CITY OF CAMPBELL
Community Development Department

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION
October 24, 2018

Lead Agency: City of Campbell, 70 N. 1st St., Campbell CA, 95008

Contact Person: Daniel Fama, Senior Planner – (408) 866-2193 / danielf@cityofcampbell.com

Project Title: Harriet Avenue Planned Development Subdivision

Project Location: 880 and 910 Harriet Avenue, Campbell, CA 95008

Note: The project site is not listed on the Hazardous Waste and Substances Sites List as set forth in Government Code Section 65962.5.

Project Description: The proposed project includes the following land use entitlement requests:

Zoning Map Amendment (PLN2018-177): To amend the Campbell Zoning Map to rezone the project site from R-1-6 (Single-Family Residential) to P-D (Planned Development);

Planned Development Permit (PLN2018-178): To allow construction of six two-story single-family homes, a new private street, and associated site and landscaping improvements;

Tentative Vesting Subdivision Map (PLN2018-179): To create six private lots and one common lot, and associated public and private easements; and

Tree Removal Permit (PLN2018-180): To allow removal of on-site "protected" trees.

NOTICE IS HEREBY GIVEN that the City of Campbell has prepared a draft Mitigated Negative Declaration, pursuant to Public Resources Code Section 21092(b)(1), for the above described project. The Initial Study prepared by the City was undertaken for the purpose of determining whether the project may have a significant effect on the environment. On the basis of the Initial Study, the Community Development Director has determined that the project will not have a significant effect on the environment due to the incorporation of certain mitigation measures, and therefore, has prepared a draft Mitigated Negative Declaration for consideration by the Planning Commission and City Council.

PUBLIC REVIEW PERIOD: A 20-day public review period for the draft Mitigated Negative Declaration will commence on October 24, 2018 through November 13, 2018 (closing at 5:00 PM) for interested individuals and public agencies to submit written comments on the document. Any comments on the draft Mitigated Negative Declaration must be submitted to the City in writing at the above address or by email to the project planner at danielf@cityofcampbell.com before the close of the public review period. Comments may also be received at public hearings on the project. The Initial Study and draft Mitigated Negative Declaration are available for review from 8:00 AM to 5:00 PM at the Campbell Community Development Department, City Hall, 70 North First Street, Campbell, CA and online at http://www.cityofcampbell.com/501/Public-Notices under ' Environmental Notices'.

PUBLIC HEARINGS: The Planning Commission and City Council are scheduled to consider the proposed project and draft Mitigated Negative Declaration at public hearings to be held on **November 13, 2018** and **December 4, 2018**, respectively. The meetings will be held at 7:30 p.m., or shortly thereafter, in the City Hall City Council Chambers, 70 North First Street, Campbell, CA.

PLANNING COMMISSION
CITY OF CAMPBELL
PAUL KERMOYAN
SECRETARY

CITY OF CAMPBELL
Community Development Department

MITIGATED NEGATIVE DECLARATION

The Community Development Director has reviewed the proposed project described below to determine whether it could have a significant effect on the environment as a result of the project completion. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Project Title: Harriet Avenue Planned Development Subdivision

Project Address: 880 and 910 Harriet Avenue, Campbell, CA 95008

Entitlement(s): **Zoning Map Amendment** (PLN2018-177): To amend the Campbell Zoning Map to rezone the project site from R-1-6 (Single-Family Residential) to P-D (Planned Development);

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Zoning District (E): R-1-6 (Single-Family Residential)

Zoning District (P): P-D (Planned Development)

Area Plan: San Tomas Area Neighborhood Plan (STANP)

General Plan: *Low Density Residential (less than 6 units/gr. acre)*

Project Sponsor: Robson Homes, LLC
c/o Richard Yee
2185 The Alameda, #150
San Jose, CA 95126

Property Owners: Corbin and Jean DeMaree
880 Harriet Avenue
Campbell, CA 95008

Lead Agency: City of Campbell, Community Development Department
70 N. First Street, Campbell, CA 95008

Contact Person: Daniel Fama, Senior Planner
(408) 866-2193 | danielf@cityofcampbell.com

Date Posted: October 24, 2018

Other public agencies whose approval is required: None

Project Location and Surrounding Land Use: The project site is composed of two 'L'-shaped parcels, comprising approximately 1.2 gross acres, located on the east side of Harriett Avenue, north of Westmont Avenue and south of Elam Avenue (map, below). The site is within the R-1-6 (Single-Family Residential) Zoning District, subject to the San Tomas Area Neighborhood Plan (STANP). The surrounding area is primarily single-family residential (R-1-6 zoning) with the exception of the Good Soil Baptist Church located directly to the north. The site is currently developed with a single-family home and several accessory structures.

