Phenyl Ether	ND	2.0	1	02/14/2018 15:21
Chrysene	ND	2.0	1	02/14/2018 15:21
Dibenzo (a,h) anthracene	ND	2.0	1	02/14/2018 15:21
Dibenzofuran	ND	2.0	1	02/14/2018 15:21
Di-n-butyl Phthalate	ND	2.0	1	02/14/2018 15:21
1,2-Dichlorobenzene	ND	2.0	1	02/14/2018 15:21
1,3-Dichlorobenzene	ND	2.0	1	02/14/2018 15:21
1,4-Dichlorobenzene	ND	2.0	1	02/14/2018 15:21
3,3-Dichlorobenzidine	ND	4.0	1	02/14/2018 15:21
2,4-Dichlorophenol	ND	2.0	1	02/14/2018 15:21
Diethyl Phthalate	ND	2.0	1	02/14/2018 15:21
2,4-Dimethylphenol	ND	2.0	1	02/14/2018 15:21
Dimethyl Phthalate	ND	2.0	1	02/14/2018 15:21
4,6-Dinitro-2-methylphenol	ND	10	1	02/14/2018 15:21

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/13/18	**Analytical Method:**	SW8270C
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	**1802513-001A**	**Soil**	**02/09/2018 14:12**	**GC21 02141814.D**	**153166**

Analytes	Result	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	50	1	02/14/2018 15:21
2,4-Dinitrotoluene	ND	2.0	1	02/14/2018 15:21
2,6-Dinitrotoluene	ND	2.0	1	02/14/2018 15:21
Di-n-octyl Phthalate	ND	4.0	1	02/14/2018 15:21
1,2-Diphenylhydrazine	ND	2.0	1	02/14/2018 15:21
Fluoranthene	ND	2.0	1	02/14/2018 15:21
Fluorene	ND	2.0	1	02/14/2018 15:21
Hexachlorobenzene	ND	2.0	1	02/14/2018 15:21
Hexachlorobutadiene	ND	2.0	1	02/14/2018 15:21
Hexachlorocyclopentadiene	ND	10	1	02/14/2018 15:21
Hexachloroethane	ND	2.0	1	02/14/2018 15:21
Indeno (1,2,3-cd) pyrene	ND	2.0	1	02/14/2018 15:21
Isophorone	ND	2.0	1	02/14/2018 15:21
2-Methylnaphthalene	ND	2.0	1	02/14/2018 15:21
2-Methylphenol (o-Cresol)	ND	2.0	1	02/14/2018 15:21
3 & 4-Methylphenol (m,p-Cresol)	ND	2.0	1	02/14/2018 15:21
Naphthalene	ND	2.0	1	02/14/2018 15:21
2-Nitroaniline	ND	10	1	02/14/2018 15:21
3-Nitroaniline	ND	10	1	02/14/2018 15:21
4-Nitroaniline	ND	10	1	02/14/2018 15:21
Nitrobenzene	ND	2.0	1	02/14/2018 15:21
2-Nitrophenol	ND	10	1	02/14/2018 15:21
4-Nitrophenol	ND	10	1	02/14/2018 15:21
N-Nitrosodiphenylamine	ND	2.0	1	02/14/2018 15:21
N-Nitrosodi-n-propylamine	ND	2.0	1	02/14/2018 15:21
Pentachlorophenol	ND	10	1	02/14/2018 15:21
Phenanthrene	ND	2.0	1	02/14/2018 15:21
Phenol	ND	2.0	1	02/14/2018 15:21
Pyrene	ND	2.0	1	02/14/2018 15:21
Pyridine	ND	2.0	1	02/14/2018 15:21
1,2,4-Trichlorobenzene	ND	2.0	1	02/14/2018 15:21
2,4,5-Trichlorophenol	ND	2.0	1	02/14/2018 15:21
2,4,6-Trichlorophenol	ND	2.0	1	02/14/2018 15:21

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/13/18	**Analytical Method:**	SW8270C
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Semi-Volatile Organics

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	1802513-001A	Soil	02/09/2018 14:12	GC21 02141814.D	153166

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
2-Fluorophenol	60	30-130		02/14/2018 15:21
Phenol-d5	39	30-130		02/14/2018 15:21
Nitrobenzene-d5	38	30-130		02/14/2018 15:21
2-Fluorobiphenyl	74	30-130		02/14/2018 15:21
2,4,6-Tribromophenol	67	16-130		02/14/2018 15:21
4-Terphenyl-d14	79	30-130		02/14/2018 15:21

Analyst(s): REB

Analytical Comments: a4

Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3050B
Date Prepared:	2/12/18	**Analytical Method:**	SW6020
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	**1802513-001A**	**Soil**	**02/09/2018 14:12**	**ICP-MS1 100SMPL.D**	**153077**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	02/13/2018 18:24
Arsenic	**0.76**	0.50	1	02/13/2018 18:24
Barium	**22**	5.0	1	02/13/2018 18:24
Beryllium	ND	0.50	1	02/13/2018 18:24
Cadmium	ND	0.25	1	02/13/2018 18:24
Chromium	**74**	0.50	1	02/13/2018 18:24
Cobalt	**26**	0.50	1	02/13/2018 18:24
Copper	**83**	0.50	1	02/13/2018 18:24
Lead	**9.3**	0.50	1	02/13/2018 18:24
Mercury	**0.077**	0.050	1	02/13/2018 18:24
Molybdenum	**0.50**	0.50	1	02/13/2018 18:24
Nickel	**60**	0.50	1	02/13/2018 18:24
Selenium	ND	0.50	1	02/13/2018 18:24
Silver	ND	0.50	1	02/13/2018 18:24
Thallium	ND	0.50	1	02/13/2018 18:24
Vanadium	**130**	0.50	1	02/13/2018 18:24
Zinc	**88**	5.0	1	02/13/2018 18:24

Surrogates	REC (%)	Limits	
Terbium	105	70-130	02/13/2018 18:24

Analyst(s): JC

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/12/18	**Analytical Method:**	SW8021B/8015Bm
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	**1802513-001A**	**Soil**	**02/09/2018 14:12**	**GC7 02131814.D**	**153082**

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	02/13/2018 16:36
MTBE	---	0.050	1	02/13/2018 16:36
Benzene	---	0.0050	1	02/13/2018 16:36
Toluene	---	0.0050	1	02/13/2018 16:36
Ethylbenzene	---	0.0050	1	02/13/2018 16:36
Xylenes	---	0.0050	1	02/13/2018 16:36

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	85	62-126	02/13/2018 16:36

Analyst(s): IA

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW5030B
Date Prepared:	2/13/18	**Analytical Method:**	SW8021B/8015Bm
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-W	**1802513-010A**	**Water**	**02/09/2018 15:10**	**GC3 02131813.D**	**153197**

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	50	1	02/13/2018 15:42
MTBE	---	5.0	1	02/13/2018 15:42
Benzene	---	0.50	1	02/13/2018 15:42
Toluene	---	0.50	1	02/13/2018 15:42
Ethylbenzene	---	0.50	1	02/13/2018 15:42
Xylenes	---	0.50	1	02/13/2018 15:42

Surrogates	REC (%)	Limits		
aaa-TFT	107	90-117		02/13/2018 15:42

Analyst(s): IA

Analytical Comments: b1

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3050B
Date Prepared:	2/15/18	**Analytical Method:**	SW6020
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/kg

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-3-0.5	**1802513-006A**	**Soil**	**02/09/2018 13:18**	**ICP-MS3 092SMPL.D**	**153239**

Analytes	Result	RL	DF	Date Analyzed
Arsenic	**0.67**	0.50	1	02/16/2018 00:27
Lead	**1.1**	0.50	1	02/16/2018 00:27

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	106	70-130	02/16/2018 00:27

Analyst(s): DB

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3550B
Date Prepared:	2/12/18	**Analytical Method:**	SW8015B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-0.5	**1802513-001A**	**Soil**	**02/09/2018 14:12**	**GC11A 02151810.D**	**153081**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	02/15/2018 12:08
TPH-Motor Oil (C18-C36)	**15**	5.0	1	02/15/2018 12:08

Surrogates	REC (%)	Limits	Date Analyzed
C9	99	74-123	02/15/2018 12:08

Analyst(s): JIS

Analytical Comments: e7

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Analytical Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Received:	2/9/18 17:40	**Extraction Method:**	SW3510C
Date Prepared:	2/12/18	**Analytical Method:**	SW8015B
Project:	383559; Emerald Buy Homes Palo Alto	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SB-4-W	**1802513-010A**	**Water**	**02/09/2018 15:10**	**GC11A 02151894.D**	**153072**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**140**	100	2	02/16/2018 15:38
TPH-Motor Oil (C18-C36)	**4000**	500	2	02/16/2018 15:38

Surrogates	REC (%)	Limits	Date Analyzed
C9	117	61-139	02/16/2018 15:38

Analyst(s): JIS

Analytical Comments: e7,e2,b1

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A/8082
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A/8082

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
Aldrin	ND	0.0010	-	-	-
a-BHC	ND	0.0010	-	-	-
b-BHC	ND	0.0010	-	-	-
d-BHC	ND	0.0010	-	-	-
g-BHC	ND	0.0010	-	-	-
Chlordane (Technical)	ND	0.025	-	-	-
a-Chlordane	ND	0.0010	-	-	-
g-Chlordane	ND	0.0010	-	-	-
p,p-DDD	ND	0.0010	-	-	-
p,p-DDE	ND	0.0010	-	-	-
p,p-DDT	ND	0.0010	-	-	-
Dieldrin	ND	0.0010	-	-	-
Endosulfan I	ND	0.0010	-	-	-
Endosulfan II	ND	0.0010	-	-	-
Endosulfan sulfate	ND	0.0010	-	-	-
Endrin	ND	0.0010	-	-	-
Endrin aldehyde	ND	0.0010	-	-	-
Endrin ketone	ND	0.0010	-	-	-
Heptachlor	ND	0.0010	-	-	-
Heptachlor epoxide	ND	0.0010	-	-	-
Hexachlorobenzene	ND	0.010	-	-	-
Hexachlorocyclopentadiene	ND	0.020	-	-	-
Methoxychlor	ND	0.0010	-	-	-
Toxaphene	ND	0.050	-	-	-
Aroclor1016	ND	0.050	-	-	-
Aroclor1221	ND	0.050	-	-	-
Aroclor1232	ND	0.050	-	-	-
Aroclor1242	ND	0.050	-	-	-
Aroclor1248	ND	0.050	-	-	-
Aroclor1254	ND	0.050	-	-	-
Aroclor1260	ND	0.050	-	-	-
PCBs, total	ND	0.050	-	-	-
Surrogate Recovery					
Decachlorobiphenyl	0.0600		0.050	120	70-130

(Cont.)

NELAP 4033ORELAP

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A/8082
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A/8082

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Aldrin	0.0572	0.0567	0.050	114	113	70-130	0.985	20
a-BHC	0.0580	0.0576	0.050	116	115	70-130	0.780	20
b-BHC	0.0548	0.0546	0.050	110	109	70-130	0.366	20
d-BHC	0.0601	0.0598	0.050	120	120	70-130	0	20
g-BHC	0.0585	0.0582	0.050	117	116	70-130	0.548	20
a-Chlordane	0.0512	0.0511	0.050	102	102	70-130	0	20
g-Chlordane	0.0544	0.0540	0.050	109	108	70-130	0.886	20
p,p-DDD	0.0428	0.0426	0.050	86	85	70-130	0.600	20
p,p-DDE	0.0572	0.0571	0.050	114	114	70-130	0	20
p,p-DDT	0.0584	0.0584	0.050	117	117	70-130	0	20
Dieldrin	0.0589	0.0586	0.050	118	117	70-130	0.542	20
Endosulfan I	0.0572	0.0569	0.050	114	114	70-130	0	20
Endosulfan II	0.0532	0.0531	0.050	106	106	70-130	0	20
Endosulfan sulfate	0.0607	0.0608	0.050	121	122	70-130	0.203	20
Endrin	0.0585	0.0583	0.050	117	117	70-130	0	20
Endrin aldehyde	0.0479	0.0479	0.050	96	96	70-130	0	20
Endrin ketone	0.0493	0.0496	0.050	99	99	70-130	0	20
Heptachlor	0.0630	0.0627	0.050	126	125	70-130	0.434	20
Heptachlor epoxide	0.0558	0.0555	0.050	112	111	70-130	0.560	20
Hexachlorobenzene	0.0508	0.0505	0.050	102	101	50-150	0.626	20
Hexachlorocyclopentadiene	0.0619	0.0602	0.050	124	120	50-150	2.80	20
Methoxychlor	0.0532	0.0536	0.050	106	107	70-130	0.794	20
Aroclor1016	0.145	0.139	0.15	96	93	70-130	3.69	20
Aroclor1260	0.130	0.120	0.15	87	80	70-130	8.68	20
Surrogate Recovery								
Decachlorobiphenyl	0.0522	0.0534	0.050	104	107	70-130	2.20	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Aldrin	0.0494	0.0516	0.050	ND	99	103	70-130	4.50	20
a-BHC	0.0554	0.0579	0.050	ND	111	116	70-130	4.34	20
b-BHC	0.0564	0.0588	0.050	ND	113	118	70-130	4.17	20
d-BHC	0.0536	0.0556	0.050	ND	107	111	70-130	3.72	20
g-BHC	0.0509	0.0523	0.050	ND	102	105	70-130	2.73	20
a-Chlordane	0.0449	0.0470	0.050	ND	90	94	70-130	4.46	20
g-Chlordane	0.0498	0.0519	0.050	ND	100	104	70-130	4.15	20
p,p-DDD	0.0486	0.0508	0.050	ND	97	102	70-130	4.32	20

(Cont.)

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153086
Date Analyzed:	2/12/18 - 2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC23, GC41	**Analytical Method:**	SW8081A/8082
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153086 1802498-001AMS/MSD

QC Summary Report for SW8081A/8082

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
p,p-DDE	0.0492	0.0510	0.050	ND	98	102	70-130	3.66	20
p,p-DDT	0.0605	0.0636	0.050	ND	121	127	70-130	4.97	20
Dieldrin	0.0546	0.0569	0.050	ND	109	114	70-130	4.22	20
Endosulfan I	0.0500	0.0524	0.050	ND	100	105	70-130	4.58	20
Endosulfan II	0.0469	0.0489	0.050	ND	94	98	70-130	4.15	20
Endosulfan sulfate	0.0494	0.0524	0.050	ND	99	105	70-130	6.05	20
Endrin	0.0640	0.0665	0.050	ND	128	133,F1	70-130	3.80	20
Endrin aldehyde	0.0453	0.0477	0.050	ND	91	95	70-130	5.24	20
Endrin ketone	0.0465	0.0487	0.050	ND	93	97	70-130	4.65	20
Heptachlor	0.0588	0.0601	0.050	ND	118	120	70-130	2.31	30
Heptachlor epoxide	0.0492	0.0513	0.050	ND	98	103	70-130	4.24	20
Hexachlorobenzene	0.0464	0.0479	0.050	ND	93	96	50-150	3.15	20
Hexachlorocyclopentadiene	0.0545	0.0542	0.050	ND	109	108	50-150	0.555	20
Methoxychlor	0.0586	0.0629	0.050	ND	117	126	70-130	7.01	20
Aroclor1016	N/A	N/A		N/A	N/A	N/A	-	N/A	-
Aroclor1260	N/A	N/A		N/A	N/A	N/A	-	N/A	-
Surrogate Recovery									
Decachlorobiphenyl	0.0512	0.0538	0.050		102	108	70-130	4.98	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	1.02	0.10	1	-	102	48-156
tert-Amyl methyl ether (TAME)	ND	0.0348	0.0050	0.050	-	70	56-115
Benzene	ND	0.0466	0.0050	0.050	-	93	63-131
Bromobenzene	ND	0.0450	0.0050	0.050	-	90	66-127
Bromochloromethane	ND	0.0452	0.0050	0.050	-	90	64-124
Bromodichloromethane	ND	0.0395	0.0050	0.050	-	79	64-120
Bromoform	ND	0.0344	0.0050	0.050	-	69	48-92
Bromomethane	ND	0.0602	0.0050	0.050	-	120	25-163
2-Butanone (MEK)	ND	0.169	0.020	0.20	-	85	51-133
t-Butyl alcohol (TBA)	ND	0.161	0.050	0.20	-	80	52-129
n-Butyl benzene	ND	0.0736	0.0050	0.050	-	147	83-200
sec-Butyl benzene	ND	0.0707	0.0050	0.050	-	141	81-199
tert-Butyl benzene	ND	0.0701	0.0050	0.050	-	140	79-178
Carbon Disulfide	ND	0.0494	0.0050	0.050	-	99	64-136
Carbon Tetrachloride	ND	0.0461	0.0050	0.050	-	92	66-140
Chlorobenzene	ND	0.0442	0.0050	0.050	-	88	73-116
Chloroethane	ND	0.0451	0.0050	0.050	-	90	35-147
Chloroform	ND	0.0434	0.0050	0.050	-	87	65-130
Chloromethane	ND	0.0458	0.0050	0.050	-	92	30-137
2-Chlorotoluene	ND	0.0543	0.0050	0.050	-	109	75-152
4-Chlorotoluene	ND	0.0514	0.0050	0.050	-	103	71-148
Dibromochloromethane	ND	0.0387	0.0050	0.050	-	77	61-106
1,2-Dibromo-3-chloropropane	ND	0.0126	0.0040	0.020	-	63	36-120
1,2-Dibromoethane (EDB)	ND	0.0384	0.0040	0.050	-	77	67-118
Dibromomethane	ND	0.0387	0.0050	0.050	-	77	61-116
1,2-Dichlorobenzene	ND	0.0396	0.0050	0.050	-	79	59-106
1,3-Dichlorobenzene	ND	0.0514	0.0050	0.050	-	103	75-129
1,4-Dichlorobenzene	ND	0.0473	0.0050	0.050	-	95	66-127
Dichlorodifluoromethane	ND	0.0273	0.0050	0.050	-	55	13-74
1,1-Dichloroethane	ND	0.0453	0.0050	0.050	-	91	65-134
1,2-Dichloroethane (1,2-DCA)	ND	0.0404	0.0040	0.050	-	81	57-131
1,1-Dichloroethene	ND	0.0435	0.0050	0.050	-	87	62-127
cis-1,2-Dichloroethene	ND	0.0430	0.0050	0.050	-	86	66-130
trans-1,2-Dichloroethene	ND	0.0448	0.0050	0.050	-	90	60-131
1,2-Dichloropropane	ND	0.0426	0.0050	0.050	-	85	63-127
1,3-Dichloropropane	ND	0.0391	0.0050	0.050	-	78	68-124
2,2-Dichloropropane	ND	0.0431	0.0050	0.050	-	86	63-150

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Quality Control Report

Client: AEI Consultants
Date Prepared: 2/12/18
Date Analyzed: 2/13/18
Instrument: GC10
Matrix: Soil
Project: 383559; Emerald Buy Homes Palo Alto

WorkOrder: 1802513
BatchID: 153085
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: mg/kg
Sample ID: MB/LCS-153085
1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	0.0410	0.0050	0.050	-	82	67-134
cis-1,3-Dichloropropene	ND	0.0428	0.0050	0.050	-	86	65-138
trans-1,3-Dichloropropene	ND	0.0434	0.0050	0.050	-	87	66-124
Diisopropyl ether (DIPE)	ND	0.0451	0.0050	0.050	-	90	58-129
Ethylbenzene	ND	0.0537	0.0050	0.050	-	107	73-145
Ethyl tert-butyl ether (ETBE)	ND	0.0416	0.0050	0.050	-	83	62-125
Freon 113	ND	0.0395	0.0050	0.050	-	79	55-116
Hexachlorobutadiene	ND	0.0600	0.0050	0.050	-	120	75-178
Hexachloroethane	ND	0.0547	0.0050	0.050	-	109	75-152
2-Hexanone	ND	0.0345	0.0050	0.050	-	69	41-113
Isopropylbenzene	ND	0.0570	0.0050	0.050	-	114	67-172
4-Isopropyl toluene	ND	0.0659	0.0050	0.050	-	132	88-171
Methyl-t-butyl ether (MTBE)	ND	0.0388	0.0050	0.050	-	77	58-122
Methylene chloride	ND	0.0447	0.0050	0.050	-	89	57-140
4-Methyl-2-pentanone (MIBK)	ND	0.0329	0.0050	0.050	-	66	42-117
Naphthalene	ND	0.0230	0.0050	0.050	-	46	29-65
n-Propyl benzene	ND	0.0605	0.0050	0.050	-	121	85-174
Styrene	ND	0.0500	0.0050	0.050	-	100	63-126
1,1,1,2-Tetrachloroethane	ND	0.0426	0.0050	0.050	-	85	68-131
1,1,2,2-Tetrachloroethane	ND	0.0381	0.0050	0.050	-	76	45-121
Tetrachloroethene	ND	0.0504	0.0050	0.050	-	101	65-150
Toluene	ND	0.0473	0.0050	0.050	-	95	72-135
1,2,3-Trichlorobenzene	ND	0.0260	0.0050	0.050	-	52	35-80
1,2,4-Trichlorobenzene	ND	0.0317	0.0050	0.050	-	63	45-103
1,1,1-Trichloroethane	ND	0.0447	0.0050	0.050	-	89	67-137
1,1,2-Trichloroethane	ND	0.0398	0.0050	0.050	-	79	67-117
Trichloroethene	ND	0.0452	0.0050	0.050	-	90	62-135
Trichlorofluoromethane	ND	0.0416	0.0050	0.050	-	83	56-124
1,2,3-Trichloropropane	ND	0.0440	0.0050	0.050	-	88	58-133
1,2,4-Trimethylbenzene	ND	0.0562	0.0050	0.050	-	112	78-161
1,3,5-Trimethylbenzene	ND	0.0609	0.0050	0.050	-	122	85-170
Vinyl Chloride	ND	0.0455	0.0050	0.050	-	91	32-142
Xylenes, Total	ND	0.149	0.0050	0.15	-	99	70-137

(Cont.)

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	0.125	0.125		0.12	100	100	87-127
Toluene-d8	0.153	0.154		0.12	122	123	93-141
4-BFB	0.0120	0.0128		0.012	96	102	84-137
Benzene-d6	0.115	0.111		0.10	115	111	67-131
Ethylbenzene-d10	0.136	0.135		0.10	136	135	78-153
1,2-DCB-d4	0.0885	0.0864		0.10	89	86	63-109

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acetone	0.898	0.773	1	ND	90	77	36-141	15.0	20
tert-Amyl methyl ether (TAME)	0.0339	0.0296	0.050	ND	68	59	46-105	13.5	20
Benzene	0.0439	0.0385	0.050	ND	88	77	46-124	13.1	20
Bromobenzene	0.0423	0.0380	0.050	ND	85	76	50-119	10.6	20
Bromochloromethane	0.0423	0.0373	0.050	ND	85	75	42-122	12.6	20
Bromodichloromethane	0.0380	0.0336	0.050	ND	76	67	48-112	12.1	20
Bromoform	0.0334	0.0294	0.050	ND	67	59	36-90	12.7	20
Bromomethane	0.0490	0.0448	0.050	ND	98	90	10-149	9.05	20
2-Butanone (MEK)	0.159	0.146	0.20	ND	79	73	43-114	8.55	20
t-Butyl alcohol (TBA)	0.144	0.126	0.20	ND	72	63	33-123	13.9	20
n-Butyl benzene	0.0651	0.0549	0.050	ND	130	110	40-185	17.1	20
sec-Butyl benzene	0.0600	0.0502	0.050	ND	120	100	40-183	17.8	20
tert-Butyl benzene	0.0613	0.0526	0.050	ND	123	105	44-168	15.4	20
Carbon Disulfide	0.0439	0.0398	0.050	ND	88	80	23-139	9.93	20
Carbon Tetrachloride	0.0429	0.0379	0.050	ND	86	76	43-133	12.5	20
Chlorobenzene	0.0410	0.0359	0.050	ND	82	72	51-115	13.3	20
Chloroethane	0.0373	0.0346	0.050	ND	75	69	16-138	7.50	20
Chloroform	0.0413	0.0368	0.050	ND	83	74	54-117	11.7	20
Chloromethane	0.0381	0.0344	0.050	ND	76	69	14-128	10.3	20
2-Chlorotoluene	0.0487	0.0435	0.050	ND	97	87	54-141	11.3	20
4-Chlorotoluene	0.0465	0.0414	0.050	ND	93	83	52-134	11.6	20
Dibromochloromethane	0.0369	0.0323	0.050	ND	74	65	46-102	13.4	20
1,2-Dibromo-3-chloropropane	0.0124	0.0114	0.020	ND	62	57	16-120	8.21	20
1,2-Dibromoethane (EDB)	0.0372	0.0319	0.050	ND	74	64	48-113	15.4	20
Dibromomethane	0.0363	0.0324	0.050	ND	73	65	44-110	11.2	20
1,2-Dichlorobenzene	0.0373	0.0338	0.050	ND	75	68	43-106	9.68	20
1,3-Dichlorobenzene	0.0463	0.0412	0.050	ND	93	82	49-128	11.7	20
1,4-Dichlorobenzene	0.0430	0.0383	0.050	ND	86	77	48-120	11.5	20
Dichlorodifluoromethane	0.0211	0.0196	0.050	ND	42	39	8-63	7.28	20
1,1-Dichloroethane	0.0414	0.0373	0.050	ND	83	75	50-122	10.4	20
1,2-Dichloroethane (1,2-DCA)	0.0378	0.0336	0.050	ND	76	67	46-116	11.7	20
1,1-Dichloroethene	0.0396	0.0353	0.050	ND	79	71	37-124	11.6	20
cis-1,2-Dichloroethene	0.0401	0.0357	0.050	ND	80	71	47-123	11.5	20
trans-1,2-Dichloroethene	0.0412	0.0367	0.050	ND	82	73	31-131	11.4	20
1,2-Dichloropropane	0.0401	0.0357	0.050	ND	80	71	50-116	11.5	20
1,3-Dichloropropane	0.0376	0.0320	0.050	ND	75	64	52-115	15.9	20
2,2-Dichloropropane	0.0402	0.0356	0.050	ND	80	71	43-137	12.4	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
1,1-Dichloropropene	0.0387	0.0338	0.050	ND	77	68	43-126	13.5	20
cis-1,3-Dichloropropene	0.0413	0.0354	0.050	ND	83	71	35-134	15.4	20
trans-1,3-Dichloropropene	0.0409	0.0355	0.050	ND	82	71	35-124	14.1	20
Diisopropyl ether (DIPE)	0.0417	0.0378	0.050	ND	83	76	49-116	9.96	20
Ethylbenzene	0.0479	0.0412	0.050	ND	96	82	49-137	15.1	20
Ethyl tert-butyl ether (ETBE)	0.0390	0.0349	0.050	ND	78	70	50-113	11.1	20
Freon 113	0.0346	0.0309	0.050	ND	69	62	28-114	11.2	20
Hexachlorobutadiene	0.0535	0.0478	0.050	ND	107	96	22-180	11.1	20
Hexachloroethane	0.0515	0.0459	0.050	ND	103	92	28-158	11.4	20
2-Hexanone	0.0325	0.0282	0.050	ND	65	56	31-102	14.0	20
Isopropylbenzene	0.0483	0.0419	0.050	ND	97	84	50-153	14.2	20
4-Isopropyl toluene	0.0593	0.0502	0.050	ND	119	100	41-171	16.7	20
Methyl-t-butyl ether (MTBE)	0.0366	0.0321	0.050	ND	73	64	48-110	13.1	20
Methylene chloride	0.0429	0.0385	0.050	ND	86	77	42-127	10.9	20
4-Methyl-2-pentanone (MIBK)	0.0320	0.0268	0.050	ND	64	53	24-114	17.9	20
Naphthalene	0.0228	0.0220	0.050	ND	44	43	19-69	3.74	20
n-Propyl benzene	0.0536	0.0463	0.050	ND	107	93	46-168	14.5	20
Styrene	0.0425	0.0387	0.050	ND	85	77	42-122	9.41	20
1,1,1,2-Tetrachloroethane	0.0404	0.0361	0.050	ND	81	72	52-121	11.4	20
1,1,2,2-Tetrachloroethane	0.0386	0.0341	0.050	ND	77	68	27-116	12.5	20
Tetrachloroethene	0.0465	0.0410	0.050	ND	93	82	37-149	12.6	20
Toluene	0.0443	0.0387	0.050	ND	89	77	52-124	13.5	20
1,2,3-Trichlorobenzene	0.0248	0.0247	0.050	ND	50	49	20-86	0.522	20
1,2,4-Trichlorobenzene	0.0305	0.0297	0.050	ND	61	59	24-107	2.58	20
1,1,1-Trichloroethane	0.0416	0.0367	0.050	ND	83	73	48-128	12.6	20
1,1,2-Trichloroethane	0.0377	0.0327	0.050	ND	75	65	51-110	14.2	20
Trichloroethene	0.0417	0.0376	0.050	ND	83	75	42-128	10.4	20
Trichlorofluoromethane	0.0375	0.0334	0.050	ND	75	67	31-121	11.7	20
1,2,3-Trichloropropane	0.0433	0.0375	0.050	ND	87	75	50-115	14.2	20
1,2,4-Trimethylbenzene	0.0526	0.0460	0.050	ND	105	92	48-151	13.2	20
1,3,5-Trimethylbenzene	0.0568	0.0492	0.050	ND	114	98	51-159	14.3	20
Vinyl Chloride	0.0381	0.0360	0.050	ND	76	72	11-136	5.49	20
Xylenes, Total	0.128	0.111	0.15	ND	85	74	38-141	14.0	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153085
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Soil	**Unit:**	mg/kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153085 1802527-001AMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	0.128	0.128	0.12		103	102	82-136	0.416	20
Toluene-d8	0.154	0.151	0.12		124	121	92-139	2.22	20
4-BFB	0.0131	0.0131	0.012		105	105	82-135	0	20
Benzene-d6	0.104	0.0913	0.10		104	91	55-122	13.1	20
Ethylbenzene-d10	0.119	0.102	0.10		119	101	58-141	16.2	20
1,2-DCB-d4	0.0822	0.0743	0.10		82	74	51-107	10.1	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	170	10	200	-	85	47-122
tert-Amyl methyl ether (TAME)	ND	9.33	0.50	10	-	93	62-121
Benzene	ND	9.19	0.50	10	-	92	74-121
Bromobenzene	ND	9.50	0.50	10	-	95	63-127
Bromochloromethane	ND	9.00	0.50	10	-	90	70-126
Bromodichloromethane	ND	9.05	0.50	10	-	90	66-127
Bromoform	ND	9.34	0.50	10	-	93	60-119
Bromomethane	ND	9.78	0.50	10	-	98	32-155
2-Butanone (MEK)	ND	35.1	2.0	40	-	88	51-117
t-Butyl alcohol (TBA)	ND	34.0	2.0	40	-	85	41-122
n-Butyl benzene	ND	10.5	0.50	10	-	105	73-137
sec-Butyl benzene	ND	10.1	0.50	10	-	101	71-137
tert-Butyl benzene	ND	10.0	0.50	10	-	100	61-136
Carbon Disulfide	ND	9.28	0.50	10	-	93	61-139
Carbon Tetrachloride	ND	10.2	0.50	10	-	102	69-137
Chlorobenzene	ND	9.62	0.50	10	-	96	71-122
Chloroethane	ND	9.42	0.50	10	-	94	54-132
Chloroform	ND	9.63	0.50	10	-	96	73-122
Chloromethane	ND	8.45	0.50	10	-	84	48-136
2-Chlorotoluene	ND	10.2	0.50	10	-	101	65-134
4-Chlorotoluene	ND	10.1	0.50	10	-	101	65-130
Dibromochloromethane	ND	8.85	0.50	10	-	89	65-121
1,2-Dibromo-3-chloropropane	ND	3.27	0.20	4	-	82	41-132
1,2-Dibromoethane (EDB)	ND	9.21	0.50	10	-	92	67-125
Dibromomethane	ND	9.02	0.50	10	-	90	68-121
1,2-Dichlorobenzene	ND	9.41	0.50	10	-	94	69-128
1,3-Dichlorobenzene	ND	10.2	0.50	10	-	102	71-131
1,4-Dichlorobenzene	ND	9.61	0.50	10	-	96	70-128
Dichlorodifluoromethane	ND	7.65	0.50	10	-	76	21-158
1,1-Dichloroethane	ND	9.42	0.50	10	-	94	73-123
1,2-Dichloroethane (1,2-DCA)	ND	9.16	0.50	10	-	92	61-127
1,1-Dichloroethene	ND	9.44	0.50	10	-	94	68-130
cis-1,2-Dichloroethene	ND	9.35	0.50	10	-	93	72-123
trans-1,2-Dichloroethene	ND	9.36	0.50	10	-	94	64-138
1,2-Dichloropropane	ND	9.17	0.50	10	-	92	71-121
1,3-Dichloropropane	ND	9.11	0.50	10	-	91	69-120
2,2-Dichloropropane	ND	9.96	0.50	10	-	100	64-142

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
1,1-Dichloropropene	ND	10.1	0.50	10	-	101	70-130
cis-1,3-Dichloropropene	ND	9.29	0.50	10	-	93	58-136
trans-1,3-Dichloropropene	ND	9.73	0.50	10	-	97	66-119
Diisopropyl ether (DIPE)	ND	9.32	0.50	10	-	93	66-123
Ethylbenzene	ND	9.80	0.50	10	-	98	71-125
Ethyl tert-butyl ether (ETBE)	ND	9.22	0.50	10	-	92	67-122
Freon 113	ND	9.75	0.50	10	-	97	68-132
Hexachlorobutadiene	ND	9.75	0.50	10	-	97	56-155
Hexachloroethane	ND	10.5	0.50	10	-	105	61-129
2-Hexanone	ND	8.01	0.50	10	-	80	51-115
Isopropylbenzene	ND	10.2	0.50	10	-	102	66-134
4-Isopropyl toluene	ND	10.3	0.50	10	-	103	70-136
Methyl-t-butyl ether (MTBE)	ND	9.02	0.50	10	-	90	64-118
Methylene chloride	ND	9.18	0.50	10	-	92	62-121
4-Methyl-2-pentanone (MIBK)	ND	7.99	0.50	10	-	80	51-115
Naphthalene	ND	8.55	0.50	10	-	86	55-137
n-Propyl benzene	ND	10.1	0.50	10	-	101	63-140
Styrene	ND	9.58	0.50	10	-	96	62-133
1,1,1,2-Tetrachloroethane	ND	9.57	0.50	10	-	96	69-128
1,1,2,2-Tetrachloroethane	ND	8.72	0.50	10	-	87	60-118
Tetrachloroethene	ND	9.30	0.50	10	-	93	63-136
Toluene	ND	9.41	0.50	10	-	94	67-124
1,2,3-Trichlorobenzene	ND	9.08	0.50	10	-	91	57-145
1,2,4-Trichlorobenzene	ND	9.31	0.50	10	-	93	60-144
1,1,1-Trichloroethane	ND	9.68	0.50	10	-	97	70-133
1,1,2-Trichloroethane	ND	8.69	0.50	10	-	87	65-125
Trichloroethene	ND	9.34	0.50	10	-	93	67-133
Trichlorofluoromethane	ND	9.89	0.50	10	-	99	59-145
1,2,3-Trichloropropane	ND	9.17	0.50	10	-	92	65-115
1,2,4-Trimethylbenzene	ND	10.2	0.50	10	-	102	67-136
1,3,5-Trimethylbenzene	ND	9.88	0.50	10	-	99	68-135
Vinyl Chloride	ND	9.74	0.50	10	-	97	53-146
Xylenes, Total	ND	30.0	0.50	30	-	100	68-128

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
Dibromofluoromethane	25.1	25.0		25	100	100	91-133
Toluene-d8	26.4	26.6		25	106	107	87-127
4-BFB	2.49	2.56		2.5	100	103	66-140

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acetone	214	226	200	ND	105	110	56-141	5.31	20
tert-Amyl methyl ether (TAME)	10.1	10.4	10	ND	101	104	78-120	3.41	20
Benzene	9.19	9.53	10	ND	91	95	81-118	3.60	20
Bromobenzene	8.84	9.27	10	ND	88	93	71-119	4.74	20
Bromochloromethane	9.22	9.62	10	ND	92	96	80-124	4.26	20
Bromodichloromethane	9.19	9.57	10	ND	92	96	78-124	4.07	20
Bromoform	9.98	10.2	10	ND	100	102	65-127	1.84	20
Bromomethane	10.5	11.5	10	ND	105	115	22-175	9.08	20
2-Butanone (MEK)	43.5	45.2	40	ND	106	110	50-152	3.75	20
t-Butyl alcohol (TBA)	41.7	43.4	40	ND	104	108	49-141	3.92	20
n-Butyl benzene	10.2	10.6	10	ND	101	105	77-127	3.73	20
sec-Butyl benzene	9.66	10.0	10	ND	97	100	74-123	3.42	20
tert-Butyl benzene	9.42	9.70	10	ND	94	97	68-122	2.85	20
Carbon Disulfide	9.13	9.44	10	ND	91	94	74-123	3.32	20
Carbon Tetrachloride	10.0	10.4	10	ND	100	104	78-124	3.24	20
Chlorobenzene	9.36	9.64	10	ND	94	96	79-116	2.97	20
Chloroethane	10.9	12.2	10	ND	109	122	56-134	11.9	20
Chloroform	9.74	10.0	10	ND	97	100	82-119	2.95	20
Chloromethane	8.06	9.18	10	ND	81	92	39-147	13.0	20
2-Chlorotoluene	9.38	9.70	10	ND	94	97	69-124	3.32	20
4-Chlorotoluene	9.50	9.74	10	ND	95	97	71-121	2.48	20
Dibromochloromethane	9.36	9.44	10	ND	94	94	76-119	0	20
1,2-Dibromo-3-chloropropane	3.92	3.93	4	ND	98	98	48-138	0	20
1,2-Dibromoethane (EDB)	10.0	10.2	10	ND	100	102	81-122	1.50	20
Dibromomethane	9.63	10.0	10	ND	96	100	83-121	3.89	20
1,2-Dichlorobenzene	9.54	9.89	10	ND	95	99	77-122	3.63	20
1,3-Dichlorobenzene	10.1	10.4	10	ND	101	103	76-125	2.83	20
1,4-Dichlorobenzene	9.72	9.96	10	ND	97	100	78-120	2.35	20
Dichlorodifluoromethane	7.03	7.29	10	ND	70	73	38-135	3.57	20
1,1-Dichloroethane	9.43	9.68	10	ND	93	96	80-120	2.58	20
1,2-Dichloroethane (1,2-DCA)	9.69	10.1	10	ND	97	101	78-122	4.15	20
1,1-Dichloroethene	9.27	9.61	10	ND	93	96	77-120	3.56	20
cis-1,2-Dichloroethene	9.31	9.58	10	ND	90	92	79-123	2.87	20
trans-1,2-Dichloroethene	9.31	9.57	10	ND	92	94	77-125	2.74	20
1,2-Dichloropropane	9.35	9.72	10	ND	94	97	80-121	3.85	20
1,3-Dichloropropane	9.76	9.94	10	ND	98	99	80-120	1.76	20
2,2-Dichloropropane	9.90	10.1	10	ND	99	101	70-132	1.69	20

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1534 Willow Pass Road, Pittsburg, CA 94565-1701
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Quality Control Report

Client: AEI Consultants
Date Prepared: 2/14/18
Date Analyzed: 2/14/18
Instrument: GC16
Matrix: Water
Project: 383559; Emerald Buy Homes Palo Alto

WorkOrder: 1802513
BatchID: 153256
Extraction Method: SW5030B
Analytical Method: SW8260B
Unit: µg/L
Sample ID: MB/LCS-153256
1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
1,1-Dichloropropene	9.34	9.59	10	ND	93	96	78-122	2.63	20
cis-1,3-Dichloropropene	9.60	9.72	10	ND	96	97	73-121	1.20	20
trans-1,3-Dichloropropene	10.4	10.5	10	ND	104	105	77-116	1.19	20
Diisopropyl ether (DIPE)	9.69	10.1	10	ND	97	101	77-125	4.30	20
Ethylbenzene	9.54	9.89	10	ND	95	99	77-119	3.58	20
Ethyl tert-butyl ether (ETBE)	9.93	10.3	10	ND	99	103	81-122	3.46	20
Freon 113	9.59	9.94	10	ND	96	99	77-120	3.56	20
Hexachlorobutadiene	9.32	9.55	10	ND	93	95	57-141	2.46	20
Hexachloroethane	9.98	10.3	10	ND	97	100	26-168	2.80	20
2-Hexanone	9.57	9.77	10	ND	96	98	58-135	2.00	20
Isopropylbenzene	9.77	10.1	10	ND	98	101	74-120	3.12	20
4-Isopropyl toluene	9.79	10.1	10	ND	98	101	75-124	3.06	20
Methyl-t-butyl ether (MTBE)	10.0	10.5	10	ND	95	100	74-128	4.87	20
Methylene chloride	9.22	9.63	10	ND	92	96	55-130	4.33	20
4-Methyl-2-pentanone (MIBK)	9.73	10.1	10	ND	94	97	59-131	3.62	20
Naphthalene	9.26	9.77	10	ND	91	96	65-136	5.29	20
n-Propyl benzene	9.30	9.59	10	ND	93	96	67-128	3.12	20
Styrene	9.35	9.71	10	ND	93	96	64-133	3.80	20
1,1,1,2-Tetrachloroethane	9.56	9.75	10	ND	96	97	78-122	1.95	20
1,1,2,2-Tetrachloroethane	9.18	9.41	10	ND	92	94	72-123	2.50	20
Tetrachloroethene	8.92	9.11	10	ND	89	91	72-123	2.06	20
Toluene	9.35	9.52	10	ND	92	94	74-117	1.82	20
1,2,3-Trichlorobenzene	8.78	9.05	10	ND	88	91	61-141	3.12	20
1,2,4-Trichlorobenzene	9.04	9.29	10	ND	90	93	69-136	2.70	20
1,1,1-Trichloroethane	9.55	9.93	10	ND	96	99	78-122	3.88	20
1,1,2-Trichloroethane	9.42	9.53	10	ND	94	95	79-120	1.09	20
Trichloroethene	9.11	9.43	10	0.6658	84	88	76-122	3.47	20
Trichlorofluoromethane	9.80	10.2	10	ND	98	102	72-125	4.26	20
1,2,3-Trichloropropane	9.88	10.0	10	ND	99	100	72-123	1.64	20
1,2,4-Trimethylbenzene	9.51	9.85	10	ND	95	99	74-123	3.53	20
1,3,5-Trimethylbenzene	9.06	9.44	10	ND	91	94	73-123	4.03	20
Vinyl Chloride	9.27	10.0	10	ND	93	100	57-134	7.60	20
Xylenes, Total	28.7	29.6	30	ND	96	99	76-119	3.00	20

(Cont.)

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/14/18	**BatchID:**	153256
Date Analyzed:	2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC16	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153256 1802512-003BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
Dibromofluoromethane	25.2	25.4	25		101	102	78-134	0.863	20
Toluene-d8	26.9	26.6	25		108	106	82-120	1.27	20
4-BFB	2.34	2.38	2.5		94	95	69-131	1.52	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	3.86	0.25	5	-	77	46-118
Acenaphthylene	ND	4.12	0.25	5	-	82	43-122
Acetochlor	ND	-	0.25	-	-	-	-
Anthracene	ND	3.98	0.25	5	-	80	47-125
Benzidine	ND	1.96	1.3	5	-	39	13-83
Benzo (a) anthracene	ND	4.17	0.25	5	-	83	53-117
Benzo (a) pyrene	ND	4.44	0.25	5	-	89	53-138
Benzo (b) fluoranthene	ND	4.06	0.25	5	-	81	48-125
Benzo (g,h,i) perylene	ND	4.35	0.25	5	-	87	51-146
Benzo (k) fluoranthene	ND	4.10	0.25	5	-	82	53-124
Benzyl Alcohol	ND	4.48	1.3	5	-	90	51-105
1,1-Biphenyl	ND	-	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	4.26	0.25	5	-	85	48-115
Bis (2-chloroethyl) Ether	ND	4.06	0.25	5	-	81	51-105
Bis (2-chloroisopropyl) Ether	ND	5.36	0.25	5	-	107	85-119
Bis (2-ethylhexyl) Adipate	ND	4.37	0.25	5	-	87	46-117
Bis (2-ethylhexyl) Phthalate	ND	4.08	0.25	5	-	82	50-124
4-Bromophenyl Phenyl Ether	ND	3.81	0.25	5	-	76	70-112
Butylbenzyl Phthalate	ND	4.57	0.25	5	-	91	55-127
4-Chloroaniline	ND	2.72	0.50	5	-	54	18-77
4-Chloro-3-methylphenol	ND	4.60	0.25	5	-	92	49-123
2-Chloronaphthalene	ND	4.06	0.25	5	-	81	44-109
2-Chlorophenol	ND	4.55	0.25	5	-	91	55-116
4-Chlorophenyl Phenyl Ether	ND	3.99	0.25	5	-	80	45-122
Chrysene	ND	4.16	0.25	5	-	83	54-116
Dibenzo (a,h) anthracene	ND	4.05	0.25	5	-	81	52-141
Dibenzofuran	ND	4.05	0.25	5	-	81	46-117
Di-n-butyl Phthalate	ND	3.71	0.25	5	-	74	45-126
1,2-Dichlorobenzene	ND	4.45	0.25	5	-	89	55-105
1,3-Dichlorobenzene	ND	3.91	0.25	5	-	78	51-104
1,4-Dichlorobenzene	ND	3.70	0.25	5	-	74	50-102
3,3-Dichlorobenzidine	ND	3.18	0.50	5	-	64	20-84
2,4-Dichlorophenol	ND	4.88	0.25	5	-	98	54-124
Diethyl Phthalate	ND	3.81	0.25	5	-	76	42-118
2,4-Dimethylphenol	ND	5.22	0.25	5	-	105	53-120
Dimethyl Phthalate	ND	3.89	0.25	5	-	78	45-118
4,6-Dinitro-2-methylphenol	ND	3.28	1.3	5	-	65	32-126

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	2.58	6.3	5	-	52	20-130
2,4-Dinitrotoluene	ND	4.56	0.25	5	-	91	47-117
2,6-Dinitrotoluene	ND	4.23	0.25	5	-	85	48-121
Di-n-octyl Phthalate	ND	4.24	0.50	5	-	85	40-150
1,2-Diphenylhydrazine	ND	4.11	0.25	5	-	82, F2	88-117
Fluoranthene	ND	4.11	0.25	5	-	82	45-126
Fluorene	ND	4.07	0.25	5	-	81	43-118
Hexachlorobenzene	ND	3.55	0.25	5	-	71	47-130
Hexachlorobutadiene	ND	3.87	0.25	5	-	77	50-121
Hexachlorocyclopentadiene	ND	1.94	1.3	5	-	39	30-89
Hexachloroethane	ND	3.87	0.25	5	-	77	50-106
Indeno (1,2,3-cd) pyrene	ND	4.00	0.25	5	-	80	51-138
Isophorone	ND	3.31	0.25	5	-	66	38-92
2-Methylnaphthalene	ND	4.56	0.25	5	-	91	51-121
2-Methylphenol (o-Cresol)	ND	3.68	0.25	5	-	74	48-114
3 & 4-Methylphenol (m,p-Cresol)	ND	4.50	0.25	5	-	90	30-130
Naphthalene	ND	3.90	0.25	5	-	78	50-113
2-Nitroaniline	ND	4.67	1.3	5	-	93	45-115
3-Nitroaniline	ND	3.57	1.3	5	-	71	31-93
4-Nitroaniline	ND	4.47	1.3	5	-	89	41-108
Nitrobenzene	ND	4.29	0.25	5	-	86	49-122
2-Nitrophenol	ND	4.65	1.3	5	-	93	54-121
4-Nitrophenol	ND	3.59	1.3	5	-	72	40-102
N-Nitrosodiphenylamine	ND	-	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	5.03	0.25	5	-	101	47-108
Pentachlorophenol	ND	4.51	1.3	5	-	90	39-134
Phenanthrene	ND	3.76	0.25	5	-	75	49-123
Phenol	ND	4.56	0.25	5	-	91	49-107
Pyrene	ND	4.30	0.25	5	-	86	55-124
Pyridine	ND	6.23	0.25	5	-	125	70-130
1,2,4-Trichlorobenzene	ND	4.15	0.25	5	-	83	51-121
2,4,5-Trichlorophenol	ND	4.56	0.25	5	-	91	45-126
2,4,6-Trichlorophenol	ND	4.12	0.25	5	-	82	46-128