Project Description: The proposed project is a residential planned development consisting of six single-family homes accessed by a new private roadway. The project includes an application for a Zoning Map Amendment to amend the zoning from R-1-6 (Single-Family Residential) to P-D (Planned Development), a Tentative Subdivision Map to create six single-family lots and one commonly owned lot, a Planned Development Permit for the general site layout and architectural design of the proposed residences, and a Tree Removal Permit to remove on-site "protected" trees.

Finding: The Community Development Director finds that the project described above will not have a significant effect on the environment in that the attached Initial Study identifies one or more potentially significant effects on the environment for which the project proponent, before public release of this draft Mitigated Negative Declaration, has made or agrees to make project revisions that clearly mitigate the effects to a less than significant level.

Mitigation Measures Included in the Project to Reduce Potentially Significant Environmental Effects to a Less Than Significant Level:

Mitigation Measure AQ-1*: BAAQMD Basic Dust Control Measures*. The construction contractor shall reduce construction-related air pollutant emissions by implementing BAAQMD's basic fugitive dust control measures, including:

- All active construction areas shall be watered twice daily or more often if necessary. Increased watering frequency shall be required whenever wind speeds exceed 15 miles-per-hour.
- Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads and parking and staging areas at construction sites.
- Cover stockpiles of debris, soil, sand, and any other materials that can be windblown. Trucks transporting these materials shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- Subsequent to clearing, grading, or excavating, exposed portions of the Site shall be watered, landscaped, treated with soil stabilizers, or covered as soon as possible.

- Installation of sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replanting of vegetation in disturbed areas as soon as possible after completion of construction.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the City of Campbell regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure BIO-1: Avoidance measures that protect bat species from possible direct mortality will be warranted. Therefore, the project applicant will implement the following measures to ensure that mortality to special status bats from future ground disturbances is avoided:

- If practicable, site demolition should either be done between March 1 and April 15 or between August 15 and October 15 to avoid interfering with an active nursery and/or overwintering bats.
- Within 30-days of demolition and/or tree removal, a detailed bat survey should be conducted by a qualified biologist for the residence, out-buildings, and trees prior to demolition. If a non-breeding and non-wintering bat colony is found, the individuals should be humanely evicted via the partial dismantlement (i.e., the first of a two-step removal process typical of bat evictions) of the buildings or trees a day or two prior to demolition under the direction of a qualified biologist to ensure that no harm would occur to any bats as a result of demolition activities. Once it has been determined by a qualified biologist that the bats have safely evacuated the building, the remaining building/tree demolition can commence.
- Should the biologist not be able to visually access all potential roost areas (e.g., enclosed attic spaces), a night emergence survey may become necessary.
- If a maternity colony or overwintering colony is detected in the buildings or trees of the site, then the biologist will determine a suitable construction-free buffer to be established around the structure and to remain in place until it has been determined by the biologist that the nursery is no longer active.

Mitigation Measure BIO-2: Avoidance measures that protect nesting migratory bird species from possible direct mortality will be warranted. Project-related activities that occur during the breeding season could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season (February 1st through August 31st), pre-construction nesting bird surveys should be conducted by a qualified biologist to identify possible nesting activity within 14 calendar days prior to such activities. If project activities are subsequently delayed for more than 14-days during the breeding season then an additional survey would be needed to ensure nests

have not established within the site, including project equipment, during the hiatus. A construction-free buffer of suitable dimensions must be established around any active raptor and migratory bird nest (up to 250 feet, depending on the location and species) for the duration of the project, or until it has been determined by a qualified biologist that the chicks have fledged and are foraging independently from their parents. The size and dimensions of the buffer is to be determined by a qualified biologist.

Mitigation Measure BIO-3: The following measures shall be implemented to protect the Valley Oak tree located on the adjacent property.