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery							
2-Fluorophenol	5.06	4.70		5	101	94	47-125
Phenol-d5	5.06	4.87		5	101	97	45-117
Nitrobenzene-d5	3.94	4.56		5	79	91	39-121
2-Fluorobiphenyl	3.77	4.08		5	75	82	35-120
2,4,6-Tribromophenol	4.70	5.43		5	94	109	32-111
4-Terphenyl-d14	3.60	4.48		5	72	90	32-128

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Acenaphthene	NR	NR		ND<2	NR	NR	-	NR	-
Acenaphthylene	NR	NR		ND<2	NR	NR	-	NR	-
Anthracene	NR	NR		ND<2	NR	NR	-	NR	-
Benzidine	NR	NR		ND<10	NR	NR	-	NR	-
Benzo (a) anthracene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (a) pyrene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (b) fluoranthene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (g,h,i) perylene	NR	NR		ND<2	NR	NR	-	NR	-
Benzo (k) fluoranthene	NR	NR		ND<2	NR	NR	-	NR	-
Benzyl Alcohol	NR	NR		ND<10	NR	NR	-	NR	-
Bis (2-chloroethoxy) Methane	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-chloroethyl) Ether	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-chloroisopropyl) Ether	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-ethylhexyl) Adipate	NR	NR		ND<2	NR	NR	-	NR	-
Bis (2-ethylhexyl) Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
4-Bromophenyl Phenyl Ether	NR	NR		ND<2	NR	NR	-	NR	-
Butylbenzyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
4-Chloroaniline	NR	NR		ND<4	NR	NR	-	NR	-
4-Chloro-3-methylphenol	NR	NR		ND<2	NR	NR	-	NR	-
2-Chloronaphthalene	NR	NR		ND<2	NR	NR	-	NR	-
2-Chlorophenol	NR	NR		ND<2	NR	NR	-	NR	-
4-Chlorophenyl Phenyl Ether	NR	NR		ND<2	NR	NR	-	NR	-
Chrysene	NR	NR		ND<2	NR	NR	-	NR	-
Dibenzo (a,h) anthracene	NR	NR		ND<2	NR	NR	-	NR	-
Dibenzofuran	NR	NR		ND<2	NR	NR	-	NR	-
Di-n-butyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
1,2-Dichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
1,3-Dichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
1,4-Dichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
3,3-Dichlorobenzidine	NR	NR		ND<4	NR	NR	-	NR	-
2,4-Dichlorophenol	NR	NR		ND<2	NR	NR	-	NR	-
Diethyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
2,4-Dimethylphenol	NR	NR		ND<2	NR	NR	-	NR	-
Dimethyl Phthalate	NR	NR		ND<2	NR	NR	-	NR	-
4,6-Dinitro-2-methylphenol	NR	NR		ND<10	NR	NR	-	NR	-
2,4-Dinitrophenol	NR	NR		ND<50	NR	NR	-	NR	-
2,4-Dinitrotoluene	NR	NR		ND<2	NR	NR	-	NR	-

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
2,6-Dinitrotoluene	NR	NR		ND<2	NR	NR	-	NR	-
Di-n-octyl Phthalate	NR	NR		ND<4	NR	NR	-	NR	-
1,2-Diphenylhydrazine	NR	NR		ND<2	NR	NR	-	NR	-
Fluoranthene	NR	NR		ND<2	NR	NR	-	NR	-
Fluorene	NR	NR		ND<2	NR	NR	-	NR	-
Hexachlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
Hexachlorobutadiene	NR	NR		ND<2	NR	NR	-	NR	-
Hexachlorocyclopentadiene	NR	NR		ND<10	NR	NR	-	NR	-
Hexachloroethane	NR	NR		ND<2	NR	NR	-	NR	-
Indeno (1,2,3-cd) pyrene	NR	NR		ND<2	NR	NR	-	NR	-
Isophorone	NR	NR		ND<2	NR	NR	-	NR	-
2-Methylnaphthalene	NR	NR		ND<2	NR	NR	-	NR	-
2-Methylphenol (o-Cresol)	NR	NR		ND<2	NR	NR	-	NR	-
3 & 4-Methylphenol (m,p-Cresol)	NR	NR		ND<2	NR	NR	-	NR	-
Naphthalene	NR	NR		ND<2	NR	NR	-	NR	-
2-Nitroaniline	NR	NR		ND<10	NR	NR	-	NR	-
3-Nitroaniline	NR	NR		ND<10	NR	NR	-	NR	-
4-Nitroaniline	NR	NR		ND<10	NR	NR	-	NR	-
Nitrobenzene	NR	NR		ND<2	NR	NR	-	NR	-
2-Nitrophenol	NR	NR		ND<10	NR	NR	-	NR	-
4-Nitrophenol	NR	NR		ND<10	NR	NR	-	NR	-
N-Nitrosodi-n-propylamine	NR	NR		ND<2	NR	NR	-	NR	-
Pentachlorophenol	NR	NR		ND<10	NR	NR	-	NR	-
Phenanthrene	NR	NR		ND<2	NR	NR	-	NR	-
Phenol	NR	NR		ND<2	NR	NR	-	NR	-
Pyrene	NR	NR		ND<2	NR	NR	-	NR	-
Pyridine	NR	NR		ND<2	NR	NR	-	NR	-
1,2,4-Trichlorobenzene	NR	NR		ND<2	NR	NR	-	NR	-
2,4,5-Trichlorophenol	NR	NR		ND<2	NR	NR	-	NR	-
2,4,6-Trichlorophenol	NR	NR		ND<2	NR	NR	-	NR	-

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/13/18	**BatchID:**	153166
Date Analyzed:	2/14/18	**Extraction Method:**	SW3550B
Instrument:	GC21	**Analytical Method:**	SW8270C
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153166 1802513-001AMS/MSD

QC Summary Report for SW8270C

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Surrogate Recovery									
2-Fluorophenol	NR	NR			NR	NR	-	NR	-
Phenol-d5	NR	NR			NR	NR	-	NR	-
Nitrobenzene-d5	NR	NR			NR	NR	-	NR	-
2-Fluorobiphenyl	NR	NR			NR	NR	-	NR	-
2,4,6-Tribromophenol	NR	NR			NR	NR	-	NR	-
4-Terphenyl-d14	NR	NR			NR	NR	-	NR	-

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153077
Date Analyzed:	2/13/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153077 1802523-001AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	52.3	0.50	50	-	105	75-125
Arsenic	ND	53.9	0.50	50	-	108	75-125
Barium	ND	525	5.0	500	-	105	75-125
Beryllium	ND	50.6	0.50	50	-	101	75-125
Cadmium	ND	49.8	0.25	50	-	100	75-125
Chromium	ND	49.8	0.50	50	-	100	75-125
Cobalt	ND	50.3	0.50	50	-	101	75-125
Copper	ND	50.6	0.50	50	-	101	75-125
Lead	ND	51.5	0.50	50	-	103	75-125
Mercury	ND	1.13	0.050	1.25	-	91	75-125
Molybdenum	ND	49.8	0.50	50	-	100	75-125
Nickel	ND	51.5	0.50	50	-	103	75-125
Selenium	ND	53.2	0.50	50	-	106	75-125
Silver	ND	51.3	0.50	50	-	103	75-125
Thallium	ND	49.2	0.50	50	-	98	75-125
Vanadium	ND	50.1	0.50	50	-	100	75-125
Zinc	ND	506	5.0	500	-	101	75-125
Surrogate Recovery							
Terbium	512	534		500	102	107	70-130

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153077
Date Analyzed:	2/13/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153077 1802523-001AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	53.1	53.9	50	1.916	102	104	75-125	1.44	20
Arsenic	52.5	54.4	50	4.271	96	100	75-125	3.63	20
Barium	696	707	500	165.1	106	108	75-125	1.55	20
Beryllium	48.4	48.4	50	0.7526	95	95	75-125	0	20
Cadmium	51.7	51.6	50	ND	103	103	75-125	0	20
Chromium	108	105	50	54.07	108	102	75-125	2.91	20
Cobalt	68.4	66.2	50	17.81	101	97	75-125	3.27	20
Copper	80.7	85.4	50	30.41	101	110	75-125	5.71	20
Lead	61.4	61.4	50	55.86	11,F10	11,F10	75-125	0	20
Mercury	1.25	1.28	1.25	ND	96	98	75-125	1.90	20
Molybdenum	52.7	53.6	50	ND	105	106	75-125	1.58	20
Nickel	163	162	50	100.4	124	124	75-125	0	20
Selenium	49.9	50.4	50	ND	99	100	75-125	0.977	20
Silver	50.7	51.6	50	ND	101	103	75-125	1.74	20
Thallium	52.0	53.0	50	ND	104	106	75-125	1.87	20
Vanadium	118	114	50	61.68	112	105	75-125	2.76	20
Zinc	596	600	500	73.76	104	105	75-125	0.619	20
Surrogate Recovery									
Terbium	560	570	500		112	114	70-130	1.84	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	2.02	1.916	5.43	-
Arsenic	3.80	4.271	11.0	-
Barium	158	165.1	4.30	20
Beryllium	0.965	0.7526	28.2	-
Cadmium	ND<1.2	ND	-	-
Chromium	55.4	54.07	2.46	20
Cobalt	18.6	17.81	4.44	20
Copper	30.4	30.41	0.0329	20
Lead	53.6	55.86	4.05	20
Mercury	0.0355	ND	-	-
Molybdenum	ND<2.5	ND	-	-
Nickel	96.3	100.4	4.08	20
Selenium	ND<2.5	ND	-	-

(Cont.)

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153077
Date Analyzed:	2/13/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS1, ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153077 1802523-001AMS/MSD

QC Summary Report for Metals

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Silver	ND<2.5	ND	-	-
Thallium	ND<2.5	ND	-	-
Vanadium	62.6	61.68	1.49	20
Zinc	72.3	73.76	1.98	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153082
Date Analyzed:	2/13/18	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153082 1802525-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	1.0	-	-	-
MTBE	ND	0.050	-	-	-
Benzene	ND	0.0050	-	-	-
Toluene	ND	0.0050	-	-	-
Ethylbenzene	ND	0.0050	-	-	-
Xylenes	ND	0.0050	-	-	-
Surrogate Recovery					
2-Fluorotoluene	0.107		0.10	107	75-134

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.688	0.715	0.60	115	119, F2	82-118	3.75	20
MTBE	0.0900	0.0927	0.10	90	93	61-119	2.95	20
Benzene	0.108	0.109	0.10	108	109	77-128	0.293	20
Toluene	0.112	0.111	0.10	112	111	74-132	0.619	20
Ethylbenzene	0.111	0.110	0.10	111	110	84-127	0.698	20
Xylenes	0.336	0.333	0.30	112	111	86-129	0.772	20
Surrogate Recovery								
2-Fluorotoluene	0.106	0.104	0.10	106	104	75-134	2.12	20

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	0.647	0.667	0.60	ND	108	111	58-129	3.08	20
MTBE	0.102	0.0823	0.10	ND	102	82	47-118	21.6,F1	20
Benzene	0.0973	0.117	0.10	ND	97	117	55-129	18.4	20
Toluene	0.102	0.117	0.10	ND	102	117	56-130	13.8	20
Ethylbenzene	0.102	0.118	0.10	ND	103	118	63-129	14.2	20
Xylenes	0.308	0.354	0.30	ND	103	118	64-131	14.1	20
Surrogate Recovery									
2-Fluorotoluene	0.0959	0.114	0.10		96	114	62-126	17.1	20

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/13/18 - 2/14/18	**BatchID:**	153197
Date Analyzed:	2/13/18 - 2/14/18	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153197 1802512-003AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	50	-	-	-
MTBE	ND	5.0	-	-	-
Benzene	ND	0.50	-	-	-
Toluene	ND	0.50	-	-	-
Ethylbenzene	ND	0.50	-	-	-
Xylenes	ND	0.50	-	-	-
Surrogate Recovery					
aaa-TFT	9.95		10	99	89-116

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	62.2	-	60	104	-	78-116	-	-
MTBE	11.1	-	10	111	-	72-122	-	-
Benzene	10.2	-	10	102	-	81-123	-	-
Toluene	10.5	-	10	105	-	83-129	-	-
Ethylbenzene	10.3	-	10	103	-	88-126	-	-
Xylenes	31.1	-	30	104	-	87-131	-	-
Surrogate Recovery								
aaa-TFT	9.90	-	10	99	-	89-116	-	-

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	70.5	67.5	60	ND	118	112	63-133	4.42	20
MTBE	8.92	8.90	10	ND	82	81	69-122	0.212	20
Benzene	10.3	10.4	10	ND	102	103	84-125	0.982	20
Toluene	10.6	10.6	10	ND	106	106	87-131	0	20
Ethylbenzene	10.6	10.6	10	ND	106	106	92-126	0	20
Xylenes	32.1	31.7	30	ND	107	105	88-132	1.26	20
Surrogate Recovery									
aaa-TFT	9.81	9.83	10		98	98	90-117	0	20

Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/14/18	**BatchID:**	153239
Date Analyzed:	2/15/18	**Extraction Method:**	SW3050B
Instrument:	ICP-MS3	**Analytical Method:**	SW6020
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153239 1802713-011AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Arsenic	ND	50.4	0.50	50	-	101	75-125
Lead	ND	50.1	0.50	50	-	100	75-125
Surrogate Recovery							
Terbium	529	540		500	106	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Arsenic	52.3	48.4	50	2.0	101	93	75-125	7.77	20
Lead	240	227	50	160	169,F10	143,F10	75-125	5.61	20
Surrogate Recovery									
Terbium	542	533	500		108	107	70-130	1.66	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Arsenic	1.84	2.0	8.00	-
Lead	166	160	3.75	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153081
Date Analyzed:	2/13/18	**Extraction Method:**	SW3550B
Instrument:	GC6A	**Analytical Method:**	SW8015B
Matrix:	Soil	**Unit:**	mg/Kg
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS-153081 1802525-001AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	40.0	1.0	40	-	100	75-128
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	24.5	24.0		25	98	96	72-122

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR		14	NR	NR	-	NR	-
Surrogate Recovery									
C9	NR	NR			NR	NR	-	NR	-

NELAP 4033ORELAP

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Quality Control Report

Client:	AEI Consultants	**WorkOrder:**	1802513
Date Prepared:	2/12/18	**BatchID:**	153072
Date Analyzed:	2/12/18	**Extraction Method:**	SW3510C
Instrument:	GC11A	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	383559; Emerald Buy Homes Palo Alto	**Sample ID:**	MB/LCS/LCSD-153072

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH-Diesel (C10-C23)	ND	50	-	-	-
TPH-Motor Oil (C18-C36)	ND	250	-	-	-
Surrogate Recovery					
C9	634		625	101	68-127

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	1070	1030	1000	107	103	86-142	3.55	30
Surrogate Recovery								
C9	619	630	625	99	101	68-127	1.69	30

McCampbell Analytical, Inc.

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1802513 **ClientCode: AELS**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Dry-Weight

Report to:
Nina Abdollahian
AEI Consultants
3880 S. Bascom Ave, Suite 109
San Jose, CA 95124
408-559-7600 FAX:

Email: nabdollahian@aeiconsultants.com
cc/3rd Party: jasmith@aeiconsultants.com;
PO: 152768
Project: 383559; Emerald Buy Homes Palo Alto

Bill to:
Accounts Payable
AEI Consultants
2500 Camino Diablo, Ste. #200
Walnut Creek, CA 94597
AccountsPayable@AEIConsultants.com

Requested TAT: **5 days;**

Date Received: **02/09/2018**
Date Logged: **02/09/2018**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
1802513-001	SB-4-0.5	Soil	2/9/2018 14:12	☐		A	A		A	A	A	A			A	
1802513-006	SB-3-0.5	Soil	2/9/2018 13:18	☐	A									A		
1802513-007	SB-3-3.5	Soil	2/9/2018 13:15	☑	A									A		
1802513-010	SB-4-W	Water	2/9/2018 15:10	☐				B					A			A

Test Legend:

1	8081_S	2	8081PCB_S	3	8260B_S	4	8260B_W
5	8270_S	6	ASBESTOS_E600PLM_S	7	CAM17MS_TTLC_S	8	G-MBTEX_S
9	G-MBTEX_W	10	METALS_TTLC_S	11	TPH(DMO)_S	12	TPH(DMO)_W

Prepared by: Nancy Palacios

The following SampID: 001A contains testgroup Multi Range_S.; The following SampID: 010A contains testgroup Multi Range_W.

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: AEI CONSULTANTS **Project:** 383559; Emerald Buy Homes Palo Alto **Work Order:** 1802513
Client Contact: Nina Abdollahian **QC Level:** LEVEL 2
Contact's Email: nabdollahian@aeiconsultants.com **Comments:** **Date Logged:** 2/9/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1802513-001A	SB-4-0.5	Soil	Multi-Range TPH(g,d,mo) by EPA 8015Bm	1	Acetate Liner	☐	2/9/2018 14:12	5 days		☐	
			SW6020 (CAM 17) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc>			☐		5 days		☐	
			Asbestos - PLM			☐		5 days		☐	SubOut
			SW8270C (SVOCs)			☐		5 days		☐	
			SW8260B (VOCs)			☐		5 days		☐	
			SW8081A/8082 (OC Pesticides+PCBs)			☐		5 days		☐	
1802513-002A	SB-4-3.5	Soil		1	Acetate Liner	☐	2/9/2018 14:10			☑	
1802513-003A	SB-4-7.5	Soil		1	Acetate Liner	☐	2/9/2018 14:14			☑	
1802513-004A	SB-4-11.5	Soil		1	Acetate Liner	☐	2/9/2018 14:16			☑	
1802513-005A	SB-4-15.5	Soil		1	Acetate Liner	☐	2/9/2018 14:17			☑	
1802513-006A	SB-3-0.5	Soil	SW6010B (Metals) <Arsenic, Lead, Silica>	1	Acetate Liner	☐	2/9/2018 13:18	5 days		☐	
			SW8081A (OC Pesticides)			☐		5 days		☐	
1802513-007A	SB-3-3.5	Soil	SW6010B (Metals) <Arsenic, Lead>	1	Acetate Liner	☐	2/9/2018 13:15	5 days		☑	

NOTES: **- STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

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WORK ORDER SUMMARY

Client Name: AEI CONSULTANTS **Project:** 383559; Emerald Buy Homes Palo Alto **Work Order:** 1802513
Client Contact: Nina Abdollahian **QC Level:** LEVEL 2
Contact's Email: nabdollahian@aeiconsultants.com **Comments:** **Date Logged:** 2/9/2018

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1802513-007A	SB-3-3.5	Soil	SW8081A (OC Pesticides)	1	Acetate Liner	☐	2/9/2018 13:15	5 days		☑	
1802513-008A	SB-3-7.5	Soil		1	Acetate Liner	☐	2/9/2018 13:26			☑	
1802513-009A	SB-3-11.5	Soil		1	Acetate Liner	☐	2/9/2018 13:28			☑	
1802513-010A	SB-4-W	Water	Multi-Range TPH(g,d,mo) by EPA 8015Bm	3	VOA w/ HCl	☐	2/9/2018 15:10	5 days	10%+	☐	
1802513-010B	SB-4-W	Water	SW8260B (VOCs)	3	VOA w/ HCl	☐	2/9/2018 15:10	5 days	10%+	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

General COC

MAI Work Order # 1802513

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CHAIN OF CUSTODY RECORD

Turn Around Time: 1 Day Rush | 2 Day Rush | 3 Day Rush | STD ● | Quote #

J-Flag / MDL | ESL | Cleanup Approved | Bottle Order #

Delivery Format: PDF ● | GeoTracker EDF | EDD | Write On (DW) | EQuIS

Report To: Nina Abdollahian Bill To: AEI Consultants

Company: AEI Consultants

Email: nabdollahian@aeiconsultants.com

Alt Email: jasmith@aeiconsultants.com Tele: 408-559-7600

Project Name: Emerald Buy Homes Project #: 383559

Project Location: Palo Alto PO # 152768

Sampler Signature:

Analysis Requested

SAMPLE ID Location / Field Point	Sampling Date	Sampling Time	#Containers	Matrix	Preservative	TPH-mo, TPH-g, and TPH-d by 8015M	EPA 8081A (Cl Pesticides)	Arsenic and Lead using 6010B	VOCs using 8260B	SVOCs using 8270C	PCBs using 8082	Title 22 Metals using 6010B and 7471A	Asbestos by PLM	HOLD		Oc Pesticides 8081 + PCBs 8082
SB-4-0.5	2/9/2018	1412	1	S	1	X			X	X		X	X	●		X
SB-4-3.5	2/9/2018	1410	1	S	1									●		
SB-4-7.5	2/9/2018	1414	1	S	1									●		
SB-4-11.5	2/9/2018	1416	1	S	1									●		
SB-4-15.5	2/9/2018	1417	1	S	1									●		
SB-4-W	2/9/2018	1510	6	GW	1,2	●			●							
SB-3-0.5	2/9/2018	1318	1	S	1		X	X						●		
SB-3-3.5	2/9/2018	1315	1	S	1									●		
SB-3-7.5	2/9/2018	1326	1	S	1									●		
SB-3-11.5	2/9/2018	1328	1	S	1									●		

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E200.8.

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
	2/9/18	1945	Nancy Palacios	2/9/18	1740

Comments / Instructions

Matrix Code: DW=Drinking Water, GW=Ground Water, WW=Waste Water, SW=Seawater, S=Soil, SL=Sludge, A=Air, WP=Wipe, O=Other

Preservative Code: 1=4°C 2=HCl 3=H_2SO_4 4=HNO_3 5=NaOH 6=ZnOAc/NaOH 7=None

Temp ______ °C Initials ______

DID NOT RECEIVE SAMPLES FOR SAMPLE ID SB-4 W

Page __ of __

2/12/18

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	**AEI Consultants**	Date and Time Received	**2/9/2018 17:40**
Project:	**383559; Emerald Buy Homes Palo Alto**	Date Logged:	**2/9/2018**
		Received by:	Nancy Palacios
WorkOrder №:	**1802513** Matrix: Soil	Logged by:	Nancy Palacios
Carrier:	Laurie Moore (MAI Courier)		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☐	☑	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☐	☐	☑
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☑	☐	☐
Sample/Temp Blank temperature	Temp:		☑
Water - VOA vials have zero headspace / no bubbles?	☐	☐	☑
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	☐	☐	☑
Samples Received on Ice?	☑	☐	

(Ice Type: WET ICE)

UCMR Samples:

	Yes	No	NA
pH tested and acceptable upon receipt (200.8: ≤2; 525.3: ≤4; 530: ≤7; 541: <3; 544: <6.5 & 7.5)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L)?	☐	☐	☑

Comments: Method SW8021B/8015Bm (G/MBTEX) was received with temperature condition not met. Method SW8015B (Diesel & Motor Oil) was received with temperature condition not met. Method SW8260B (VOCs) was received with temperature condition not met. Method SW8270C (SVOCs) was received with temperature condition not met. Method SW7471B (Mercury) was received with temperature condition not met. Method SW8081A/8082 (OC Pesticides+PCBs) was received with temperature condition not met. Method SW8081A (OC Pesticides) was received with temperature condition not met.