- Tree Protection Fence shall be placed in the area at the tree's drip line distance during the initial demolition of the site to prevent unnecessarily entering the area under the tree.
- The Project Arborist shall document the initial grading and any trenching or significant soil disturbance, including, trenching or boring for utilities.
- Do not use any mechanical trenching machinery or heavy equipment such as a back hoe.
- After opening up the trench, evaluate the size and volume of roots that will be impacted by the underground work.
- Roots greater than two inches in diameter should be cut clean "cut clean to a flat surface with all surrounding bark intact." If trenches are cut and tree roots two inches or larger are encountered they must be cleanly cut back to a sound wood lateral root. All exposed root areas shall be backfilled or covered within one hour. Roots greater than four inches in diameter should be left intact and only removed as authorized by the project arborist. Arborist should evaluate exposed roots to determine what can be root pruned and what must be retained.
- Use the thinest material possible to achieve structural compliance and use porous material that allows for water infiltration under the surface. This shall specifically require use of pervious pavers (consistent with the overall project) at the entry of the project site driveway, to an extent determined by the Community Development Director. Adjust the finished grade to be above the natural grade without digging for a sub-grade treatment. In this instance the pavement will be higher up and edge treatments or curbing also need to be constructed above grade. Alternatively use paving material that does not rely on the strength of a compacted sub-base for strength. This may be accomplished by reinforcing the surface layer material. Place geotextile fabric at the bottom of the sub-base to reduce displacement into the parent soil along with a reduction in compaction requirements. Use biaxial Tensar BX-1100 or equivalent to manufacturer specifications on grade.
- All tree maintenance and care shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: Tree, Shrub and Other Woody Plant Management: Standard Practices parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations. All maintenance is to be performed according to ISA Best Management Practices.
- Required tree pruning must be performed by a licensed contractor with a C-61/D-49 California Contractors License. Pruning specification shall be provided in writing according to ANSI A300 Part 1 (Pruning) 2017 standards and limitations. All tree pruning shall be performed in accordance with ISA Best Management Practices: Tree Pruning 2008.

- Refer to Appendix D for general tree protection guidelines including recommendations for arborist assistance while working under trees, trenching, or excavation within a trees drip line or designated TPZ/CRZ.
- Provide a copy of this report to all contractors and project managers, including the architect, civil engineer, and landscape designer or architect. It is the responsibility of the owner to ensure all parties are familiar with this document.
- Arrange a pre-construction meeting with the project arborist or landscape architect to verify tree protection is in place, with the correct materials, and at the proper distances.

Mitigation Measure CUL-1: If archaeological or paleontological resources are encountered during excavation or construction, construction personnel shall be instructed to immediately suspend all activity in the immediate vicinity of the suspected resources and the City and a licensed archeologist or paleontologist shall be contacted to evaluate the situation. A licensed archeologist or paleontologist shall be retained to inspect the discovery and make any necessary recommendations to evaluate the find under current CEQA guidelines prior to the submittal of a resource mitigation plan and monitoring program to the City for review and approval prior to the continuation of any on-site construction activity.

Mitigation Measure CUL-2: In the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The City and the Santa Clara County Coroner's office shall be notified. If deemed prehistoric, the Coroner's office would notify the Native American Heritage Commission who would identify a "Most Likely Descendant (MLD)." The archeological consultant and MLD, in conjunction with the project sponsor, shall formulate an appropriate treatment plan for the find, which might include, but not be limited to, respectful scientific recording and removal, being left in place, removal and reburial on site, or elsewhere. Associated grave goods are to be treated in the same manner.

Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Geotechnical Investigation, dated June 27, 2018 prepared by Geo-Logic Associates dba Pacific Geotechnical Engineering. Such recommendations shall be incorporated into the project's final engineering design to prevent ponding of water in or near the building, ensure the conveyance of storm water away from the building, and avoid the saturation of foundation soils. The project shall use standard engineering techniques and conform to the requirements of the International Building Code to reduce the potential for seismic damage and risk to future occupants.

Mitigation Measure HAZ-1: Prior to issuance of a demolition permit, a qualified contractor shall assess the property for presence of Lead-based paint (LBP) and Asbestos containing building materials (ACBM), and if present, prepare a plan, to the satisfaction of the Building Official, to properly manage and dispose of such materials.

Mitigation Measure NOI-1: The entire window assembly shall be STC rated as recommended by the Environmental Noise Study prepared by prepared by Charles Salter and Associates.

PUBLIC REVIEW PERIOD

Any person may file a written protest of the Mitigated Negative Declaration during the public comment period running from October 24, 2018 through November 13, 2018 (closing at 5:00 PM). Such protest must be filed at the Community Development Department, City Hall, 70 North First Street, Campbell, California. The written protest should make a "fair argument" that the project will have one or more significant effects on the environment based on substantial evidence.

Daniel Fama
PROJECT PLANNER

Senior Planner
TITLE

City of Campbell
AGENCY

SIGNATURE

October 10, 2018
DATE

Encl: Initial Study
Mitigation Monitoring and Reporting Program

INITIAL STUDY

Harriet Avenue Planned Development Subdivision

An environmental evaluation
prepared in compliance with the
California Environmental Quality Act

Prepared by
Daniel Fama, Senior Planner

City of Campbell
Community Development Department
Planning Division
70 N. First Street
Campbell, CA 95008

Public Review Period
October 24, 2018 – November 13, 2018

I. PROJECT OVERVIEW

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Project Data:

Net Lot Size: 1.09 Acres

Gross Lot Size: 1.18 Acres

Density: 5 Units/Gr. Acre

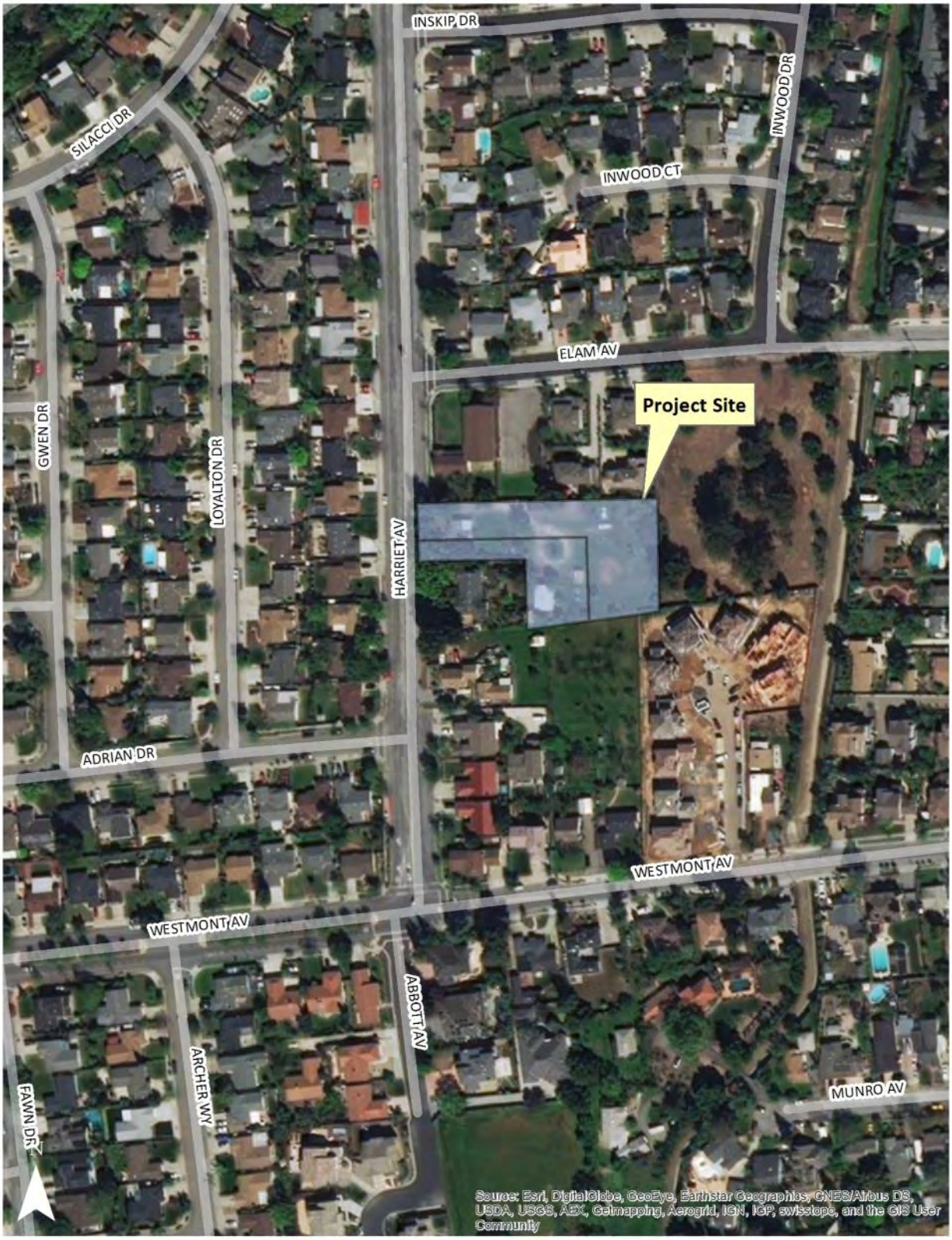
Parking Proposed: 24 parking spaces (12 covered; 12 uncovered/guest)
Parking Required: 24 spaces (6 covered; 6 uncovered, 12 uncovered/guest)