ANALYTICAL REPORT

February 19, 2018

AEI Consultants - CA

Sample Delivery Group:	L969728
Samples Received:	02/13/2018
Project Number:	383559
Description:	Emerald Buy Homes
Site:	788 SAN ANTONIO ROAD
Report To:	Jeremy Smith 3880 S Bascom Ave #109 San Jose, CA 95124

Entire Report Reviewed By:

Brian Ford

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

	Collected by	Collected date/time	Received date/time
		02/12/18 10:18	02/13/18 08:45

SG-1 L969728-01 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG1073657	1	02/15/18 09:05	02/15/18 09:05	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1073004	2	02/13/18 19:48	02/13/18 19:48	MBF
Organic Compounds (GC) by Method D1946	WG1073170	1	02/14/18 15:08	02/14/18 15:08	BG

	Collected by	Collected date/time	Received date/time
		02/09/18 13:08	02/13/18 08:45

SG-2 L969728-02 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG1073657	1	02/15/18 09:08	02/15/18 09:08	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1073004	2	02/13/18 20:35	02/13/18 20:35	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1073492	20	02/14/18 19:33	02/14/18 19:33	MBF
Organic Compounds (GC) by Method D1946	WG1073170	1	02/14/18 15:14	02/14/18 15:14	BG

	Collected by	Collected date/time	Received date/time
		02/09/18 17:44	02/13/18 08:45

SG-3 L969728-03 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG1073657	1	02/15/18 09:13	02/15/18 09:13	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1073004	8	02/13/18 21:17	02/13/18 21:17	MBF
Organic Compounds (GC) by Method D1946	WG1073170	1	02/14/18 15:19	02/14/18 15:19	BG

	Collected by	Collected date/time	Received date/time
		02/09/18 18:02	02/13/18 08:45

SG-4 L969728-04 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG1073657	1	02/15/18 09:21	02/15/18 09:21	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1073004	2000	02/13/18 21:59	02/13/18 21:59	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1073492	20000	02/14/18 20:11	02/14/18 20:11	MBF
Organic Compounds (GC) by Method D1946	WG1073170	1	02/14/18 15:25	02/14/18 15:25	BG

	Collected by	Collected date/time	Received date/time
		02/09/18 18:18	02/13/18 08:45

SG-5 L969728-05 Air

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC) by Method ASTM 1946	WG1073657	1	02/15/18 09:25	02/15/18 09:25	BG
Volatile Organic Compounds (MS) by Method TO-15	WG1073004	8	02/13/18 22:43	02/13/18 22:43	MBF
Volatile Organic Compounds (MS) by Method TO-15	WG1073492	40	02/14/18 20:50	02/14/18 20:50	MBF
Organic Compounds (GC) by Method D1946	WG1073170	1	02/14/18 15:45	02/14/18 15:45	BG

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford

Brian Ford
Technical Service Representative

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Helium	7440-59-7		1.00	ND		1	WG1073657

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	10.0	23.8		2	WG1073004
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1073004
Benzene	71-43-2	78.10	0.400	1.28	4.18	13.4		2	WG1073004
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1073004
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1073004
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1073004
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1073004
1,3-Butadiene	106-99-0	54.10	4.00	8.85	ND	ND		2	WG1073004
Carbon disulfide	75-15-0	76.10	0.400	1.24	1.52	4.72		2	WG1073004
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1073004
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1073004
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1073004
Chloroform	67-66-3	119	0.400	1.95	4.19	20.4		2	WG1073004
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1073004
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1073004
Cyclohexane	110-82-7	84.20	0.400	1.38	5.66	19.5		2	WG1073004
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1073004
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1073004
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1073004
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1073004
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1073004
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1073004
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1073004
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1073004
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1073004
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1073004
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1073004
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1073004
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1073004
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1073004
Ethanol	64-17-5	46.10	1.26	2.38	8.18	15.4		2	WG1073004
Ethylbenzene	100-41-4	106	0.400	1.73	5.02	21.8		2	WG1073004
4-Ethyltoluene	622-96-8	120	0.400	1.96	5.79	28.4		2	WG1073004
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1073004
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	6.92	34.2		2	WG1073004
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1073004
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1073004
Heptane	142-82-5	100	0.400	1.64	1.45	5.92		2	WG1073004
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1073004
n-Hexane	110-54-3	86.20	0.400	1.41	4.25	15.0		2	WG1073004
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1073004
Methylene Chloride	75-09-2	84.90	0.400	1.39	0.457	1.59	B	2	WG1073004
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1073004
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	ND	ND		2	WG1073004
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	ND	ND		2	WG1073004
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1073004
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1073004
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1073004
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1073004
Propene	115-07-1	42.10	0.800	1.38	2.22	3.83		2	WG1073004

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Styrene	100-42-5	104	0.400	1.70	ND	ND		2	WG1073004
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1073004
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1073004
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1073004
Toluene	108-88-3	92.10	0.400	1.51	11.1	41.7		2	WG1073004
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1073004
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1073004
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1073004
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1073004
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	4.60	22.6		2	WG1073004
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	2.90	14.2		2	WG1073004
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	ND	ND		2	WG1073004
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1073004
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1073004
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1073004
m&p-Xylene	1330-20-7	106	0.800	3.47	17.0	73.7		2	WG1073004
o-Xylene	95-47-6	106	0.400	1.73	5.28	22.9		2	WG1073004
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	ND	ND		2	WG1073004
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*111*				WG1073004

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	17.7		1	WG1073170
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1073170

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Helium	7440-59-7		1.00	ND		1	WG1073657

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2.50	5.94	41.0	97.4		2	WG1073004
Allyl chloride	107-05-1	76.53	0.400	1.25	ND	ND		2	WG1073004
Benzene	71-43-2	78.10	0.400	1.28	7.91	25.3		2	WG1073004
Benzyl Chloride	100-44-7	127	0.400	2.08	ND	ND		2	WG1073004
Bromodichloromethane	75-27-4	164	0.400	2.68	ND	ND		2	WG1073004
Bromoform	75-25-2	253	1.20	12.4	ND	ND		2	WG1073004
Bromomethane	74-83-9	94.90	0.400	1.55	ND	ND		2	WG1073004
1,3-Butadiene	106-99-0	54.10	4.00	8.85	6.86	15.2		2	WG1073004
Carbon disulfide	75-15-0	76.10	0.400	1.24	5.05	15.7		2	WG1073004
Carbon tetrachloride	56-23-5	154	0.400	2.52	ND	ND		2	WG1073004
Chlorobenzene	108-90-7	113	0.400	1.85	ND	ND		2	WG1073004
Chloroethane	75-00-3	64.50	0.400	1.06	ND	ND		2	WG1073004
Chloroform	67-66-3	119	0.400	1.95	ND	ND		2	WG1073004
Chloromethane	74-87-3	50.50	0.400	0.826	ND	ND		2	WG1073004
2-Chlorotoluene	95-49-8	126	0.400	2.06	ND	ND		2	WG1073004
Cyclohexane	110-82-7	84.20	0.400	1.38	29.6	102		2	WG1073004
Dibromochloromethane	124-48-1	208	0.400	3.40	ND	ND		2	WG1073004
1,2-Dibromoethane	106-93-4	188	0.400	3.08	ND	ND		2	WG1073004
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	ND	ND		2	WG1073004
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	ND	ND		2	WG1073004
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	ND	ND		2	WG1073004
1,2-Dichloroethane	107-06-2	99	0.400	1.62	ND	ND		2	WG1073004
1,1-Dichloroethane	75-34-3	98	0.400	1.60	ND	ND		2	WG1073004
1,1-Dichloroethene	75-35-4	96.90	0.400	1.59	ND	ND		2	WG1073004
cis-1,2-Dichloroethene	156-59-2	96.90	0.400	1.59	ND	ND		2	WG1073004
trans-1,2-Dichloroethene	156-60-5	96.90	0.400	1.59	ND	ND		2	WG1073004
1,2-Dichloropropane	78-87-5	113	0.400	1.85	ND	ND		2	WG1073004
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.82	ND	ND		2	WG1073004
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.82	ND	ND		2	WG1073004
1,4-Dioxane	123-91-1	88.10	0.400	1.44	ND	ND		2	WG1073004
Ethanol	64-17-5	46.10	1.26	2.38	5.27	9.95		2	WG1073004
Ethylbenzene	100-41-4	106	0.400	1.73	1.19	5.16		2	WG1073004
4-Ethyltoluene	622-96-8	120	0.400	1.96	1.10	5.42		2	WG1073004
Trichlorofluoromethane	75-69-4	137.40	0.400	2.25	ND	ND		2	WG1073004
Dichlorodifluoromethane	75-71-8	120.92	0.400	1.98	ND	ND		2	WG1073004
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.400	3.07	ND	ND		2	WG1073004
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	ND	ND		2	WG1073004
Heptane	142-82-5	100	0.400	1.64	47.7	195		2	WG1073004
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.5	ND	ND		2	WG1073004
n-Hexane	110-54-3	86.20	4.00	14.1	24.0	84.7		20	WG1073492
Isopropylbenzene	98-82-8	120.20	0.400	1.97	ND	ND		2	WG1073004
Methylene Chloride	75-09-2	84.90	0.400	1.39	ND	ND		2	WG1073004
Methyl Butyl Ketone	591-78-6	100	2.50	10.2	ND	ND		2	WG1073004
2-Butanone (MEK)	78-93-3	72.10	2.50	7.37	13.0	38.3		2	WG1073004
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2.50	10.2	3.51	14.4		2	WG1073004
Methyl methacrylate	80-62-6	100.12	0.400	1.64	ND	ND		2	WG1073004
MTBE	1634-04-4	88.10	0.400	1.44	ND	ND		2	WG1073004
Naphthalene	91-20-3	128	1.26	6.60	ND	ND		2	WG1073004
2-Propanol	67-63-0	60.10	2.50	6.15	ND	ND		2	WG1073004
Propene	115-07-1	42.10	8.00	13.8	25.8	44.3		20	WG1073492

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Styrene	100-42-5	104	0.400	1.70	0.576	2.45		2	WG1073004
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.75	ND	ND		2	WG1073004
Tetrachloroethylene	127-18-4	166	0.400	2.72	ND	ND		2	WG1073004
Tetrahydrofuran	109-99-9	72.10	0.400	1.18	ND	ND		2	WG1073004
Toluene	108-88-3	92.10	0.400	1.51	7.94	29.9		2	WG1073004
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.33	ND	ND		2	WG1073004
1,1,1-Trichloroethane	71-55-6	133	0.400	2.18	ND	ND		2	WG1073004
1,1,2-Trichloroethane	79-00-5	133	0.400	2.18	ND	ND		2	WG1073004
Trichloroethylene	79-01-6	131	0.400	2.14	ND	ND		2	WG1073004
1,2,4-Trimethylbenzene	95-63-6	120	0.400	1.96	1.30	6.36		2	WG1073004
1,3,5-Trimethylbenzene	108-67-8	120	0.400	1.96	0.556	2.73		2	WG1073004
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.87	63.9	299		2	WG1073004
Vinyl chloride	75-01-4	62.50	0.400	1.02	ND	ND		2	WG1073004
Vinyl Bromide	593-60-2	106.95	0.400	1.75	ND	ND		2	WG1073004
Vinyl acetate	108-05-4	86.10	0.400	1.41	ND	ND		2	WG1073004
m&p-Xylene	1330-20-7	106	0.800	3.47	3.81	16.5		2	WG1073004
o-Xylene	95-47-6	106	0.400	1.73	1.54	6.68		2	WG1073004
1,1-Difluoroethane	75-37-6	66.05	0.400	1.08	ND	ND		2	WG1073004
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*105*				WG1073004
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*95.6*				WG1073492

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	15.9		1	WG1073170
Carbon Dioxide	124-38-9	44.01	0.500	1.46		1	WG1073170

Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Helium	7440-59-7		1.00	ND		1	WG1073657

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	10.0	23.8	31.6	75.1		8	WG1073004
Allyl chloride	107-05-1	76.53	1.60	5.01	ND	ND		8	WG1073004
Benzene	71-43-2	78.10	1.60	5.11	17.6	56.2		8	WG1073004
Benzyl Chloride	100-44-7	127	1.60	8.31	ND	ND		8	WG1073004
Bromodichloromethane	75-27-4	164	1.60	10.7	ND	ND		8	WG1073004
Bromoform	75-25-2	253	4.80	49.7	ND	ND		8	WG1073004
Bromomethane	74-83-9	94.90	1.60	6.21	ND	ND		8	WG1073004
1,3-Butadiene	106-99-0	54.10	16.0	35.4	ND	ND		8	WG1073004
Carbon disulfide	75-15-0	76.10	1.60	4.98	3.62	11.3		8	WG1073004
Carbon tetrachloride	56-23-5	154	1.60	10.1	ND	ND		8	WG1073004
Chlorobenzene	108-90-7	113	1.60	7.39	ND	ND		8	WG1073004
Chloroethane	75-00-3	64.50	1.60	4.22	25.4	66.9		8	WG1073004
Chloroform	67-66-3	119	1.60	7.79	ND	ND		8	WG1073004
Chloromethane	74-87-3	50.50	1.60	3.30	ND	ND		8	WG1073004
2-Chlorotoluene	95-49-8	126	1.60	8.25	ND	ND		8	WG1073004
Cyclohexane	110-82-7	84.20	1.60	5.51	132	453		8	WG1073004
Dibromochloromethane	124-48-1	208	1.60	13.6	ND	ND		8	WG1073004
1,2-Dibromoethane	106-93-4	188	1.60	12.3	ND	ND		8	WG1073004
1,2-Dichlorobenzene	95-50-1	147	1.60	9.62	ND	ND		8	WG1073004
1,3-Dichlorobenzene	541-73-1	147	1.60	9.62	ND	ND		8	WG1073004
1,4-Dichlorobenzene	106-46-7	147	1.60	9.62	ND	ND		8	WG1073004
1,2-Dichloroethane	107-06-2	99	1.60	6.48	ND	ND		8	WG1073004
1,1-Dichloroethane	75-34-3	98	1.60	6.41	ND	ND		8	WG1073004
1,1-Dichloroethene	75-35-4	96.90	1.60	6.34	ND	ND		8	WG1073004
cis-1,2-Dichloroethene	156-59-2	96.90	1.60	6.34	ND	ND		8	WG1073004
trans-1,2-Dichloroethene	156-60-5	96.90	1.60	6.34	ND	ND		8	WG1073004
1,2-Dichloropropane	78-87-5	113	1.60	7.39	ND	ND		8	WG1073004
cis-1,3-Dichloropropene	10061-01-5	111	1.60	7.26	ND	ND		8	WG1073004
trans-1,3-Dichloropropene	10061-02-6	111	1.60	7.26	ND	ND		8	WG1073004
1,4-Dioxane	123-91-1	88.10	1.60	5.77	ND	ND		8	WG1073004
Ethanol	64-17-5	46.10	5.04	9.50	43.2	81.4		8	WG1073004
Ethylbenzene	100-41-4	106	1.60	6.94	2.32	10.0		8	WG1073004
4-Ethyltoluene	622-96-8	120	1.60	7.85	ND	ND		8	WG1073004
Trichlorofluoromethane	75-69-4	137.40	1.60	8.99	ND	ND		8	WG1073004
Dichlorodifluoromethane	75-71-8	120.92	1.60	7.91	ND	ND		8	WG1073004
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	1.60	12.3	ND	ND		8	WG1073004
1,2-Dichlorotetrafluoroethane	76-14-2	171	1.60	11.2	ND	ND		8	WG1073004
Heptane	142-82-5	100	1.60	6.54	28.2	115		8	WG1073004
Hexachloro-1,3-butadiene	87-68-3	261	5.04	53.8	ND	ND		8	WG1073004
n-Hexane	110-54-3	86.20	1.60	5.64	45.6	161		8	WG1073004
Isopropylbenzene	98-82-8	120.20	1.60	7.87	ND	ND		8	WG1073004
Methylene Chloride	75-09-2	84.90	1.60	5.56	ND	ND		8	WG1073004
Methyl Butyl Ketone	591-78-6	100	10.0	40.9	ND	ND		8	WG1073004
2-Butanone (MEK)	78-93-3	72.10	10.0	29.5	ND	ND		8	WG1073004
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	10.0	40.9	ND	ND		8	WG1073004
Methyl methacrylate	80-62-6	100.12	1.60	6.55	ND	ND		8	WG1073004
MTBE	1634-04-4	88.10	1.60	5.77	3.78	13.6		8	WG1073004
Naphthalene	91-20-3	128	5.04	26.4	ND	ND		8	WG1073004
2-Propanol	67-63-0	60.10	10.0	24.6	11.5	28.1		8	WG1073004
Propene	115-07-1	42.10	3.20	5.51	146	251		8	WG1073004

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Styrene	100-42-5	104	1.60	6.81	ND	ND		8	WG1073004
1,1,2,2-Tetrachloroethane	79-34-5	168	1.60	11.0	ND	ND		8	WG1073004
Tetrachloroethylene	127-18-4	166	1.60	10.9	ND	ND		8	WG1073004
Tetrahydrofuran	109-99-9	72.10	1.60	4.72	ND	ND		8	WG1073004
Toluene	108-88-3	92.10	1.60	6.03	4.47	16.8		8	WG1073004
1,2,4-Trichlorobenzene	120-82-1	181	5.04	37.3	ND	ND		8	WG1073004
1,1,1-Trichloroethane	71-55-6	133	1.60	8.70	ND	ND		8	WG1073004
1,1,2-Trichloroethane	79-00-5	133	1.60	8.70	ND	ND		8	WG1073004
Trichloroethylene	79-01-6	131	1.60	8.57	ND	ND		8	WG1073004
1,2,4-Trimethylbenzene	95-63-6	120	1.60	7.85	ND	ND		8	WG1073004
1,3,5-Trimethylbenzene	108-67-8	120	1.60	7.85	ND	ND		8	WG1073004
2,2,4-Trimethylpentane	540-84-1	114.22	1.60	7.47	315	1470		8	WG1073004
Vinyl chloride	75-01-4	62.50	1.60	4.09	ND	ND		8	WG1073004
Vinyl Bromide	593-60-2	106.95	1.60	7.00	ND	ND		8	WG1073004
Vinyl acetate	108-05-4	86.10	1.60	5.63	ND	ND		8	WG1073004
m&p-Xylene	1330-20-7	106	3.20	13.9	5.86	25.4		8	WG1073004
o-Xylene	95-47-6	106	1.60	6.94	2.42	10.5		8	WG1073004
1,1-Difluoroethane	75-37-6	66.05	1.60	4.32	ND	ND		8	WG1073004
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*103*				WG1073004

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	17.8		1	WG1073170
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1073170

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Helium	7440-59-7		1.00	ND		1	WG1073657

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	2500	5940	ND	ND		2000	WG1073004
Allyl chloride	107-05-1	76.53	400	1250	ND	ND		2000	WG1073004
Benzene	71-43-2	78.10	400	1280	ND	ND		2000	WG1073004
Benzyl Chloride	100-44-7	127	400	2080	ND	ND		2000	WG1073004
Bromodichloromethane	75-27-4	164	400	2680	ND	ND		2000	WG1073004
Bromoform	75-25-2	253	1200	12400	ND	ND		2000	WG1073004
Bromomethane	74-83-9	94.90	400	1550	ND	ND		2000	WG1073004
1,3-Butadiene	106-99-0	54.10	4000	8850	ND	ND		2000	WG1073004
Carbon disulfide	75-15-0	76.10	400	1240	ND	ND		2000	WG1073004
Carbon tetrachloride	56-23-5	154	400	2520	ND	ND		2000	WG1073004
Chlorobenzene	108-90-7	113	400	1850	ND	ND		2000	WG1073004
Chloroethane	75-00-3	64.50	400	1060	ND	ND		2000	WG1073004
Chloroform	67-66-3	119	400	1950	ND	ND		2000	WG1073004
Chloromethane	74-87-3	50.50	400	826	ND	ND		2000	WG1073004
2-Chlorotoluene	95-49-8	126	400	2060	ND	ND		2000	WG1073004
Cyclohexane	110-82-7	84.20	400	1380	48900	168000		2000	WG1073004
Dibromochloromethane	124-48-1	208	400	3400	ND	ND		2000	WG1073004
1,2-Dibromoethane	106-93-4	188	400	3080	ND	ND		2000	WG1073004
1,2-Dichlorobenzene	95-50-1	147	400	2400	ND	ND		2000	WG1073004
1,3-Dichlorobenzene	541-73-1	147	400	2400	ND	ND		2000	WG1073004
1,4-Dichlorobenzene	106-46-7	147	400	2400	ND	ND		2000	WG1073004
1,2-Dichloroethane	107-06-2	99	400	1620	ND	ND		2000	WG1073004
1,1-Dichloroethane	75-34-3	98	400	1600	ND	ND		2000	WG1073004
1,1-Dichloroethene	75-35-4	96.90	400	1590	ND	ND		2000	WG1073004
cis-1,2-Dichloroethene	156-59-2	96.90	400	1590	ND	ND		2000	WG1073004
trans-1,2-Dichloroethene	156-60-5	96.90	400	1590	ND	ND		2000	WG1073004
1,2-Dichloropropane	78-87-5	113	400	1850	ND	ND		2000	WG1073004
cis-1,3-Dichloropropene	10061-01-5	111	400	1820	ND	ND		2000	WG1073004
trans-1,3-Dichloropropene	10061-02-6	111	400	1820	ND	ND		2000	WG1073004
1,4-Dioxane	123-91-1	88.10	400	1440	ND	ND		2000	WG1073004
Ethanol	64-17-5	46.10	1260	2380	ND	ND		2000	WG1073004
Ethylbenzene	100-41-4	106	400	1730	ND	ND		2000	WG1073004
4-Ethyltoluene	622-96-8	120	400	1960	ND	ND		2000	WG1073004
Trichlorofluoromethane	75-69-4	137.40	400	2250	ND	ND		2000	WG1073004
Dichlorodifluoromethane	75-71-8	120.92	400	1980	ND	ND		2000	WG1073004
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	400	3070	ND	ND		2000	WG1073004
1,2-Dichlorotetrafluoroethane	76-14-2	171	400	2800	ND	ND		2000	WG1073004
Heptane	142-82-5	100	400	1640	48400	198000		2000	WG1073004
Hexachloro-1,3-butadiene	87-68-3	261	1260	13500	ND	ND		2000	WG1073004
n-Hexane	110-54-3	86.20	4000	14100	182000	643000		20000	WG1073492
Isopropylbenzene	98-82-8	120.20	400	1970	ND	ND		2000	WG1073004
Methylene Chloride	75-09-2	84.90	400	1390	ND	ND		2000	WG1073004
Methyl Butyl Ketone	591-78-6	100	2500	10200	ND	ND		2000	WG1073004
2-Butanone (MEK)	78-93-3	72.10	2500	7370	ND	ND		2000	WG1073004
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	2500	10200	ND	ND		2000	WG1073004
Methyl methacrylate	80-62-6	100.12	400	1640	ND	ND		2000	WG1073004
MTBE	1634-04-4	88.10	400	1440	ND	ND		2000	WG1073004
Naphthalene	91-20-3	128	1260	6600	ND	ND		2000	WG1073004
2-Propanol	67-63-0	60.10	2500	6150	ND	ND		2000	WG1073004
Propene	115-07-1	42.10	800	1380	ND	ND		2000	WG1073004

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Styrene	100-42-5	104	400	1700	ND	ND		2000	WG1073004
1,1,2,2-Tetrachloroethane	79-34-5	168	400	2750	ND	ND		2000	WG1073004
Tetrachloroethylene	127-18-4	166	400	2720	ND	ND		2000	WG1073004
Tetrahydrofuran	109-99-9	72.10	400	1180	ND	ND		2000	WG1073004
Toluene	108-88-3	92.10	400	1510	ND	ND		2000	WG1073004
1,2,4-Trichlorobenzene	120-82-1	181	1260	9330	ND	ND		2000	WG1073004
1,1,1-Trichloroethane	71-55-6	133	400	2180	ND	ND		2000	WG1073004
1,1,2-Trichloroethane	79-00-5	133	400	2180	ND	ND		2000	WG1073004
Trichloroethylene	79-01-6	131	400	2140	ND	ND		2000	WG1073004
1,2,4-Trimethylbenzene	95-63-6	120	400	1960	ND	ND		2000	WG1073004
1,3,5-Trimethylbenzene	108-67-8	120	400	1960	ND	ND		2000	WG1073004
2,2,4-Trimethylpentane	540-84-1	114.22	4000	18700	249000	1160000		20000	WG1073492
Vinyl chloride	75-01-4	62.50	400	1020	ND	ND		2000	WG1073004
Vinyl Bromide	593-60-2	106.95	400	1750	ND	ND		2000	WG1073004
Vinyl acetate	108-05-4	86.10	400	1410	ND	ND		2000	WG1073004
m&p-Xylene	1330-20-7	106	800	3470	ND	ND		2000	WG1073004
o-Xylene	95-47-6	106	400	1730	ND	ND		2000	WG1073004
1,1-Difluoroethane	75-37-6	66.05	400	1080	ND	ND		2000	WG1073004
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*95.3*				WG1073492
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*102*				WG1073004

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	12.2	B	1	WG1073170
Carbon Dioxide	124-38-9	44.01	0.500	4.26		1	WG1073170

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC) by Method ASTM 1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Helium	7440-59-7		1.00	ND		1	WG1073657

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	10.0	23.8	16.3	38.8		8	WG1073004
Allyl chloride	107-05-1	76.53	1.60	5.01	ND	ND		8	WG1073004
Benzene	71-43-2	78.10	1.60	5.11	6.16	19.7		8	WG1073004
Benzyl Chloride	100-44-7	127	1.60	8.31	ND	ND		8	WG1073004
Bromodichloromethane	75-27-4	164	1.60	10.7	ND	ND		8	WG1073004
Bromoform	75-25-2	253	4.80	49.7	ND	ND		8	WG1073004
Bromomethane	74-83-9	94.90	1.60	6.21	ND	ND		8	WG1073004
1,3-Butadiene	106-99-0	54.10	16.0	35.4	ND	ND		8	WG1073004
Carbon disulfide	75-15-0	76.10	1.60	4.98	14.1	43.9		8	WG1073004
Carbon tetrachloride	56-23-5	154	1.60	10.1	ND	ND		8	WG1073004
Chlorobenzene	108-90-7	113	1.60	7.39	ND	ND		8	WG1073004
Chloroethane	75-00-3	64.50	1.60	4.22	ND	ND		8	WG1073004
Chloroform	67-66-3	119	1.60	7.79	ND	ND		8	WG1073004
Chloromethane	74-87-3	50.50	1.60	3.30	ND	ND		8	WG1073004
2-Chlorotoluene	95-49-8	126	1.60	8.25	ND	ND		8	WG1073004
Cyclohexane	110-82-7	84.20	1.60	5.51	23.6	81.3		8	WG1073004
Dibromochloromethane	124-48-1	208	1.60	13.6	ND	ND		8	WG1073004
1,2-Dibromoethane	106-93-4	188	1.60	12.3	ND	ND		8	WG1073004
1,2-Dichlorobenzene	95-50-1	147	1.60	9.62	ND	ND		8	WG1073004
1,3-Dichlorobenzene	541-73-1	147	1.60	9.62	ND	ND		8	WG1073004
1,4-Dichlorobenzene	106-46-7	147	1.60	9.62	ND	ND		8	WG1073004
1,2-Dichloroethane	107-06-2	99	1.60	6.48	ND	ND		8	WG1073004
1,1-Dichloroethane	75-34-3	98	1.60	6.41	ND	ND		8	WG1073004
1,1-Dichloroethene	75-35-4	96.90	1.60	6.34	ND	ND		8	WG1073004
cis-1,2-Dichloroethene	156-59-2	96.90	1.60	6.34	ND	ND		8	WG1073004
trans-1,2-Dichloroethene	156-60-5	96.90	1.60	6.34	ND	ND		8	WG1073004
1,2-Dichloropropane	78-87-5	113	1.60	7.39	ND	ND		8	WG1073004
cis-1,3-Dichloropropene	10061-01-5	111	1.60	7.26	ND	ND		8	WG1073004
trans-1,3-Dichloropropene	10061-02-6	111	1.60	7.26	ND	ND		8	WG1073004
1,4-Dioxane	123-91-1	88.10	1.60	5.77	ND	ND		8	WG1073004
Ethanol	64-17-5	46.10	5.04	9.50	8.10	15.3		8	WG1073004
Ethylbenzene	100-41-4	106	1.60	6.94	ND	ND		8	WG1073004
4-Ethyltoluene	622-96-8	120	1.60	7.85	ND	ND		8	WG1073004
Trichlorofluoromethane	75-69-4	137.40	1.60	8.99	ND	ND		8	WG1073004
Dichlorodifluoromethane	75-71-8	120.92	1.60	7.91	ND	ND		8	WG1073004
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	1.60	12.3	ND	ND		8	WG1073004
1,2-Dichlorotetrafluoroethane	76-14-2	171	1.60	11.2	ND	ND		8	WG1073004
Heptane	142-82-5	100	1.60	6.54	41.2	169		8	WG1073004
Hexachloro-1,3-butadiene	87-68-3	261	5.04	53.8	ND	ND		8	WG1073004
n-Hexane	110-54-3	86.20	1.60	5.64	91.3	322		8	WG1073004
Isopropylbenzene	98-82-8	120.20	1.60	7.87	ND	ND		8	WG1073004
Methylene Chloride	75-09-2	84.90	1.60	5.56	ND	ND		8	WG1073004
Methyl Butyl Ketone	591-78-6	100	10.0	40.9	ND	ND		8	WG1073004
2-Butanone (MEK)	78-93-3	72.10	10.0	29.5	ND	ND		8	WG1073004
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	10.0	40.9	ND	ND		8	WG1073004
Methyl methacrylate	80-62-6	100.12	1.60	6.55	ND	ND		8	WG1073004
MTBE	1634-04-4	88.10	1.60	5.77	ND	ND		8	WG1073004
Naphthalene	91-20-3	128	5.04	26.4	ND	ND		8	WG1073004
2-Propanol	67-63-0	60.10	10.0	24.6	ND	ND		8	WG1073004
Propene	115-07-1	42.10	16.0	27.6	1110	1910		40	WG1073492

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Styrene	100-42-5	104	1.60	6.81	ND	ND		8	WG1073004
1,1,2,2-Tetrachloroethane	79-34-5	168	1.60	11.0	ND	ND		8	WG1073004
Tetrachloroethylene	127-18-4	166	1.60	10.9	ND	ND		8	WG1073004
Tetrahydrofuran	109-99-9	72.10	1.60	4.72	ND	ND		8	WG1073004
Toluene	108-88-3	92.10	1.60	6.03	5.80	21.8		8	WG1073004
1,2,4-Trichlorobenzene	120-82-1	181	5.04	37.3	ND	ND		8	WG1073004
1,1,1-Trichloroethane	71-55-6	133	1.60	8.70	ND	ND		8	WG1073004
1,1,2-Trichloroethane	79-00-5	133	1.60	8.70	ND	ND		8	WG1073004
Trichloroethylene	79-01-6	131	1.60	8.57	ND	ND		8	WG1073004
1,2,4-Trimethylbenzene	95-63-6	120	1.60	7.85	1.69	8.29		8	WG1073004
1,3,5-Trimethylbenzene	108-67-8	120	1.60	7.85	ND	ND		8	WG1073004
2,2,4-Trimethylpentane	540-84-1	114.22	1.60	7.47	45.5	213		8	WG1073004
Vinyl chloride	75-01-4	62.50	1.60	4.09	ND	ND		8	WG1073004
Vinyl Bromide	593-60-2	106.95	1.60	7.00	ND	ND		8	WG1073004
Vinyl acetate	108-05-4	86.10	1.60	5.63	ND	ND		8	WG1073004
m&p-Xylene	1330-20-7	106	3.20	13.9	ND	ND		8	WG1073004
o-Xylene	95-47-6	106	1.60	6.94	ND	ND		8	WG1073004
1,1-Difluoroethane	75-37-6	66.05	1.60	4.32	ND	ND		8	WG1073004
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*101*				WG1073004
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*	*60.0-140*		*93.4*				WG1073492

Organic Compounds (GC) by Method D1946

Analyte	CAS #	Mol. Wt.	RDL %	Result %	Qualifier	Dilution	Batch
Oxygen	7782-44-7	32	2.00	17.5		1	WG1073170
Carbon Dioxide	124-38-9	44.01	0.500	ND		1	WG1073170

Method Blank (MB)

(MB) R3286523-3 02/15/18 08:19

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Helium	U		0.330	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3286523-1 02/15/18 08:08 • (LCSD) R3286523-2 02/15/18 08:11

Analyte	Spike Amount %	LCS Result %	LCSD Result %	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Helium	2.50	2.27	2.27	91.0	90.7	70.0-130			0.343	25

Method Blank (MB)

(MB) R3286235-3 02/13/18 10:06

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Acetone	U		0.0569	1.25
Allyl Chloride	U		0.0546	0.200
Benzene	U		0.0460	0.200
Benzyl Chloride	U		0.0598	0.200
Bromodichloromethane	U		0.0436	0.200
Bromoform	U		0.0786	0.600
Bromomethane	U		0.0609	0.200
1,3-Butadiene	U		0.0563	2.00
Carbon disulfide	U		0.0544	0.200
Carbon tetrachloride	U		0.0585	0.200
Chlorobenzene	U		0.0601	0.200
Chloroethane	U		0.0489	0.200
Chloroform	U		0.0574	0.200
Chloromethane	U		0.0544	0.200
2-Chlorotoluene	U		0.0605	0.200
Cyclohexane	U		0.0534	0.200
Dibromochloromethane	U		0.0494	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichlorobenzene	U		0.0603	0.200
1,3-Dichlorobenzene	U		0.0597	0.200
1,4-Dichlorobenzene	U		0.0557	0.200
1,2-Dichloroethane	U		0.0616	0.200
1,1-Dichloroethane	U		0.0514	0.200
1,1-Dichloroethene	U		0.0490	0.200
cis-1,2-Dichloroethene	U		0.0389	0.200
trans-1,2-Dichloroethene	U		0.0464	0.200
1,2-Dichloropropane	U		0.0599	0.200
cis-1,3-Dichloropropene	U		0.0588	0.200
trans-1,3-Dichloropropene	U		0.0435	0.200
1,4-Dioxane	U		0.0554	0.200
Ethylbenzene	U		0.0506	0.200
4-Ethyltoluene	U		0.0666	0.200
Trichlorofluoromethane	U		0.0673	0.200
Dichlorodifluoromethane	U		0.0601	0.200
1,1,2-Trichlorotrifluoroethane	U		0.0687	0.200
1,2-Dichlorotetrafluoroethane	U		0.0458	0.200
Heptane	U		0.0626	0.200
Hexachloro-1,3-butadiene	U		0.0656	0.630
n-Hexane	U		0.0457	0.200
Isopropylbenzene	U		0.0563	0.200

Method Blank (MB)

(MB) R3286235-3 02/13/18 10:06

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Methylene Chloride	0.0741	J	0.0465	0.200
Methyl Butyl Ketone	U		0.0682	1.25
2-Butanone (MEK)	U		0.0493	1.25
4-Methyl-2-pentanone (MIBK)	U		0.0650	1.25
Methyl Methacrylate	U		0.0773	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
2-Propanol	U		0.0882	1.25
Propene	U		0.0932	0.400
Styrene	U		0.0465	0.200
1,1,2,2-Tetrachloroethane	U		0.0576	0.200
Tetrachloroethylene	U		0.0497	0.200
Tetrahydrofuran	U		0.0508	0.200
Toluene	U		0.0499	0.200
1,2,4-Trichlorobenzene	U		0.148	0.630
1,1,1-Trichloroethane	U		0.0665	0.200
1,1,2-Trichloroethane	U		0.0287	0.200
Trichloroethylene	U		0.0545	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
2,2,4-Trimethylpentane	U		0.0456	0.200
Vinyl chloride	U		0.0457	0.200
Vinyl Bromide	U		0.0727	0.200
Vinyl acetate	U		0.0639	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
Ethanol	U		0.0832	0.630
1,1-Difluoroethane	U		0.0256	0.200
(S) 1,4-Bromofluorobenzene	*96.7*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3286235-1 02/13/18 08:36 • (LCSD) R3286235-2 02/13/18 09:20

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethanol	3.75	3.84	3.82	102	102	52.0-158			0.616	25
Propene	3.75	3.76	3.69	100	98.4	54.0-155			2.04	25
Dichlorodifluoromethane	3.75	3.60	3.55	96.1	94.5	69.0-143			1.64	25
1,2-Dichlorotetrafluoroethane	3.75	3.81	3.77	102	101	70.0-130			1.02	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3286235-1 02/13/18 08:36 • (LCSD) R3286235-2 02/13/18 09:20

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Chloromethane	3.75	3.78	3.75	101	99.9	70.0-130			0.909	25
Vinyl chloride	3.75	3.79	3.80	101	101	70.0-130			0.280	25
1,3-Butadiene	3.75	3.99	3.85	106	103	70.0-130			3.44	25
Bromomethane	3.75	3.63	3.60	96.8	95.9	70.0-130			0.980	25
Chloroethane	3.75	3.75	3.77	100	100	70.0-130			0.446	25
Trichlorofluoromethane	3.75	3.74	3.75	99.8	100	70.0-130			0.282	25
1,1,2-Trichlorotrifluoroethane	3.75	3.74	3.74	99.9	99.8	70.0-130			0.0993	25
1,1-Dichloroethene	3.75	3.80	3.76	101	100	70.0-130			0.989	25
1,1-Dichloroethane	3.75	3.82	3.79	102	101	70.0-130			0.659	25
Acetone	3.75	3.86	3.80	103	101	70.0-130			1.53	25
2-Propanol	3.75	3.94	3.88	105	103	66.0-150			1.46	25
Carbon disulfide	3.75	3.76	3.76	100	100	70.0-130			0.118	25
Methylene Chloride	3.75	3.73	3.68	99.4	98.2	70.0-130			1.18	25
MTBE	3.75	3.82	3.80	102	101	70.0-130			0.624	25
trans-1,2-Dichloroethene	3.75	3.83	3.79	102	101	70.0-130			1.04	25
n-Hexane	3.75	3.83	3.74	102	99.8	70.0-130			2.30	25
Vinyl acetate	3.75	4.17	4.11	111	110	70.0-130			1.37	25
Methyl Ethyl Ketone	3.75	3.95	3.94	105	105	70.0-130			0.181	25
cis-1,2-Dichloroethene	3.75	3.84	3.81	102	102	70.0-130			0.663	25
Chloroform	3.75	3.78	3.75	101	99.9	70.0-130			0.910	25
Cyclohexane	3.75	3.79	3.79	101	101	70.0-130			0.216	25
1,1,1-Trichloroethane	3.75	3.79	3.76	101	100	70.0-130			0.838	25
Carbon tetrachloride	3.75	3.77	3.77	101	100	70.0-130			0.190	25
Benzene	3.75	3.83	3.80	102	101	70.0-130			0.992	25
1,2-Dichloroethane	3.75	3.86	3.80	103	101	70.0-130			1.47	25
Heptane	3.75	3.89	3.84	104	102	70.0-130			1.29	25
Trichloroethylene	3.75	3.78	3.75	101	100	70.0-130			0.837	25
1,2-Dichloropropane	3.75	3.83	3.87	102	103	70.0-130			1.15	25
1,4-Dioxane	3.75	4.05	3.96	108	106	70.0-152			2.33	25
Bromodichloromethane	3.75	3.87	3.82	103	102	70.0-130			1.28	25
cis-1,3-Dichloropropene	3.75	3.90	3.89	104	104	70.0-130			0.265	25
4-Methyl-2-pentanone (MIBK)	3.75	4.07	4.01	109	107	70.0-142			1.61	25
Toluene	3.75	3.89	3.86	104	103	70.0-130			0.825	25
trans-1,3-Dichloropropene	3.75	3.94	3.90	105	104	70.0-130			0.852	25
1,1,2-Trichloroethane	3.75	3.86	3.81	103	102	70.0-130			1.30	25
Tetrachloroethylene	3.75	3.84	3.80	102	101	70.0-130			1.05	25
Methyl Butyl Ketone	3.75	4.25	4.17	113	111	70.0-150			1.83	25
Dibromochloromethane	3.75	3.99	3.97	106	106	70.0-130			0.501	25
1,2-Dibromoethane	3.75	3.97	3.92	106	105	70.0-130			1.36	25
Chlorobenzene	3.75	3.90	3.86	104	103	70.0-130			1.07	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3286235-1 02/13/18 08:36 • (LCSD) R3286235-2 02/13/18 09:20

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	3.75	3.94	3.94	105	105	70.0-130			0.000939	25
m&p-Xylene	7.50	7.77	7.74	104	103	70.0-130			0.418	25
o-Xylene	3.75	3.93	3.93	105	105	70.0-130			0.0705	25
Styrene	3.75	4.11	4.09	110	109	70.0-130			0.414	25
Bromoform	3.75	4.08	4.09	109	109	70.0-130			0.209	25
1,1,2,2-Tetrachloroethane	3.75	3.97	3.95	106	105	70.0-130			0.470	25
4-Ethyltoluene	3.75	4.03	4.04	107	108	70.0-130			0.121	25
1,3,5-Trimethylbenzene	3.75	4.01	4.01	107	107	70.0-130			0.185	25
1,2,4-Trimethylbenzene	3.75	4.01	4.01	107	107	70.0-130			0.0323	25
1,3-Dichlorobenzene	3.75	4.09	4.11	109	110	70.0-130			0.545	25
1,4-Dichlorobenzene	3.75	4.22	4.23	113	113	70.0-130			0.0972	25
Benzyl Chloride	3.75	4.44	4.38	118	117	70.0-144			1.32	25
1,2-Dichlorobenzene	3.75	4.05	4.04	108	108	70.0-130			0.183	25
1,2,4-Trichlorobenzene	3.75	4.23	4.18	113	111	70.0-155			1.26	25
Hexachloro-1,3-butadiene	3.75	3.97	4.01	106	107	70.0-145			1.00	25
Naphthalene	3.75	4.36	4.28	116	114	70.0-155			1.88	25
Allyl Chloride	3.75	3.87	3.82	103	102	70.0-130			1.18	25
2-Chlorotoluene	3.75	3.99	3.98	106	106	70.0-130			0.200	25
Methyl Methacrylate	3.75	4.04	3.95	108	105	70.0-130			2.22	25
Tetrahydrofuran	3.75	3.88	3.85	103	103	70.0-140			0.885	25
2,2,4-Trimethylpentane	3.75	3.87	3.83	103	102	70.0-130			1.08	25
Vinyl Bromide	3.75	3.73	3.74	99.6	99.7	70.0-130			0.0841	25
Isopropylbenzene	3.75	3.94	3.94	105	105	70.0-130			0.0274	25
1,1-Difluoroethane	3.75	3.81	3.75	101	99.9	70.0-130			1.56	25
(S) 1,4-Bromofluorobenzene				*99.7*	*99.7*	*60.0-140*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Method Blank (MB)

(MB) R3286477-3 02/14/18 11:44

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
n-Hexane	U		0.0457	0.200
Propene	U		0.0932	0.400
2,2,4-Trimethylpentane	U		0.0456	0.200
(S) 1,4-Bromofluorobenzene	*96.9*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3286477-1 02/14/18 10:15 • (LCSD) R3286477-2 02/14/18 11:02

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Propene	3.75	3.55	3.51	94.6	93.6	54.0-155			0.994	25
n-Hexane	3.75	3.62	3.56	96.5	95.1	70.0-130			1.52	25
2,2,4-Trimethylpentane	3.75	3.64	3.62	97.0	96.4	70.0-130			0.628	25
(S) 1,4-Bromofluorobenzene				*98.5*	*99.0*	*60.0-140*				

Method Blank (MB)

(MB) R3286380-3 02/14/18 14:45

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Oxygen	1.26	J	0.225	2.00
Carbon Dioxide	U		0.121	0.500

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3286380-1 02/14/18 14:31 • (LCSD) R3286380-2 02/14/18 14:37

Analyte	Spike Amount %	LCS Result %	LCSD Result %	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Oxygen	2.50	2.59	2.81	104	113	70.0-130			8.26	20
Carbon Dioxide	2.50	2.72	2.64	109	106	70.0-130			2.95	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.

ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina [1]	DW21704
Florida	E87487	North Carolina [2]	41
Georgia	NELAP	North Dakota	R-140
Georgia [1]	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky [1]	90010	South Dakota	n/a
Kentucky [2]	16	Tennessee [1 4]	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

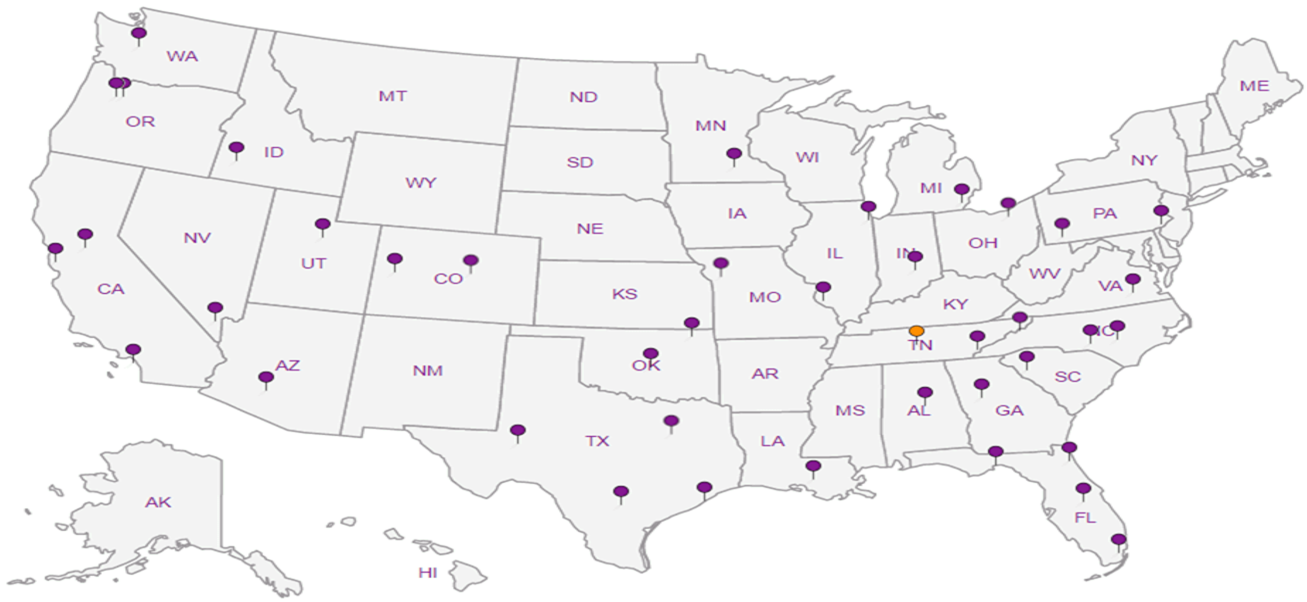
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



AEI Consultants 2500 Camino Diablo Walnut Creek, CA 94597 (925) 746 - 6000

Lab No. ____________ Page ___ of ___

Chain-of-Custody Record and Analysis Request

Project Contact (Hardcopy or PDF To):	Jeremey Smith
Company / Address:	see above
Phone No.:	see above
Fax No.:	see above
Project Number:	383559
P.O. No.:	152548
Project Name:	Emerald Buy Homes
Project Address:	788 San Antonio Road
California EDF Report?	Yes No

Recommended but not mandatory to complete this section:

Sampling Company Log Code:

Global ID:

EDF Deliverable To (Email Address):

Sampler Signature:

TAT: 12Hr / 24 Hr / 48Hr / 72 Hr / 5-Day X / 10-Day

For Lab Use Only: M113

Analysis Request

Sample Designation	Sampling Date	Sampling Time	Can #	Canister Pressure Initial	Canister Pressure Final	VOCs using US EPA Testubg TO-15	Oxygen, Carbon Dioxide, and Helium % (leak check) using ASTM D 1946-90	For Lab Use Only
SG-1	2/12/2018	10:18	5750	27	5	X	X	969728-01
SG-2	2/9/2018	13:08	1257	30	5	X	X	02
SG-3	2/9/2018	17:44	1728	25	20	X	X	03
SG-4	2/9/2018	18:02	1748	30	5	X	X	04
SG-5	2/9/2018	18:18	1644	30	17	X	X	05

Relinquished by:	Date	Time	Received by:
	2/12/18		860
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:

Remarks: 2/12/18 845

Standard

[redacted] TAT

Please email results:

jasmith@aeiconsultants.com

nabdollahian@aeiconsultants.com

Bill to:

4094 8312 5458

ESC LAB SCIENCES
Cooler Receipt Form

Client: AEI-Consultants	SDG#	969728	
Cooler Received/Opened On: 02/13 /18	Temperature:	AMB	°C
Received by : Christian Kacar			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	/		
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Forensic Analytical Laboratories

Final Report

Bulk Asbestos Analysis

(EPA Method 600/M4-82-020 and 600/R-93-116, Visual Area Estimation)

McCampbell Analytical, Inc.
Account Payable
1534 Willow Pass Rd

Pittsburg, CA 94565

Client ID: A31409
Report Number: B253702
Date Received: 02/13/18
Date Analyzed: 02/21/18
Date Printed: 02/21/18
First Reported: 02/21/18

Job ID/Site: 1802513 - Emerald Buy Homes Palo Alto

Date(s) Collected: 02/09/2018

FALI Job ID: A31409
Total Samples Submitted: 1
Total Samples Analyzed: 1

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
SB-4-0.5	11993923						
Layer: Grey/Green Soil			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					
Cellulose (Trace)							

Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Final Report

Bulk Asbestos Analysis

(EPA Method 600/M4-82-020 and 600/R-93-116, Visual Area Estimation)

McCampbell Analytical, Inc.
Account Payable
1534 Willow Pass Rd

Pittsburg, CA 94565

Client ID: A31409
Report Number: B253698
Date Received: 02/13/18
Date Analyzed: 02/21/18
Date Printed: 02/21/18
First Reported: 02/21/18

Job ID/Site: 1802499 - Emerald Buy Homes Palo Alto

Date(s) Collected: 02/09/2018

FALI Job ID: A31409
Total Samples Submitted: 1
Total Samples Analyzed: 1

Sample ID	Lab Number	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer	Asbestos Type	Percent in Layer
SB-5-.05	11993914						
Layer: Brown Soil			**ND**				
Total Composite Values of Fibrous Components:		**Asbestos (ND)**					

Tad Thrower

Tad Thrower, Laboratory Supervisor, Hayward Laboratory

Note: Limit of Quantification ('LOQ') = 1%. 'Trace' denotes the presence of asbestos below the LOQ. 'ND' = 'None Detected'.