Surrounding Uses

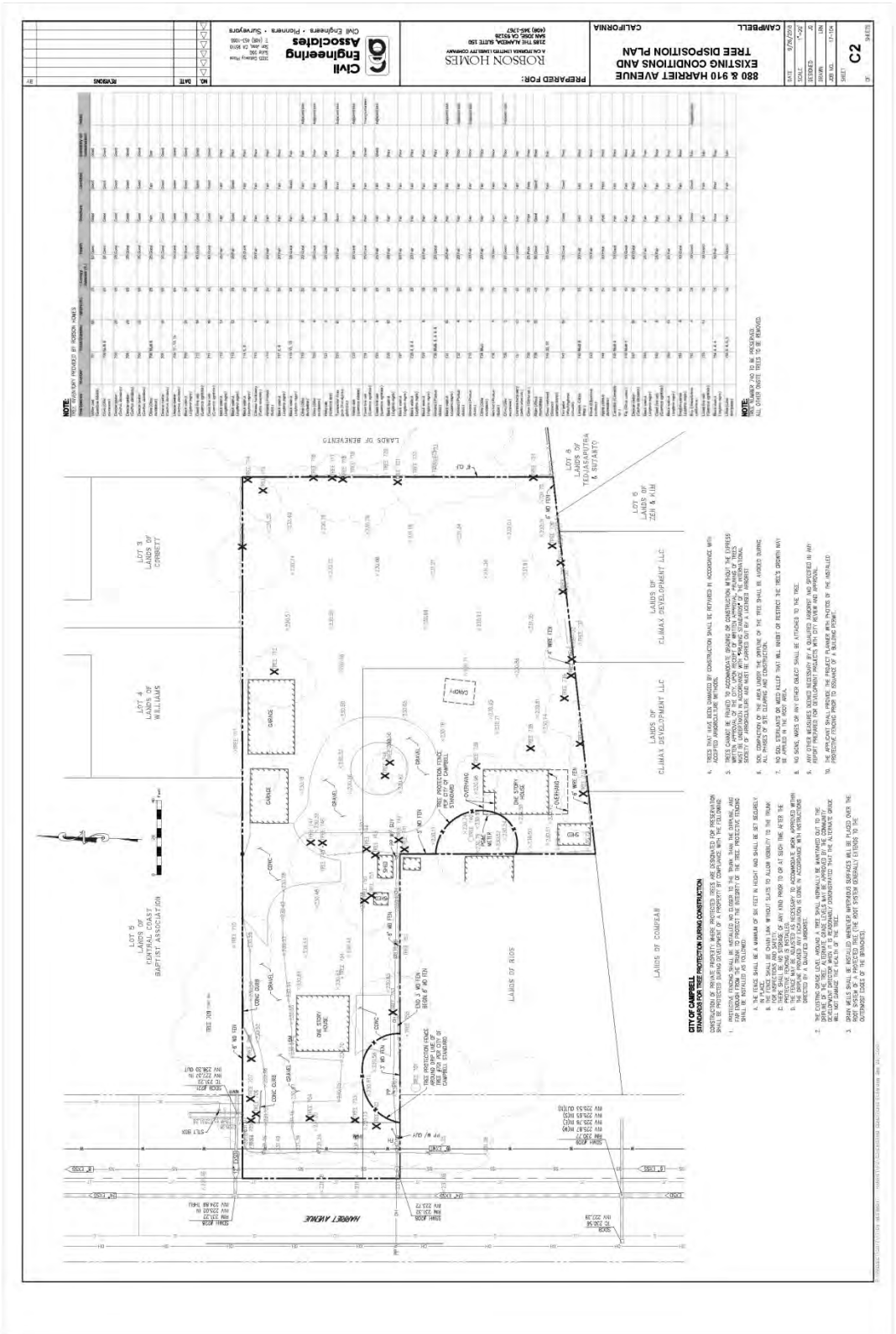
North: Public Assembly (P-F zoning) / Residential (R-1-6 zoning)
South: Residential (R-1-6 zoning)
East: Residential (R-6 zoning)
West: Harriet Avenue; Residential across (R-1-6 Zoning)