3777 Depot Road, Suite 409, Hayward, CA 94545 / Telephone: (510) 887-8828 (800) 827-FASI / Fax: (510) 887-4218

Appendix D

788 San Antonio Road Phase I Environmental Site Assessment

Rosso Environmental, Inc.
Phone: 510.647.8107
PO Box 1923
Lafayette, CA | 94549-1923

July 21, 2017

California Flower Market LLC
c/o Ms. Jeanne Boes
640 Brannan Street
San Francisco, California 94107

Project Number: 17-0041.00

Subject: Phase I Environmental Site Assessment
788-796 San Antonio Road
Palo Alto, Santa Clara County, California

Dear Ms. Boes:

Rosso Environmental, Inc. is pleased to present the enclosed regarding the subject property. We appreciate the opportunity to be of service. Please contact me with any questions or needs for additional assistance.

Sincerely,

Jon Rosso, P.E.
Principal
Rosso Environmental, Inc.
jrosso@rossoenv.com

Enclosure

ROSSO
ENVIRONMENTAL, INC.

Draft Phase I Environmental Site Assessment

788-796 San Antonio Road
Palo Alto, Santa Clara County, California

Prepared for
California Flower Market LLC
San Francisco, California

July 21, 2017
Project Number 17-0041.00

ASSESSMENT | INVESTIGATION | REMEDIATION | CONSULTING
PHONE: 510.647.8107 | PO Box 1923, Lafayette, CA | 94549-1923

CONTENTS

CONTENTS (Continued)

EXECUTIVE SUMMARY

Rosso Environmental, Inc. (REI) was retained by California Flower Market LLC to conduct a Phase I Environmental Site Assessment (ESA) of real property located at 788-796 San Antonio Road, Santa Clara County, California (subject property or Site).

REI conducted this ESA in substantial conformance with ASTM Designation: E 1527-13 *Standard Practice for ESAs: Phase I ESA Process*; the ESA scope of work and terms and conditions are referenced in REIs proposal number 2017-0025 with signed authorization on June 1, 2017. Exceptions and limitations encountered during this ESA are identified in the body of this report.

The subject property, comprising approximately 1.01 acres, is currently developed with two buildings, consisting of one, one-story building in the southern portion of the property occupied by Mechanica Automotive for vehicle servicing, and one divided one-story building with storage mezzanine along the west side, occupied by Buckles Smith electrical supply and Studio Kicks martial arts and dance studio in the northern portion of the property. Use of the northern building does not entail the use, storage, or disposal of hazardous materials or petroleum products.

REI identified obvious subject property uses from the present back to 1939, at which time, and until at least 1948, the subject property was developed for agricultural use. The southern building on the subject property, 788 San Antonio Road, was developed for office and warehouse uses in 1953 by the California Chrysanthemum Growers Association. This used included the storage of agricultural chemicals, including insecticides and pesticides, for distribution to chrysanthemum growers; the stored containers were reportedly not opened or used on the property. This occupancy continued until approximately 2002, based on a California Environmental Reporting System (CERS) for the Association for that year. In 2003, the building was modified for use as a vehicle repair facility; Mechanica Automotive has occupied the southern building since 2003. The northern building was developed on vacant land in 1966. The building was initially occupied by Electrical Materials, Inc. for office and warehouse uses; this use has continued for the northern portion of the building since first development, with the current occupant identified as Buckles Smith. The southern portion of the building was occupied by a musical instrument company for an undetermined period, as well as by the electrical supplier occupant, prior to be occupied by Studio Kicks as a martial arts and dance fitness studio, which began in approximately 2003. Use of the subject property has been consistent since 2003.

This ESA has revealed no evidence of RECs in connection with the subject property, except the following:

- Potential residual contamination on the subject property associated with historical detection of petroleum hydrocarbons and TCE in groundwater adjacent to the subject property with no investigation, delineation, and/or remediation.
- Presence of fill of unknown origin with no known investigation.
- Historical agricultural use with no known investigation.

1.0 INTRODUCTION

Rosso Environmental, Inc. (REI) was retained by California Flower Market LLC to conduct a Phase I Environmental Site Assessment (ESA) of real property located at 788-796 San Antonio Road, Santa Clara County, California (subject property or Site). Figure 1 show the approximate subject property location.

1.1 PURPOSE

One purpose of this ESA is to permit a user to satisfy one of the requirements to qualify for landowner liability protections (under CERCLA). This ESA may also help a user better understand business environmental risks. Towards these ends and consistent with good commercial and customary practice, this ESA is designed to identify recognized environmental conditions (RECs) as well as *de minimis* conditions in connection with the subject property by performing all appropriate inquiry into subject property ownership and use as well as into uses of adjoining properties and surrounding areas within approximate minimum search distances from the subject property.

1.2 METHODOLOGY

REI conducted this ESA in substantial conformance with ASTM Designation: E 1527-13 Standard Practice for ESAs: Phase I ESA Process; the ESA scope of work and terms and conditions are referenced in REI proposal number 2017-0025 with signed authorization on June 1, 2017. Qualified personnel working under the responsible charge of an environmental professional conducted this ESA (Appendix A). This ESA includes the following parts: reconnaissance, interviews, records review, and evaluation.

1.3 LIMITATIONS

REI obtained information for this ESA from various sources (Appendix B), and to the extent it was relied on to form our opinion, this information is assumed to be correct and complete. REI is not responsible for the quality or content of information from these sources. REI encountered the following data gaps or limitations:

- The numerous cars were parked over the interior and adjoining exterior paved spaces of the Mechanica Automotive building on the subject property. In addition, the eastern half of the building was cluttered, with approximately half of the floor surface covered and inaccessible in that portion of the building. No opinion can be formed specifically regarding areas that were not visible.
- REI identified obvious subject property uses from the present back to 1839, when the subject property was developed for agricultural use. This constitutes data failure because REI did not establish the history of subject property use since 1940 or first development, whichever is earlier. Based on the nature of use in 1939, this data failure is not considered to be a significant data gap because prior uses of additional concern are not likely.

The information and opinions rendered in this report are exclusively for use by California Flower Market LLC. REI will not distribute or publish this report without consent except as required by law or court order. The information and opinions expressed in this report are given in response to a limited assignment and should be considered and implemented only in light of that assignment. The services provided by REI in completing this project were consistent with normal standards of the profession. No other warranty, expressed or implied, is made.

2.0 RECONNAISSANCE

On July 5, 2017, Ms. Liz Smith of REI performed visual reconnaissance of the subject property, adjoining properties, and surrounding areas. Mr. Smith was provided access the subject property by personnel at each tenant business. Mr. Jerry Brown provided access to Buckles Smith; Ms. Lavinia Lu provided access to Studio Kicks; and Mr. Ed Pak provided access to Mechanica Automotive. Interior and exterior areas of the subject property were systematically traversed on foot; adjoining properties were observed from the subject property and from public thoroughfares. Photographs are appended. Figure 2 depicts a site plan showing current and recent tenants and use.

2.1 SUBJECT PROPERTY USE

The subject property, comprising approximately 1.01 acres, is currently developed with two buildings, consisting of one, one-story building in the southern portion of the property occupied by Mechanica Automotive for vehicle servicing, and one divided one-story building with storage mezzanine along the west side, occupied by Buckles Smith electrical supply and Studio Kicks martial arts and dance studio in the northern portion of the property. Use of the northern building does not entail the use, storage, or disposal of hazardous materials or petroleum products.

2.1.1 Hazardous Substances and Petroleum Products

REI observed the subject property for indications of the use, storage, or disposal of hazardous substances and petroleum products (e.g., manufacturing activities, drums, containers, stressed vegetation, stains, sheen, heating/cooling systems). REI observed no such indications, except the following:

- The southern building is primarily used for automobile repair, which includes the use of materials associated with oil and fluid changes, lubrication, and battery and tire replacement. Approximately seven 55-gallon drums of motor oil, waste oil, waste oil filters and automatic transmission fluid were observed, with open drums located in a containment feature or over spill trays. In addition, numerous retails sized containers of specialty oils and products were observed. An aqueous parts washer was observed. According to Mr. Pak, the washer uses only hot water. The parts washer was over a drum that stores the oily water, which is removed by a vendor under manifest. A representative manifest for removal of the oily water was viewed in the Mechanica Automotive office, along with manifests for removal of waste oil. Surface staining and marking was present within the repair areas.

2.1.2 Underground Storage Tanks (USTs)

REI observed the subject property for indications of USTs (e.g., vent piping, dispensing equipment, pavement variations, and fill ports). REI observed no such indications.

2.1.3 Aboveground Storage Tanks (ASTs)

REI observed the subject property for indications of ASTs (e.g., pavement bolts, containers, reservoirs, and generators). REI observed no such indications.

2.1.4 Liquid Waste

REI observed the subject property for indications of liquid waste discharge sources (e.g., sumps, drains, clarifiers, pools of liquid, pits, ponds, lagoons, septic systems, wastewater, and storm water). REI observed no such indications, except for the following:

- Restrooms and sinks that are connected to the municipal sanitary sewer system
- Storm water run-off flows across the paved ground to storm drain catch basins in the paved parking areas, which likely discharge into the municipal storm water system, although plumbing of drainage was not confirmed.
- At least one floor drain is located within the repair area near an in-ground feature that Mr. Pak stated is an out-of-use testing equipment feature. No oils or hazardous materials appear to be associated with the test feature, and no staining was noted near the drain, which is open to the shop. Plumbing of the drain is unknown. Many areas of the shop floor were cluttered and not visually accessible.

2.1.5 Solid Waste

REI observed the subject property for indications of solid waste disposal (e.g., mounding, depressions, fill material, bins, debris, and active human use). REI observed no such indications, except as noted below.

- One trash enclosure apparently utilized for general non-hazardous refuse
- Used tires and batteries are picked up by outside contractor

2.1.6 Polychlorinated Biphenyls (PCBs)

REI observed the subject property for indications of PCBs (e.g., transformers, capacitors, elevators, and lifts). REI observed no such indications. Vehicle service operations on the subject property reportedly date back to 2003, and above ground lifts were observed to use above ground oil reservoirs. An in-ground electrical utility vault in the sidewalk west of the subject property is labeled as utility owned and appeared to be of recent construction.

2.1.7 Wells

REI observed the subject property for indications of supply, irrigation, monitor, injection, dry, abandoned, or other wells (e.g., protruding pipes, cover plates, pumps, small sheds, large water storage containers, and mounded grout). REI observed no such indications.

2.2 ADJOINING PROPERTY AND SURROUNDING AREA USE

The subject property is in a commercial, light industrial and multi-family residential area located along San Antonio Road and Leghorn Street. The city limit of Palo Alto is directly east of the subject property such that eastern adjoining properties are in Mountain View. Adjoining properties are as described below:

- North: Commercial building with office type uses at 800 San Antonio Road
- South: Leghorn Street, followed by Oil Changers (former gas station) at 780 San Antonio Road
- East: Unknown property owned by Google and apparently a former warehouse or light industrial property at 2584 Leghorn Street, with dance academy and other non-industrial uses in similar building beyond
- West: San Antonio Road followed by apparent commercial office uses, with multi-family residential southwest

3.0 USER PROVIDED INFORMATION

ASTM E 1527 defines "user" as the party seeking to use Practice E 1527 to complete an environmental site assessment of the subject property, and in this case, the user is California Flower Market LLC. Ms. Jeanne Boes, General Manager, and Ms. Rose Robinson, Assistant Property Manager, of California Flower Market LLC, were interviewed regarding questions in a standard User Questionnaire on July 14, 2017. According to Ms. Boes and Ms. Robinson, they are unaware of any environmental liens or activity and land use limitations (AULs) and environmental issues pertaining to the subject property.

4.0 INTERVIEWS

REI conducted interviews with Mr. Jerry Brown of Buckles Smith, Ms. Lavinia Lu of Studio Kicks, and Mr. Ed Pak of Mechanica Automotive during the site visit, and with the User, as noted above. Unless otherwise noted, interviewed persons were generally forthcoming.

4.1 CURRENT OWNER AND KEY SITE MANAGER, OPERATORS, OCCUPANTS

REI interviewed Ms. Boes and Ms. Robinson, of California Flower Market LLC, the User and subject property owner. Ms. Boes and Ms. Robinson have been associated with the subject property for eight and 16 years, respectively, and indicated that prior to the current occupants, the north building was entirely occupied by Buckles Smith for uses similar to current uses, and the southern building was occupied as office and warehouse space by the prior owner, the Chrysanthemum Association, which supported mum growers. The warehouse portion of the south building stored materials including agricultural chemicals used for growing mums; however, Ms. Robinson recollected that these were in closed, original containers only, and there was no mixing or dispensing of chemicals during the time she was familiar with the tenant. Ms. Boes stated that the owner may have performed an environmental assessment at the time the subject property was acquired.

REI interviewed Mr. Ed Pak, owner of Mechanica Automotive, the south building tenant. Mr. Pak has been associated with the subject property for approximately 14 years. He stated that his company made modification to the building to change the use to automotive servicing, and that prior use was office and warehouse. He stated that he has not used chlorinated solvents at the subject property, and that he is not aware of spills or releases affecting the subsurface onsite, and there are no USTs present.

REI interviewed Ms. Lavinia Lu, owner of Studio Kicks. She has been associated with the subject property for 14 years and is the original tenant of the tenant space (previously part of Buckles Smith). Studio Kicks does not use or store hazardous materials or petroleum products.

REI Interviewed Mr. Jerry Brown, key site manager of Buckles Smith. He stated that prior to Buckles Smith, the building was occupied by a different electrical supplier for several decades for the same type of use as Buckles Smith's. He was unaware of any other use of the building.

Utilities are provided to the subject property as follows:

- Power: City of Palo Alto
- Natural Gas City of Palo Alto
- Sewer City of Palo Alto
- Water City of Palo Alto

4.2 CURRENT OPERATORS AND OCCUPANTS

Information gathered from interviews with occupants of the subject property are incorporated throughout this report and noted in Section 4.1.

4.3 PAST OWNERS, OPERATORS, AND OCCUPANTS

REI identified no past subject property owners, operators, and occupants that were readily available for an interview.

4.4 NEARBY PROPERTY OWNERS AND OCCUPANTS

The subject property is not abandoned. Therefore, REI did not interview nearby property owners and occupants.

4.5 GOVERNMENT OFFICIALS

No government officials were interviewed for this ESA. Agency records were readily accessible.

5.0 RECORDS REVIEW

REI reviewed records pertaining to the subject property. In addition, where practicable, REI reviewed records indicating uses at adjoining properties and nearby properties or surrounding areas within approximate minimum search distances from the subject property.

5.1 PHYSICAL SETTING

5.1.1 Physiography

According to the United States Geological Survey's (USGS) 2012 7.5-Minute Palo Alto, California Quadrangle Topographic Map, the subject property is located in the Santa Clara Valley physiographic region of California. Ground surface elevations in the vicinity of the subject property appear relatively flat with an elevation between approximately 13 feet above mean sea level (amsl) with a slight downward slope to the north. Adobe Creek is located 2,000 feet to the northwest of the subject property.

5.1.2 Geology

REI reviewed *Report of Soil and Groundwater Investigation at 2594 Leghorn Street, Mountain View, California,* dated August 24, 1995 and prepared by Environmental Restoration Services; this site adjoins the subject property to the east, and investigation of the site included advancement of borings on and abutting the subject property. According to this report, soil along the east boundary of the subject property consists primarily of highly transmissive, well-graded gravels with coarse sand. REI also reviewed *Letter re: Soil and Ground Water Investigation, Former Beacon Station No. 590, 780 San Antonio Road, Palo Alto, California,* dated June 20, 1991 and prepared by Delta Environmental Consultants; this site is located south of the subject property across Leghorn Street (current Oil Changers site). According to this letter, a boring advanced to the southwest corner of the subject property is described as encountering clay soils to 7 feet below ground surface (bgs) overlying sandy gravel from 7 to 13.5 feet bgs, followed by 2.5 feet of thick gravel, and then silty sand from 16 to 21.5 feet bgs.

5.1.3 Hydrology

According to the above referenced documents, groundwater was present at approximately 7 feet bgs and measured to flow north. Note that the local groundwater depth and gradient under the subject property may be influenced naturally by zones of higher or lower permeability, or artificially by nearby pumping or recharge, and may deviate from the regional trend.

5.2 FIRE INSURANCE MAPS

REI requested fire insurance maps of the subject property, adjoining properties, and surrounding area from the Environmental Data Resources, Inc. (EDR) collection. Provided maps are summarized below.

- **1969 Sanborn Map:** The subject property is depicted with the current buildings. The north building is occupied by an electrical supplies warehouse in the northern approximate two thirds, and by a musical instrument warehouse in the current general location of Studio Kicks. The southern building is occupied by a garden supplies warehouse. The current addresses on San Antonio Road are assigned. The southern portion also has 901 and 911 Leghorn shown. (REI researched these addresses, and no records were found to be associated with the Leghorn addresses). The northern adjoining property is depicted as offices. The eastern adjoining property is shown as a lumber storage building with store and paint in a mezzanine; the city limit dividing Palo Alto from Mountain View is between the subject property and eastern adjoining property. The western adjoining property across San Antonio Road is depicted as 791 and 795 San Antonio, identified as a manufacturer of electrical equipment in small buildings resembling the current structures; south of that, no building or use is depicted (current residential area), but farther southwest is cold storage. The southern adjoining property across Leghorn Street is a gas station.

- **1978 Sanborn Map:** The subject property and adjoining properties generally appear as they do in the 1969 Sanborn Map, except that one of the western adjoining buildings is marked as vacant and the farther southwest cold storage is no longer present.

5.3 AERIAL PHOTOGRAPHS

REI reviewed aerial photographs of the subject property, adjoining properties, and surrounding area from the EDR collection. Photograph summaries follow:

- **1939, 1943; Scale: 1"= 500'**

  The subject property and adjoining properties are agricultural land. A road is present in the location of San Antonio Road.

- **1948; Scale: 1"= 500'**

  The subject property and northern adjoining property are generally unchanged; apparent residences are now present north of the northern adjoining property. A road is present in the location of Leghorn Street, beyond which is vacant land followed by an apparent residence. A farmstead is now present west of San Antonio Road, with larger building present farther southwest (consistent with the depicted cold storage on the 1969 Sanborn map. The eastern adjoining property is developed as an apparent farmstead.

- **1956; Scale: 1"= 500'**

  The subject property is now developed with the current southern building and is otherwise vacant. The northern adjoining property appears to be under development. The western adjoining property has been redeveloped with one commercial building and apparently includes one older residential stricture, with larger commercial buildings farther northwest in a previously vacant area. The eastern adjoining property appears unchanged. The southern adjoining property is still vacant. Commercial or industrial use is now evident south of the southern adjoining property. Regionally, the area west of the San Antonio commercial corridor is now developed with a tract of housing as it is today.

- **1963; Scale: 1"= 500'**

  The subject property is unchanged except that the remaining vacant portion has been graded and appears to be under development. The northern and eastern adjoining properties are developed with the current buildings. The southern adjoining property is developed with a gas station, with vacant graded land adjoining it to the east. Additional commercial buildings are present to the west of San Antonio Road.

- **1968; Scale: 1"= 500'**

  The subject property is developed with both buildings, generally as it appears today. Adjoining properties generally appears as they did in the 1963 aerial photograph, except that the vacant graded land east of the southern adjoining gas station is now paved.

- **1974, 1982; Scale: 1"= 500'**

  The subject property and adjoining properties generally appear as they did in the 1968 aerial photograph, except that the current residential apartments to the southwest are also present.

- **1991, 1998, 2005, 2006, 2009, 2010, and 2012; Scale: 1"= 500'**

  The subject property and adjoining properties generally appear as they did in the 1982 aerial photograph, except that the southern adjoining property appears to have been redeveloped with the current building (currently occupied by Oil Changers).

5.4 TOPOGRAPHIC MAPS

REI reviewed USGS topographic maps of the subject property, adjoining properties, and surrounding area from the EDR collection. Map summaries follow.

- **1897, 1899, 1902 15-Minute Series Palo Alto, and 30-Minute Series Santa Cruz, California Quadrangle Maps; Scale: 1:62,500 and 1:125,000**

  The subject property and adjoining properties are vacant land with no improvements depicted. A road appears to be present in the general alignment of E. Charleston.

- **1943, 1947 15-Minute Series Palo Alto, California Quadrangle Maps; Scale: 1:50,000**

  The subject property and adjoining properties are unchanged, except that a road is present in the alignment of San Antonio Road.

- **1948, 1953 15-Minute Series Palo Alto and 7.5 Mountain View, California Quadrangle Maps; Scale: 1:62,500 and 1:24,000**

  The subject property is generally unchanged. Adjoining and/or nearby properties are depicted with small structures.

- **1961, 1968, 1973, 1981, 1997, 1999, 2012 15-Minute and 7.5 Minute Series Palo Alto and Mountain View, California Quadrangle Maps; Scale: 1:62,500 and 1:24,000**

  The subject property and adjoining properties are shaded to indicate urban development. The existing streets are depicted, and no structures are included.

5.5 LOCAL STREET DIRECTORIES

REI reviewed local street directory entries for the subject property and adjoining/nearby properties that EDR researched in approximately five-year intervals between the years 1922 and 2014. The subject was identified beginning in 1955 with the property addresses of 788, 790 and 796 San Antonio Road, as follows:

788 San Antonio Road

- 1955, 1957, 1960, 1965, 1970, 1978, 1986, 1991, 2001 – California Chrysanthemum Growers Association
- 2010, 2014 – Mechanica Automotive

790 San Antonio Road

- 1970, 1975 – Hohner Musical Instruments

796 San Antonio Road

- 1970, 1975, 1978, 1982, 1986, 1991, 2001 – Electrical Materials
- 2010 – Buckles Smith Electric Company
- 2014 – Buckles Smith Electric Company and Studio Kicks Palo Alto

No other subject property addresses were identified in the reviewed local street directory entries.

Nearby and adjoining properties were identified as commercial and residential properties. Adjoining properties were listed as follows:

- The eastern adjoining property at 2584 Leghorn was identified beginning in 2001 with various office type uses; the property east of that at 2594 Leghorn was identified as a plumbing and plywood business (1957 to 1975), and then as Office Outfitters (1982 to 1986); based on review of Sanborn maps, this suggests that the eastern adjoining property was historically listed together with 2594 Leghorn Street.
- The southern adjoining property at 780 San Antonio was listed as under construction in 1960, and then as a gas station from 1965 to 1978, and as Oil Changers since 1991.
- The northern adjoining property at 800 San Antonio Road was listed with several businesses, indicating multi-tenant commercial use since 1963.
- The western adjoining properties at 795 and 797 were also listed as various businesses indicating commercial uses. Listings for 791 San Antonio indicate vehicle servicing from 1955 to 1965; the address was not listed after 1965. REI notes that Sanborn maps depict 791 and 795 as a manufacturer of electrical equipment in two small buildings by 1969. Therefore, it appears likely that vehicle servicing preceded the equipment manufacturing business in the southern of those two buildings. The address of 795 San Antonio was listed for various businesses identified as electronics manufacturers from 1965 to 1978, and as various business names thereafter, indicating office or light industrial uses.

5.6 REGULATORY AGENCIES

5.6.1 <u>Tax Assessor</u>

REI reviewed the public database maintained by the Santa Clara County Assessor in July 2017 for information pertaining to the subject property, and obtained additional related Assessor information from ParcelQuest. According to this information, the subject property is located on two parcels comprising approximately 1.01 acres, identified with the assessor parcel numbers (APNs) 147-03-041 and 147-03-042 and further identified with the addresses 788 and 790 San Antonio, Palo Alto, California. The subject property is reportedly owned by California Chrysanthemum Growers Association (041) and Chrysanthemum Growers Association (042).

5.6.2 Building Department

REI visited the City of Palo Alto records department on July 5, 2017 to obtain information regarding the subject property. The subject property address range of 788 to 796 San Antonio was researched, along with research of potential historical addresses of 901 and 911 Leghorn Street, which were not identified. Records associated with the subject property address of 788 San Antonio (south building) date back to 1953 and indicate office and warehouse use by the California Chrysanthemum Growers Association from initial development until at least the 1970s, and by Mechanica Auto since 2003. Records associated with the addresses of 790 and 796 San Antonio (north building) date back to initial construction in 1966, with occupancy for office and warehouse uses originally by A. Hohner and Electrical Materials, Inc. then apparently by Electrical Materials, Inc. in both suites, and then by Buckles Smith and Studio Kicks since 2004, as it is today. Notable Building Department records are summarized below.

788 San Antonio

- 1953 – Permitting issued to California Chrysanthemum Growers Association for construction of a new building with front office and rear warehouse space with "vapor" heating identified on a drawing as central heat in the office portion (drawing depicts the division generally similar to the current configuration)
- 1967 – Permit to add (natural) gas fired water heater; owner shown as Fred Hoshi; electrical permit indicating owner is Calif. Mum Growers Assoc.
- 1973 – Property card for California Chrysanthemum Growers Association for office use
- 1974 – Interior alterations to form offices; alterations to electrical panels and plumbing. Owner is California Chrysanthemum Growers Association
- 2003 – California Flower Market permit for installation of car lifts for use of the building as an auto repair shop; signage application by Edward Pak for new occupant signage, Mechanica Auto Services
- 2005 – Application by California Chrysanthemum Growers Association for reroof

790 San Antonio

- 1966 – Property card indicating that 9 parking spaces were required for the existing building, and 51 are required for the new building; owner is California Mum Growers (this appears to be a portion of the 796 building); property card indicating addresses are 790, 792, 794 and 796, with occupant identified as Cal. Mum Growers at 790, and use identified as office and warehouse.
- 1967 – Install interior partitions, electrical permit, plumbing; owner is California Mum Growers; property card indicates occupant as A. Hohner and use as office and warehouse

796 San Antonio

- 1966 – Permit to add two feet of fill and construct a new slab-on-ground building; owner is listed as Mum Growers; use indicates partial office roll-up doors will be installed; a drawing depicts a building consistent with the current structure; property card indicates occupant is Electrical Materials, Inc. and use is office

- 1975 – Install interior partitions to form office and remodel restrooms; plumbing; wall signage for Electrical Materials, Inc.
- 1996 – Installation of new, replacement HVAC equipment for Electrical Materials
- 2002 – Permit to construct new demising wall to create two tenant spaces, and upgrade existing restrooms to meet ADA requirements; a note indicates the improvements are being made by the owner, one tenants is Electrical Materials, Inc. and the other tenant is not specified
- 2004 – Electrical permit for service change; owner identified as Bob Otsuka; Certificate of Occupancy for Buckles Smith Electric in 796B for wholesale sales and office; Certificate of Occupancy for Studio Kicks in 796A for fitness classes and retail
- 2005 – Reroof permit

5.6.3 Fire Department

REI visited the City of Palo Alto records department on July 5, 2017 to obtain information regarding the subject property. Notable Fire Department records are summarized below.

- 2005 – Letter from Studio Kicks to the city indicating that the facility does not have gym equipment. The business did not remodel the facility upon occupancy.
- Undated Hazardous Materials Disclosure Checklist for Studio Kicks indicating no hazardous materials

788 San Antonio

- 1994, 1995, 1998, 1997, 1999 – Annual invoices to Chrysanthemum Growers and Kazuo Utsunomiya for Hazardous Materials Management Plan (HMMP) for storage of hazardous liquids and toxic materials above ground; pesticides and fumigants indicated
- 2001 – Record of Additional Information completed by Fire Department based on contact with Kazuo Utsunomiya stating that “All chemicals are gone, sold or returned to vendor. There is no evidence of contamination. There was no usage of chemicals at the facilities. Chemicals were sold in their original containers without opening them or rebottled (sic). Delete permit for 2002 billing cycle. Future tenant needs approval for chemical storage prior to occupancy.”

5.6.4 Environmental Health

The Santa Clara County Department of Environmental Health (EH) was contacted on June 27, 2017 to obtain information regarding the subject property. Ms. Somira Pech of the EH provided the following records:

- 2002 California Environmental Reporting System (CERS) filing for California Chrysanthemum Growers indicating the facility stores hazardous materials but does not generate hazardous wastes. The form identifies the following materials (maximums present): dimethyl dichlorovinyl phosphate (500 gallons, largest container is 73 gallons – an insecticide); potassium nitrate (250 lbs, largest container 50 lbs); and calcium nitrate (640 lbs, largest container 80 lbs)

- 2004 Mechanica Automotive Hazardous Waste Generator Permit Application indicating that wastes will consist of motor oil, automatic transmission fluid, brake fluid and antifreeze (annual total less than 400 gallons)
- 2008, 2009, 2014, 2014, 2016 CERS filings for Mechanica Automotive indicating that the facility does not have tanks, and that it is a hazardous waste generator. The 2016 form identifies the following materials and wastes (maximums present): automatic transmission fluid (ATF) (90 gallons in jugs and 32 gallons in drums); batteries (20); Brakeleen (cans, 70 lbs); grease, solid (1.5 lbs); motor oil (88 gallons in jugs, four 55-gallon drums); parts washer (30 gallons of liquid); waste coolant (two 55-gallon drums); waste oil (270 gallons in drums); waste oil filters (two 55-gallon drums) and smaller quantities of other typical automotive service related materials. Forms for other years are consistent with the 2016 filing. No chlorinated solvents were listed.
- August 2008 Inspection of Mechanica Automotive noting containers are open when not in use, and should be kept closed; administrative issues cited (recordkeeping, training); no release noted
- September 2008 Inspection of Mechanica Automotive noting unlabeled hazardous waste containers as follows: two 55-gallon drums of waste oil; one 55-gallon drum of waste antifreeze; two 55-gallon drums of oil and gas filters; one 55-gallon drum of mop water with antifreeze; two mobile 30-gallon drums for waste oil collection. Labeling was required as a corrective action; a note indicates this was completed. No release noted.
- 2010 Inspection of Mechanica Automotive noting no violations
- 2015 Inspection of Mechanica Automotive noting “illegal disposal” of hazardous wastes because paper oil filters are being commingled with recyclable oil filters; inadequate labeling; open container; no release noted. A subsequent form indicates each of the violations was corrected.

REI also reviewed records maintained by the EH on its public database. The subject property was not listed.

5.6.5 Regional Water Quality Control Board

REI reviewed the public Geotracker databased maintained by the California Regional Water Quality Control Board-San Francisco Bay Region (RWQCB) in July 2017. The subject property addresses were not listed. However, investigation near the southwest corner of the subject property was determined to have been performed in association with neighboring UST releases to the south and east. (Refer to Section 5.9)

5.6.6 Department of Toxic Substances Control

REI reviewed the public Envirostor database maintained by the Department of Toxic Substances Control (DTSC) in July 2017. The subject property was not listed.

REI also reviewed records of hazardous waste disposal for the subject property addresses available online through the DTSC Hazardous Waste Tracking System (HWTS) database, which maintains record of entities with EPA ID numbers associated with manifested disposal of hazardous wastes. The subject property was identified as follows:

- Mechanica Automotive was listed at 788 San Antonio with generator ID CAL000279463for disposing of unspecified oil containing waste and other organic solids in 2015 and 2016. No other years were listed.

5.7 ACTIVITY & USE LIMITATIONS (AULS)

REI obtained a report of title and judicial records for indications of environmental liens and AULs recorded against the subject property. NETR provided and Environmental Lien and AUL Report dated June 10, 2017, according to which no such liens or AULs are recorded against the subject property. The report indicates that the California Chrysanthemum Growers Association acquired the north parcel (147-03-041) in 1951, and the south parcel (147-03-042) in 1952.

5.8 PREVIOUS ENVIRONMENTAL DOCUMENTATION

REI was not provided with nor discovered previous reports associated with the subject property.

5.9 DATABASE REVIEW

REI reviewed a regulatory agency database search report prepared by EDR for information pertinent to the subject property and offsite facilities located within ASTM-specified search distances from the subject property. The database report (Appendix E) identifies about 345 facilities as well as the accessed databases. The subject property was identified as noted below.

- Mechanica Automotive was listed in the EDR Hist Auto, CUPA Listings, Haznet and FINDS databases. These relate to operation of the business as a vehicle service facility and do not indicate a release. The business is identified as being on the subject property since 2004.
- Chrysanthemum Growers is listed in the FINDS databased, which is a pointer listing indicating the business has been listed in another database. The listing refers to the business identification in the CERS database.

Records associated with these listings are discussed in Section 5.6.

The following adjoining or nearby properties located up- to cross-gradient with active cases involving groundwater impacts and/or of obvious environmental significance was identified:

- Beacon (#590), Ultramar Beacon and Oil Changers at 780 San Antonio Road were listed in the LUST, Hist UST and EDR Hist Auto and AST databases. This site is the southern adjoining property south of Leghorn Street, and is upgradient of the subject property.

  Oil Changers is listed for operating an automotive repair shop since 1992. The address was additionally identified as Deans Gulf Service, Apollo Oil Co, and Deans Foreign Car Service from 1969 through 1982. Beacon is listed for a UST release discovered in 1985 and closed by the Santa Clara County Water District in 2001. Beacon formerly had seven USTs installed in 1969 as follows: one 4,000-gallon diesel UST; two 4,000-gallon regular gasoline USTs; one 4,000-gallon unleaded gasoline UST; one 4,000-gallon premium UST; one 550-gallon waste oil UST; and one 10-gallon “waste” UST (identified in reviewed reports as a sump).

Based on this listing, REI obtained additional information from Geotracker and the Santa Clara County Lustop Database for historical UST release records. According to *Report, Soil and Groundwater Monitoring at Apollo Service Station Palo Alto, California for Beacon Oil Company,* prepared by Clark Geotechnical and dated October 10, 1985. At the time of the investigation, two tanks were out of use and had been exposed by excavation and surrounded by a fence. Three tanks were in use to store diesel, and unleaded and regular gasoline. The investigation, which included one soil boring converted to a groundwater monitoring well, identified a gasoline release to soil and groundwater, including benzene in groundwater at a concentration of 25 parts per billion (ppb) in the location sampled. A figure depicts the tanks as north of the former station building, just south of the sidewalk along Leghorn Street. Several years of investigation and remediation (excavation) were performed.

Letter re: Soil and Ground Water Investigation, Former Beacon Station No. 590, 780 San Antonio Road, Palo Alto, California, dated June 20, 1991 and prepared by Delta Environmental Consultants identifies a groundwater monitoring well (MW-4) advanced within landscaping adjacent to the southwest corner of the subject property in 1991 as part of an effort to delineate the extent of contamination to the north. (No indication of this former well was observed by REI onsite). The well was not observed to contain free product or sheen when first installed; however, the consultant had pumped 100 gallon of water from the well before sampling. Groundwater in the well contained benzene at 3,300 ppb, toluene at 5,800 ppb, ethylbenzene at 1,100 ppb, xylenes at 6,400 ppb and total petroleum hydrocarbons as gasoline (TPHg) at 99,000 ppb.

Delta prepared a historical background report with its next monitoring report (*Ground Water Monitoring, Third Quarter 1991 and Historical Background of Site and Surrounding Properties,* dated November 18, 1991). The historical section identifies the site to have been developed for gas station use beginning in 1960; gas station use ceased in 1986, and Oil Changers began operating in 1987. The report identifies the subject property address of 788 San Antonio as California Chrysanthemum Growers Association from 1995 to 1991, and 796 San Antonio as Electrical Material, Inc. from 1969 to 1991, with no concern indicated for either address. Data for MW-4 in August 1991 indicated benzene at 1,100 ppb, toluene at 940 ppb, ethylbenzene at 270 ppb, xylenes at 1,200 ppb and TPHg at 14,000 ppb; in February 1992, TPHg was detected at 1,900,000 ppb (indicative of free product) in MW-4.

According to *Site Closure Evaluation Report, Former Beacon Station #590, 780 San Antonio Road,* dated February 15, 1995 and prepared by Remediation Testing and Design, MW-4 had contained up to 0.44 feet of free product in 1992. The source of this contamination was considered by the consultant to be unknown. Several interim investigations were performed between the Beacon site and the subject property within Leghorn Street adjacent to sewer lines identified as potential conduits for contamination originating from the east at 2594 Leghorn to 762 San Antonio (USTs associated with which were located east of the gas station site and south of Leghorn Street). The additional borings identified significant impacts to soil and groundwater but the source free product at MW-4 was not located. The nature and extent of contamination north of MW-4 (on the subject property) was not investigated.

At the time of closure in 2001, the Santa Clara Valley Water District determined that site characterization was complete. Prior to remediation, groundwater was noted to have contained TPHg at 15,000 ppb and 66 ppb trichlorethylene (TCE) as well as other fuel constituents. At the time of closure, constituents of concern were either non-detect or below criteria, except that MTBE up to 240 ppb was considered to be potentially originating from a different unknown source. Benzene was present in MW-4 at 1.1 ppb at the time of closure. Data included with the 2001 Closure Summary indicates that concentrations of constituents of concern in well MW-4 were low to non-detect during the last four monitoring events in 1998, 1999 and 2001 and that the free product found at MW-4 was believed to associated with an unknown source. The records reviewed did not indicate that Well MW-4 was tested for chlorinated solvent such as TCE which was detected up gradient of the subject property.

- Office Outfitters at 2594 Leghorn Street was listed in the LUST, Hist UST, Hist Cortese, SWEEPS UST, CA FID UST and Hist LUST databases. This site is the eastern adjoining property and is cross gradient of the subject property.

  This site is listed as having a release to soil and groundwater reported in 1987 due to tank structural failure. The site formerly had four USTs: one 350-gallon and one 550-gallon UST each containing leaded gasoline, and two 1,000-gallon USTs containing unleaded gasoline. The release case was closed in 1997.

  Based on this listing, REI obtained additional information from Geotracker and the Santa Clara County Lustop Database for historical UST release records. According to the 1997 Closure Summary, the site had one 450-gallon and one 300-gallon gasoline UST removed in 1987. Characterization was considered to be complete. The 1997 summary does not include groundwater data. However, according to *Report of Soil and Groundwater Investigation at 2594 Leghorn Street, Mountain View, California,* dated August 24, 1995 and prepared by Environmental Restoration Services, groundwater was sampled at the site in 1995. The report includes figures depicted the former tank excavation, which was adjoining to the northeast of the subject property; the report indicates that soil was excavated from the site for remediation purposes in 1994. A release to groundwater was identified at the site in 1995. The consultant identified the known impacts adjacent to the southwest corner of the subject property (MW-4 associated with the Beacon investigation) as a possible indication of an offsite source that also may have been affecting the Office Outfitters property. However, the highest concentration was detected in the boring farthest northeast of the Office Outfitters release location, with lower concentrations closer to the subject property.

6.0 FINDINGS AND OPINIONS

REI identified obvious subject property uses from the present back to 1939, at which time, and until at least 1948, the subject property was developed for agricultural use. The southern building on the subject property, 788 San Antonio Road, was developed for office and warehouse uses in 1953 by the California Chrysanthemum Growers Association. This used included the storage of agricultural chemicals, including insecticides and pesticides, for distribution to chrysanthemum growers; the stored containers were not opened or used on the property. This occupancy continued until approximately 2002, based on a California Environmental Reporting System (CERS) for the Association for that year. In 2003, the building was modified for use as a vehicle repair facility; Mechanica Automotive has occupied the southern building since 2003. The northern building was developed on vacant land in 1966. The building was initially occupied by Electrical Materials, Inc. for office and warehouse uses; this use has continued for the northern portion of the building since first development, with the current occupant identified as Buckles Smith. The southern portion of the building was occupied by a musical instrument company for an undetermined period, as well as by the electrical supplier occupant, prior to be occupied by Studio Kicks as a martial arts and dance fitness studio, which began in approximately 2003. Use of the subject property has been consistent since 2003. REI found no records of USTs on the subject property.

This ESA revealed the following findings:

The southern adjoining (Beacon Gasoline Station) and eastern adjoining properties (Office Outfitters) have both had UST releases in close proximity to the subject property. Both sites were found to have groundwater impacts, and both have received regulatory closure. Investigation of the southern adjoining Beacon site across Leghorn Street determined that the groundwater gradient was to the north directly toward the subject property from the Beacon USTs. TCE was also detected in groundwater south of the Beacon property. Offsite groundwater sampling events to delineate the southern release included advancement of well MW-4 in a landscaped area adjacent to the southwest corner of the subject property in 1991. MW-4 was found to have persistent elevated detections of fuel related constituents in the early to mid-1990s, including the up to 0.44 feet free product in the well in 1992. Concentrations in well MW-4 were higher than Beacon station wells and was considered to be related to an unknown off-site source. The nature and extent of contamination north of MW-4 (on the subject property) was not investigated. Beacon case was closed in 2001 at which time the concentrations in MW-4 were low to non-detect in the last four monitoring events. During the same interval, the eastern adjoining Office Outfitters property was granted closure for a release to soil from fuel USTs. Groundwater impacts were identified on that property downgradient of the subject property, but the consultant for that site suggested groundwater impacts may be migrating from the southwest corner of the subject property (vicinity of MW-4) on to that site. The historical groundwater contamination potentially on the subject property was not investigated, delineated or remediated and is considered a recognized environmental condition (REC).

Use of the southern building since 2003 has been for automotive service and repairs. This use has included the use and storage of automotive fluids, vehicle batteries and tires, and generation of associated liquid and solid wastes. The vehicle repair business, Mechanica Automotive, has been subject to routine regulatory oversight from the Palo Alto Fire Department and Santa Clara County Department of Environmental; Health. Hazardous wastes are removed under manifests. In addition, no indication of chlorinated solvent use was identified at the subject property, and materials and wastes are maintained indoors over concrete, with larger containers in containment. Vehicle hoist utilize above-ground oil reservoirs, and no in ground features of significant concern were noted to be present. Not all areas of the interior floor were visually accessible during the site visit; however, based on the relatively recent remodel of the subject property for this use, with regulatory oversight and permitting of the remodel and occupancy, use of the subject property for vehicle servicing is considered to be *de minimis.*

The subject property was used for agricultural purposes from at least 1939 to 1948. Although not documented at the subject property, agricultural chemicals (*e.g*., organochlorine pesticides and metal compounds) may have been applied to the subject property. This use can result in concentrations of residual agricultural chemicals being present in the near surface soil (*i.e.*, 1 to 3 feet bgs). These residual agricultural chemicals may influence the offsite disposal of soil or pose a health risk to site users or workers. This finding is a REC.

According to building permit records from 1966, two feet of fill material was placed on the subject property in association with the northern building. The origin of this fill material is unknown. Fill material can contain hazardous materials, petroleum products, metals, and other potential sources of contamination. No known investigation of the fill material has been conducted at the subject property. The presence of fill of unknown origin is a REC.

Except as noted, the plotted and orphan facilities that were identified in the database search report are not expected to present an environmental concern to the subject property because: i) they only hold an operating permit (which does not imply a problem); ii) they are not required to perform further action; iii) the nature of the identified environmental concern does not suggest that the subject property would be impacted; or iv) based upon REI's review, are too distant and/or hydraulically downgradient or cross-gradient relative to the subject property to reasonably affect it. This finding is *de minimis*.

7.0 CONCLUSIONS

REI conducted a Phase I ESA in conformance with ASTM Designation: E 1527-13 of the subject property located 788-796 San Antonio Road, Santa Clara County, California. This ESA has revealed no evidence of RECs in connection with the subject property, except the following:

- Potential residual contamination on the subject property associated with historical detection of petroleum hydrocarbons and TCE in groundwater adjacent to the subject property with no investigation, delineation, and/or remediation.
- Presence of fill of unknown origin with no known investigation.
- Historical agricultural use with no known investigation.

This report prepared by:

Liz Smith
Consultant
Rosso Environmental, Inc.
lsmith@rossoenv.com

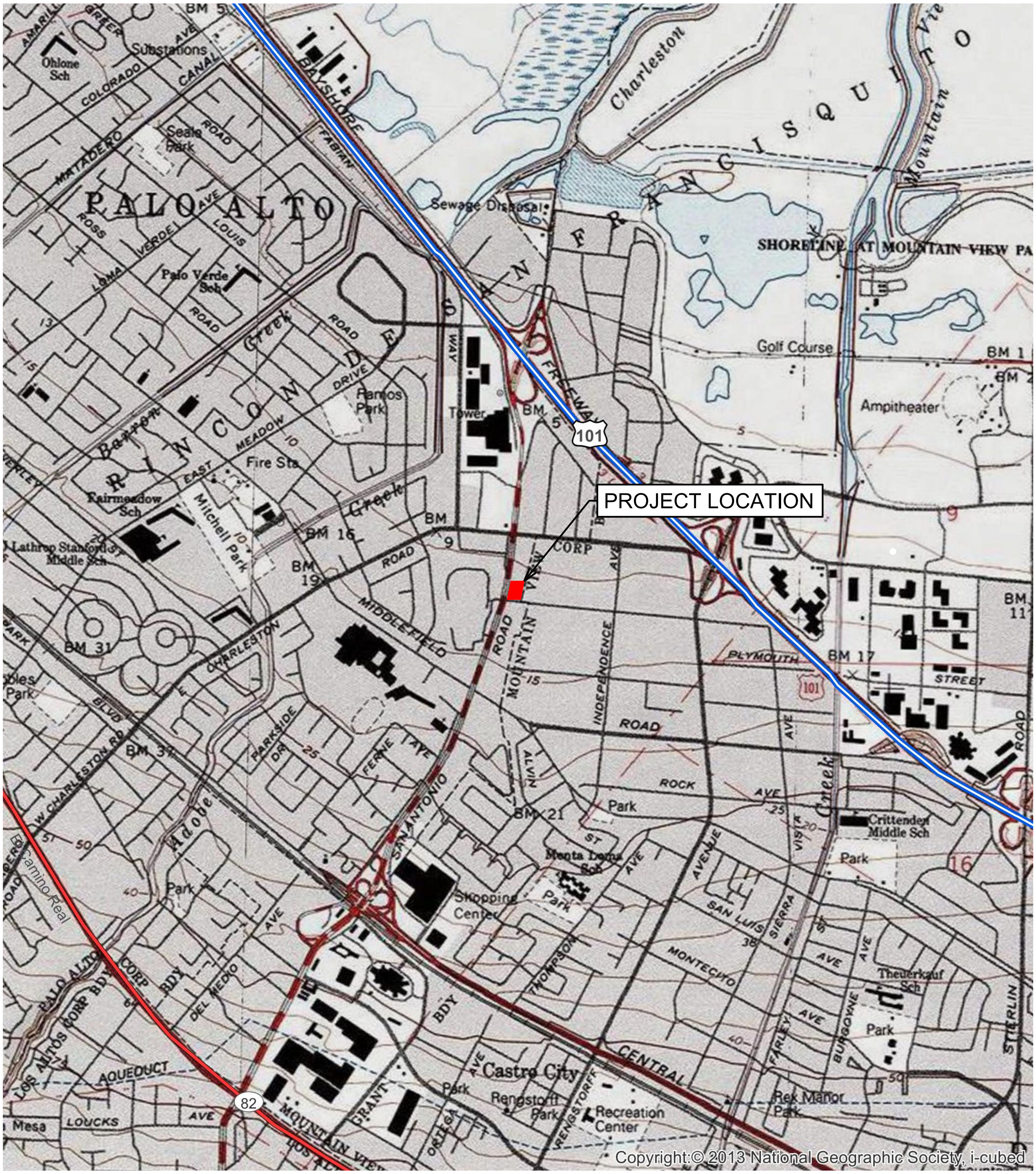
This report reviewed by:

I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Jon A. Rosso, P.E.
Principal

Rosso Environmental, Inc.
jrosso@rossoenv.com

FIGURES



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LOCATION MAP

788-796 SAN ANTONIO ROAD, PALO ALTO,
SANTA CLARA COUNTY, CALIFORNIA 94303

ROSSO ENVIRONMENTAL, INC.

Figure
1

Project No. 17-0041.00

SITE PLAN

788-796 SAN ANTONIO ROAD, PALO ALTO,
SANTA CLARA COUNTY, CALIFORNIA 94303

ROSSO ENVIRONMENTAL, INC.

Figure 2

Project No. 17-0041.00

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PHOTOGRAPHS

Project No. 17-0041.00	**Description**	Looking north along west (front) side of north subject property building	**1**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	West (front) side of south subject property building	**2**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

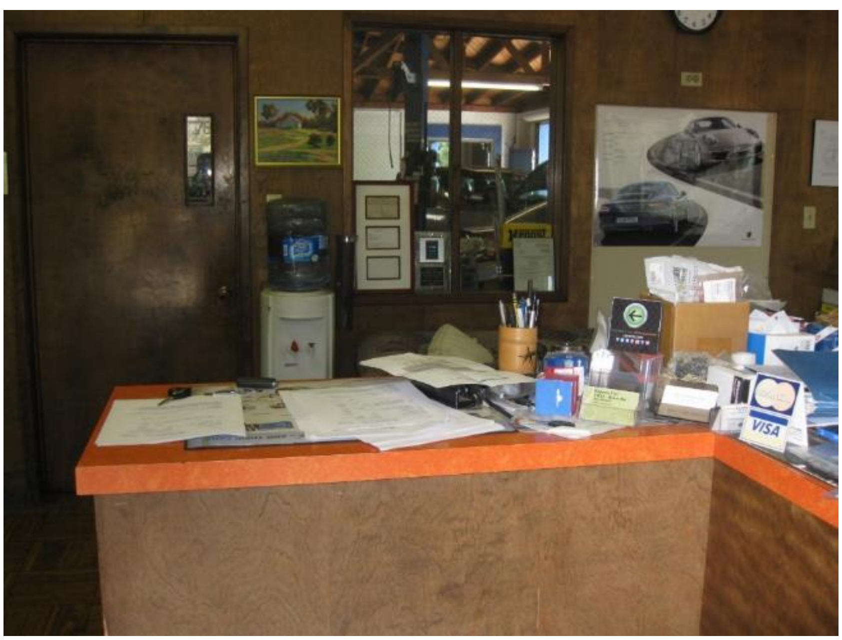
Project No. 17-0041.00	Description	Looking west along north subject property boundary access to San Antonio Rd.	3
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. 17-0041.00	Description	Looking east along north subject property boundary to rear onsite parking	4
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. 17-0041.00	**Description**	Looking south along east parking area and roll up doors pf north subject property building	**5**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Looking west toward San Antonio Rd. between north and south buildings	**6**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Looking north along west property perimeter and utilities in sidewalk	7
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017



Project No. 17-0041.00	Description	Front office of Mechanica Automotive	8
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

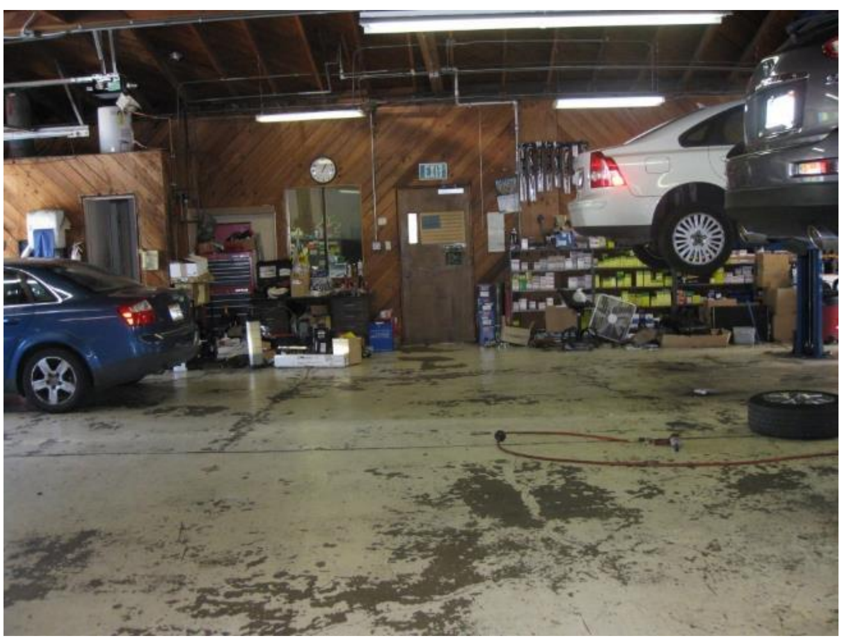
Project No. 17-0041.00	**Description**	Used oil collection at Mechanica Automotive	**9**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Detail of used oil collection	**10**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	New and used battery storage; bottle of used fluid	**11**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Above ground vehicle lift with oil reservoir	**12**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Workbench, new oil storage	13
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017



Project No. 17-0041.00	Description	Main shop area looking west; lifts have above ground oil reservoirs	14
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Aqueous parts washer label; resulting oily water is removed by vendor	**15**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Used oil and antifreeze storage (collected in shop); three drums	**16**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. **17-0041.00**	**Description**	New oil and antifreeze; three drums	**17**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. **17-0041.00**	**Description**	Tire storage	**18**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Additional new oil storage	19
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Clutter in majority of rear room at Mechanica Automotive; floor inaccessible	20
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

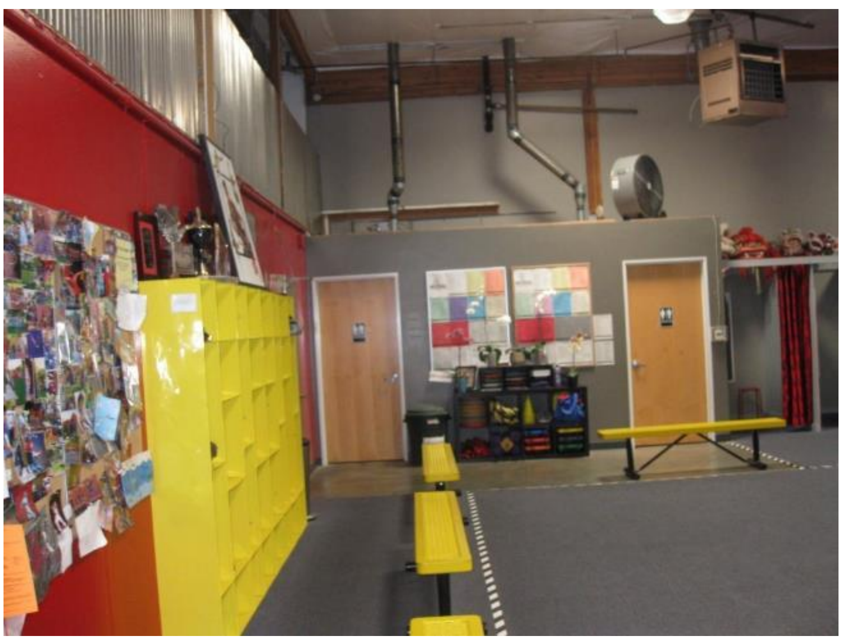
Project No. 17-0041.00	Description	In ground testing features with rollers, no longer in use	21
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. 17-0041.00	Description	Floor drain at testing features	22
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. 17-0041.00	**Description**	Sink and restroom at west end of shop	**23**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Cars stored and being serviced outdoors south of Mechanica Automotive (pavement covered)	**24**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Front office and store at Studio Kicks in north building	25
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017



Project No. 17-0041.00	Description	Looking north inside Studio Kicks, restrooms and lockers	26
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. **17-0041.00**	**Description**	Children’s activity room – Studio Kicks in north building	**27**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. **17-0041.00**	**Description**	Floor mat area in east side of Studio Kicks; roll-up door to rear parking	**28**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Access to mezzanine on west side of Studio Kicks space	**29**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	**Description**	Interior of Studio Kicks mezzanine storage	**30**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. **17-0041.00**	**Description**	Office of Buckles Smith electrical supply	**31**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. **17-0041.00**	**Description**	Break room at Buckles Smith	**32**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. **17-0041.00**	**Description**	Typical storage shelves at Buckles Smith with access to mezzanine on left	**33**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. **17-0041.00**	**Description**	Additional view of storage in Buckles Smith	**34**
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Interior mezzanine storage in Buckles Smith	35
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Signage for northern adjoining property	36
	Name	788-796 San Antonio Road, Palo Alto, California	**Photo Date** July 5, 2017

Project No. 17-0041.00	Description	Signage for western adjoining property across San Antonio Road	37
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. 17-0041.00	Description	Southern adjoining Oil Changers across Leghorn, looking along San Antonio	38
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. 17-0041.00	Description	Looking south at rear of Oil Changers lot	39
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

Project No. 17-0041.00	Description	Signage for property east of eastern adjoining property	40
	Name	788-796 San Antonio Road, Palo Alto, California	Photo Date July 5, 2017

APPENDIX A

RESUMES

APPENDIX B

SOURCES AND REFERENCES

SOURCES AND REFERENCES

SOURCES

Agency and division/source:	Owner Representatives
Name/title of representative:	Ms. Jeanne Boes, General Manager, and Ms. Rose Robinson, Assistant Property Manager, of California Flower Market LLC
Agency telephone number:	415.392.7944

Agency and division/source:	Mechanica Automotive
Name/title of representative:	Mr. Ed Pak
Location	788 San Antonio
Agency telephone number:	Interviewed onsite

Agency and division/source:	Studio Kicks
Name/title of representative:	Ms. Lavinia Lu
Location	796 San Antonio
Agency telephone number:	Interviewed onsite

Agency and division/source:	Buckles Smith Electric
Name/title of representative:	Mr. Jerry Brown
Location	796 San Antonio
Agency telephone number:	Interviewed onsite

Agency and division/source:	Santa Clara County Tax Assessor
Name/title of representative:	Public database
Location of Agency:	70 W Hedding St, San Jose, CA 95110
Agency Telephone Number:	(650) 363-4500

Agency and division/source:	City of Palo Alto Building Department
Name/title of representative:	Staff
Location of Agency:	285 Hamilton Ave # 1, Palo Alto, CA 94301
Agency Telephone Number:	(650) 329-2496

Agency and division/source:	City of Palo Alto Fire Department
Name/title of representative:	Staff
Location of Agency:	285 Hamilton Ave # 1, Palo Alto, CA 94301
Agency Telephone Number:	(650) 329-2184

SOURCES AND REFERENCES

Agency and division/source:	Santa Clara County Department of Environmental Health
Name/title of representative:	Ms. Somira Pech
Location of Agency:	1555 Berger Drive, Building 2, Suite 300, San Jose, CA 95112
Agency Telephone Number:	408-918-3423

Agency and division/source:	Regional Water Quality Control Board
Name/title of representative:	Public Database
Location of Agency:	1515 Clay St # 1400, Oakland, California 94612
Agency Telephone Number:	(510) 622-2430

Agency and division/source:	California Department of Toxic Substances Control
Name/title of representative:	Public Database
Location of Agency:	700 Heinz Avenue, Suite 200, Berkeley, California 94583
Agency Telephone Number:	(510) 540-2122

SOURCES AND REFERENCES

REFERENCES:

Name of publication:	EDR Radius Map with Geocheck
Author of publication:	Environmental Data Resources, Inc. (EDR)
Date of publication:	June 8, 2017
Name of publication:	EDR Topographic Map Report
Author of publication:	Environmental Data Resources, Inc. (EDR)
Date of publication:	June 7, 2017
Name of publication:	EDR Sanborn Map Report
Author of publication:	Environmental Data Resources, Inc. (EDR)
Date of publication:	June 7, 2017
Name of publication:	EDR Aerial Photo Report
Author of publication:	Environmental Data Resources, Inc. (EDR)
Date of publication:	June 7, 2017
Name of publication:	EDR City Directory Abstract
Author of publication:	Environmental Data Resources, Inc. (EDR)
Date of publication:	June 8, 2017
Name of publication:	NETR Environmental Lien and AUL Report
Author of publication:	Nationwide Environmental Title Research (NETR)
Date of publication:	June 10, 2017
Name of publication:	*Report of Soil and Groundwater Investigation at 2594 Leghorn Street, Mountain View, California*
Author of publication:	Environmental Restoration Services
Date of publication:	August 24, 1995
Name of publication:	*Letter re: Soil and Ground Water Investigation, Former Beacon Station No. 590, 780 San Antonio Road, Palo Alto, California*
Author of publication:	Delta Environmental Consultants
Date of publication:	June 20, 1991
Name of publication:	*Report, Soil and Groundwater Monitoring at Apollo Service Station Palo Alto, California for Beacon Oil Company*
Author of publication:	Clark Geotechnical
Date of publication:	October 10, 1985

SOURCES AND REFERENCES

Name of publication:	*Ground Water Monitoring, Third Quarter 1991 and Historical Background of Site and Surrounding Properties*
Author of publication:	Delta
Date of publication:	November 18, 1991
Name of publication:	*Site Closure Evaluation Report, Former Beacon Station #590, 780 San Antonio Road*
Author of publication:	Remediation Testing and Design
Date of publication:	February 15, 1995

APPENDIX C

SUBJECT PROPERTY RECORDS

APPENDIX D

ADJOINING PROPERTY INVESTIGATION REPORTS

APPENDIX E

LIEN SEARCH REPORT

APPENDIX F

DATABASE REPORT

Appendix E

788 San Antonio Road Santa Clara Valley Urban Runoff Pollution Prevention Program C.3 Form

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Date Form Completed: 03/23/20
Completed by: BKF Engineers

Provision C.3 Data Form

Which Projects Must Comply with Stormwater Requirements?

All projects that create and/or replace **10,000 sq. ft.** or more of impervious surface on the project site must fill out this worksheet and submit it with the development project application.

All restaurants, auto service facilities, retail gasoline outlets, and uncovered parking lot projects (stand-alone or part of another development project, including the top uncovered portion of parking structures) that create and/or replace **5,000 sq. ft.** or more of impervious surface on the project site must also fill out this worksheet.

Interior remodeling projects, routine maintenance or repair projects such as re-roofing and re-paving, and single family homes that are not part of a larger plan of development are **NOT** required to complete this worksheet.

What is an Impervious Surface?

An impervious surface is a surface covering or pavement that prevents the land's natural ability to absorb and infiltrate rainfall/stormwater. Impervious surfaces include, but are not limited to rooftops, walkways, paved patios, driveways, parking lots, storage areas, impervious concrete and asphalt, and any other continuous watertight pavement or covering. Pervious pavement, underlain with pervious soil or pervious storage material (e.g., drain rock), that infiltrates rainfall at a rate equal to or greater than surrounding unpaved areas OR that stores and infiltrates the water quality design volume specified in Provision C.3.d of the Municipal Regional Stormwater Permit (MRP), is not considered an impervious surface.

For More Information

For more information regarding selection of Best Management Practices for stormwater pollution prevention or stormwater treatment contact:__________

1. Project Information

Project Name: 788 San Antonio Housing **APN #** 147 - 03 - 041 & 042

Project Address: 788, 790 & 796 San Antonio Road

Cross Streets: Leghorn Street

Applicant/Developer Name: Henry Huang / 788SAPA Land LLC

Project Phase(s): 1 **of** 1 **Engineer:** Anh Tuan Nguyen

Project Type (Check all that apply): ☐ New Development ☑ Redevelopment

☑ Private ☐ Public

☐ Residential ☐ Commercial ☐ Industrial ☑ Mixed Use ☐ Institutional

☐ Restaurant ☐ Uncovered Parking ☐ Retail Gas Outlet ☐ Auto Service (SIC code) ______
(5013-5014, 5541, 7532-7534, 7536-7539)

☐ Other ______

Project Description: Demolish 2 existing buildings for construction of a 102 units mixed use building with 1 retail space and 1 level below grade parking garage.

Project Watershed/Receiving Water (creek, river or bay): Adobe Creek

2. Project Size

a. Total Site Area: 1.00 acre	b. Total Site Area Disturbed: 1.00 acre (including clearing, grading, or excavating)				
Impervious Area[1] (IA)	Pre-project (Existing) IA (ft²)	Existing IA Retained As-is (ft²) (x)	Existing IA Replaced with IA (ft²) (y)	New IA Created (ft²) (z)	Total Post-Project IA (ft²) (x+y+z)
Roof	17,866	0	17,866	11,611	29,477
Surface Parking	24,457	0	0	0	0
Sidewalks, streets, etc.	0	0	0	5,362	5,362
c. Total Impervious Area	42,323	0	17,866	16,973	34,839
d. Total new and replaced impervious area			34,839		
Pervious Area (PA)	Pre-project (Existing) PA (ft²)				Total Post-Project PA (ft²)
Landscaping[2]	1,092				8,576
Pervious Paving					0
Other (e.g. Green Roof)					0
e. Total Pervious Area	1,092				8,576
f. Total Area (IA+PA)	43,415				43,415
g. Percent Replacement of IA in Redevelopment Projects (Total Existing IA Replaced with IA ÷ Total Existing IA) x 100% = 42.21 %					

3. **State Construction General Permit Applicability:**

   a. Is #2.b. equal to 1 acre or more?

   ☑ Yes, applicant must obtain coverage under the State Construction General Permit (see www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml for details).

   ☐ No, applicant does not need coverage under the State Construction General Permit.

4. **MRP Provision C.3 Applicability:**

   a. Is #2.d. equal to **10,000** sq. ft. or more, or **5,000** sq. ft. or more for restaurants, auto service facilities, retail gas outlets, and stand-alone uncovered parking?

   ☑ Yes, C.3. source control, site design and treatment requirements apply

   ☐ No, C.3. source control and site design requirements may apply – check with local agency

   b. For redevelopment projects, is #2.g. equal to 50% or more?

   ☐ Yes, C.3. requirements (site design and source control, as appropriate, and stormwater treatment) apply to the entire site

   ☑ No, C.3. requirements only apply to the impervious area created and/or replaced

5. **Hydromodification Management (HM) Applicability:**

   a. Does the project create and/or replace one acre or more of impervious surface AND is the total post-project impervious area greater than the pre-project (existing) impervious area?

   ☐ Yes (continue) ☑ No – exempt from HM, go to page 3

   b. Is the project located in an area of HM applicability (green area) on the HM Applicability Map? (www.scvurppp-w2k.com/hmp_maps.htm)

   ☐ Yes, the project must implement HM requirements

   ☑ No, the project is exempt from HM requirements

[1] The "new" and "replaced" IA are based on the total area of the site and not specific locations on site. "Retained" means to leave existing IA in place. "Replaced" means to reconstruct IA where existing IA is removed. "New" IA is the quantity of IA that exceeds "Existing" IA at the site.

[2] Include bioretention and infiltration areas in landscaping.

6. Selection of Specific Stormwater Control Measures:

Site Design Measures

- ☐ Minimize land disturbed (e.g., protect trees and soil)
- ☑ Minimize impervious surfaces (e.g., reduction in post-project impervious surface)
- ☑ Minimum-impact street or parking lot design (e.g., parking on top of or under buildings)
- ☐ Cluster structures/ pavement
- ☑ Disconnected downspouts (direct runoff from roofs, sidewalks, patios to landscaped areas)
- ☐ Pervious pavement
- ☐ Green roof
- ☑ Other self-treating[3] area (e.g., landscaped areas)
- ☑ Self-retaining[3] area
- ☐ Interceptor trees[3]
- ☐ Rainwater harvesting and use (e.g., rain barrel, cistern for designated use) [4]
- ☐ Preserved open space: _______ ac. or sq. ft. (circle one)
- ☐ Protected riparian and wetland areas/buffers (Setback from top of bank: _______ft.)
- ☐ Other _______________

Source Control Measures

- ☐ Wash area/racks, drain to sanitary sewer[5]
- ☑ Covered dumpster area, drain to sanitary sewer[5]
- ☐ Sanitary sewer connection or accessible cleanout for swimming pool/spa/fountain[5]
- ☑ Beneficial landscaping (minimize irrigation, runoff, pesticides and fertilizers; promotes treatment)
- ☐ Outdoor material storage protection
- ☐ Covers, drains for loading docks, maintenance bays, fueling areas
- ☑ Maintenance (pavement sweeping, catch basin cleaning, good housekeeping)
- ☑ Storm drain labeling
- ☐ Other _______________

Treatment Measures

- ☐ None (all impervious surface drains to self-retaining areas)

LID Treatment

- ☑ Bioretention area
- ☐ Flow-through planter
- ☐ Tree Well Filter or Trench with bioretention soils
- ☐ Rainwater harvest/use (e.g., cistern or rain barrel for designated use, sized for C.3.d treatment)
- ☐ Infiltration trench
- ☐ Infiltration well/dry well
- ☐ Subsurface Infiltration System (e.g. vault or large diameter conduit over drain rock)
- ☐ Other _______________

Non-LID Treatment Methods

- ☐ Proprietary high flow rate tree box filter[6]
- ☐ Proprietary high flow media filter (sand, compost, or proprietary media)[6]
- ☐ Vegetated filter strip[7]
- ☐ Extended detention basin[7]
- ☐ Vegetated swale[7]
- ☐ Other _______________

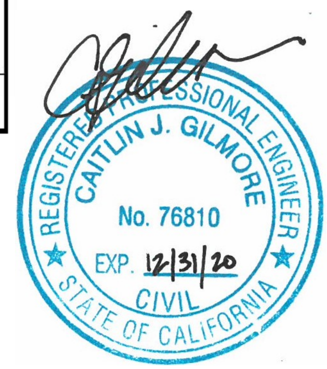
Flow Duration Controls for Hydromodification Management (HM)

- ☐ Extended Detention basin
- ☐ Underground tank or vault
- ☐ Bioretention with outlet control
- ☐ Other _______________

[3] See SCVURPPP C3 Handbook for definitions.
[4] Optional site design measure; does not have to be sized to comply with Provision C.3.d treatment requirements.
[5] Subject to sanitary sewer authority requirements.
[6] These treatment measures are only allowed if the project qualifies as a "Special Project".
[7] These treatment measures are only allowed as part of a multi-step treatment process (i.e., for pretreatment).

7. Stormwater Treatment Measure (STM) Sizing for Projects with Treatment Requirements

Stormwater Treatment Measure (STM)	Hydraulic Sizing Criteria Used*
Bioretention	2c
	Choose from list
	Choose from list
	Choose from list



*Key: 1a: Volume – WEF Method
1b: Volume – CASQA BMP Handbook Method
2a: Flow – Factored Flood Flow Method
2b: Flow – CASQA BMP Handbook Method
2c: Flow – Uniform Intensity Method
3: Combination Flow and Volume Design Basis

8. Alternative Certification: Was the treatment system sizing and design reviewed by a qualified third-party professional that is not a member of the project team or agency staff?

☑ Yes ☐ No Name of Third-party Reviewer Caitlin Gilmore, PE - Schaaf&Wheeler

9. Operation & Maintenance Information

A. Property Owner's Name 788SAPA Land LLC

B. Responsible Party for Stormwater Treatment/Hydromodification Control O&M:

a. Name: Henry Huang

b. Address: 2275 E. Bayshore Road, # 100, Palo Alto, CA 94303

c. Phone/E-mail: 650.735.2777 / hhuang@affixcap.com

This section to be completed by Municipal staff.

O&M Responsibility Mechanism

Indicate how responsibility for O&M is assured. Check all that apply:

☐ O&M Agreement

☐ Other mechanism that assigns responsibility (describe below):

____

This section to be completed by Municipal staff (Note: This is an optional section that agencies should modify per their internal review and tracking process.)

Reviewed By:

Community Development Department

Planning Division: ______________

Building Division: ______________

Public Works Department

Engineering: ______________

Other (Specify): ______________

Return form to: ______________________

Data entry performed by: __________________