Project Data								
Lot	Lot Size (Sq. ft.)	Building Height (28-ft max)	Living Area		Garage Area	Total Building Area	FAR (.45 max)	Lot Coverage (40% max)
			1st Story	2nd Story				
1	6,709	26-feet	1,402	1,228	388	3,018	.45	30%
2	6,811	26-feet	1,402	1,228	388	3,018	.44	30%
3	6,707	26-feet	1,402	1,228	388	3,018	.45	30%
4	6,774	27-feet	1,515	1,117	416	3,048	.45	32%
5	6,774	27-feet	1,515	1,117	416	3,048	.45	32%
6	7,180	27-feet	1,515	1,117	416	3,048	.425	30%

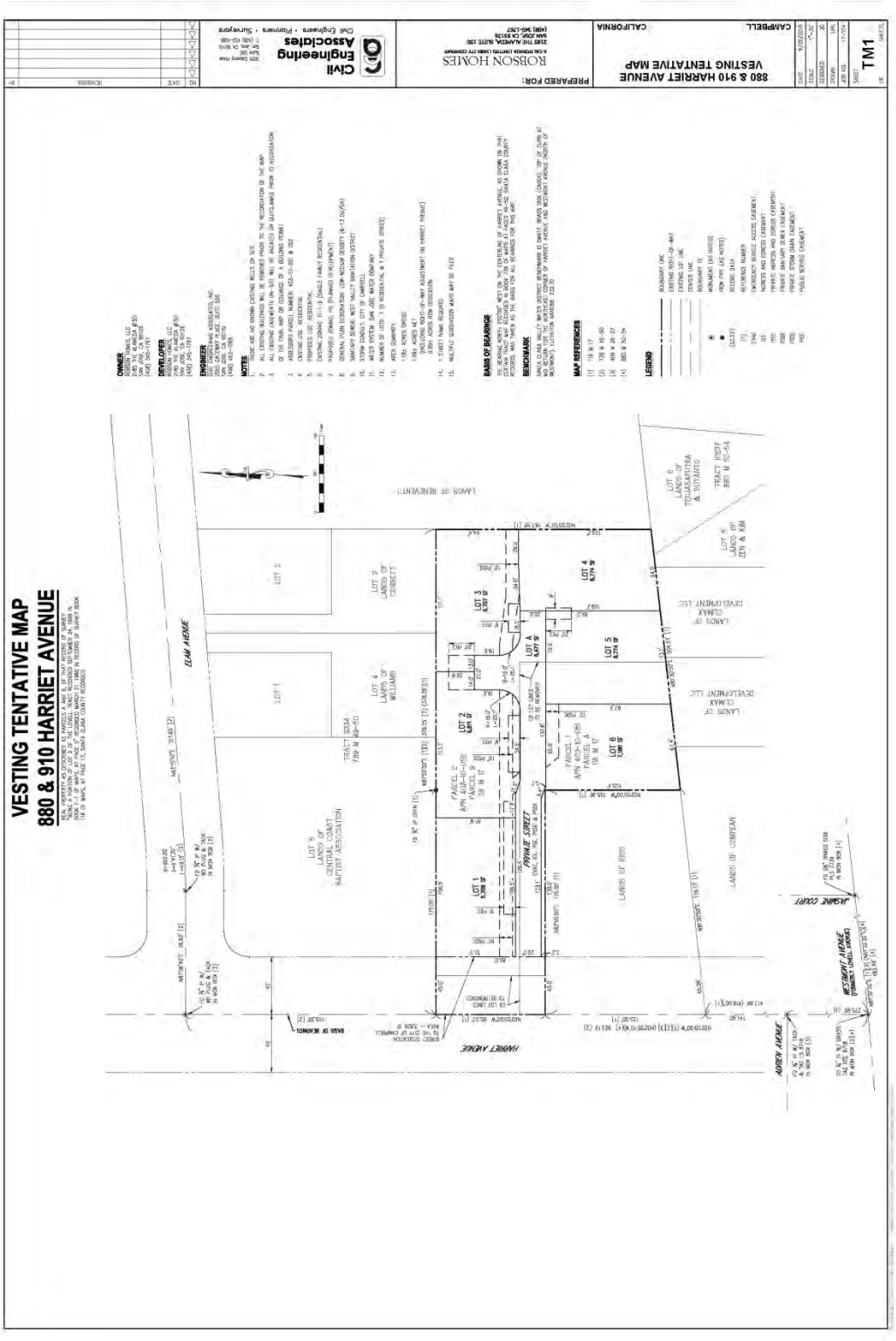
Location Map



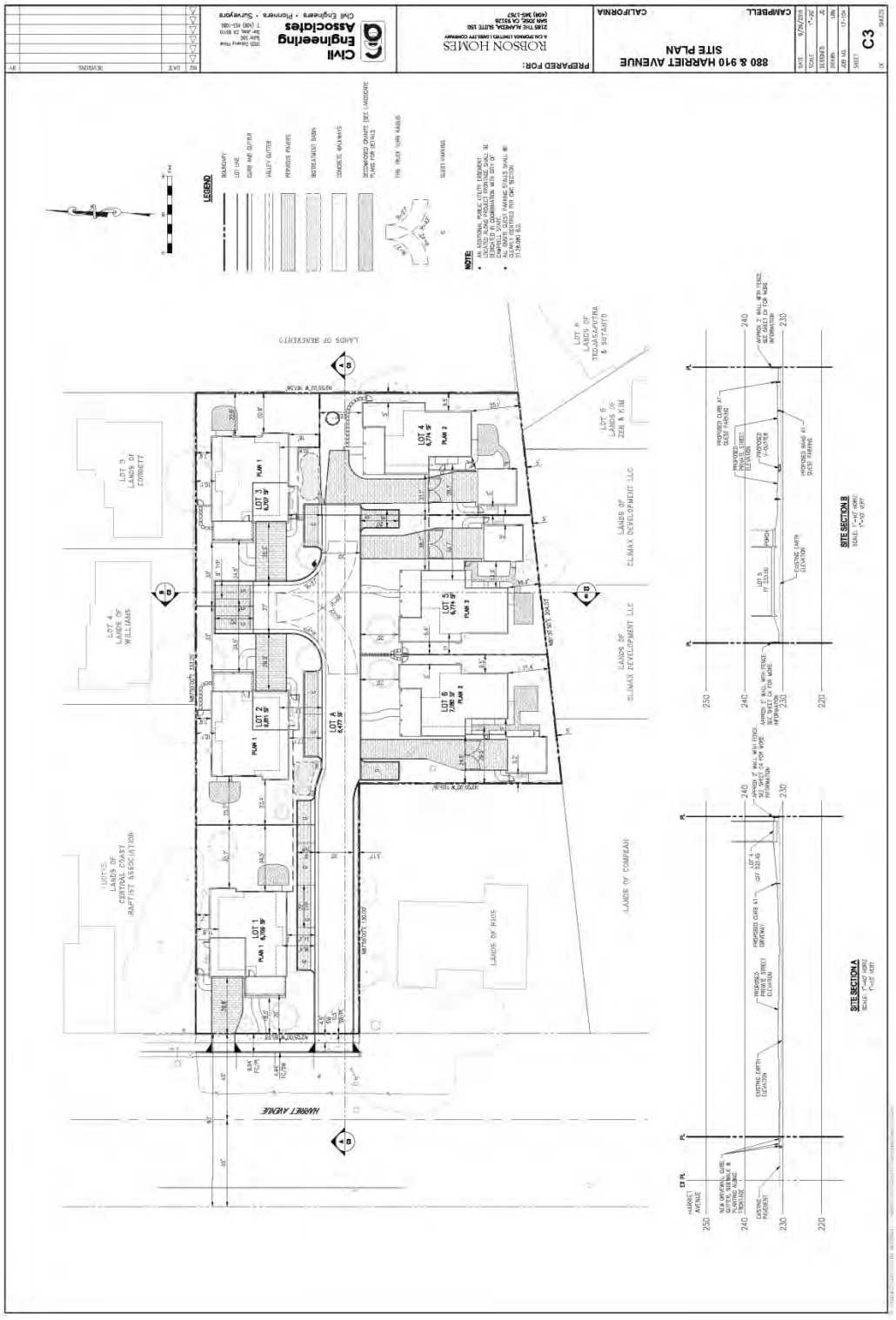
Existing Site Configuration



Tentative Subdivision Map

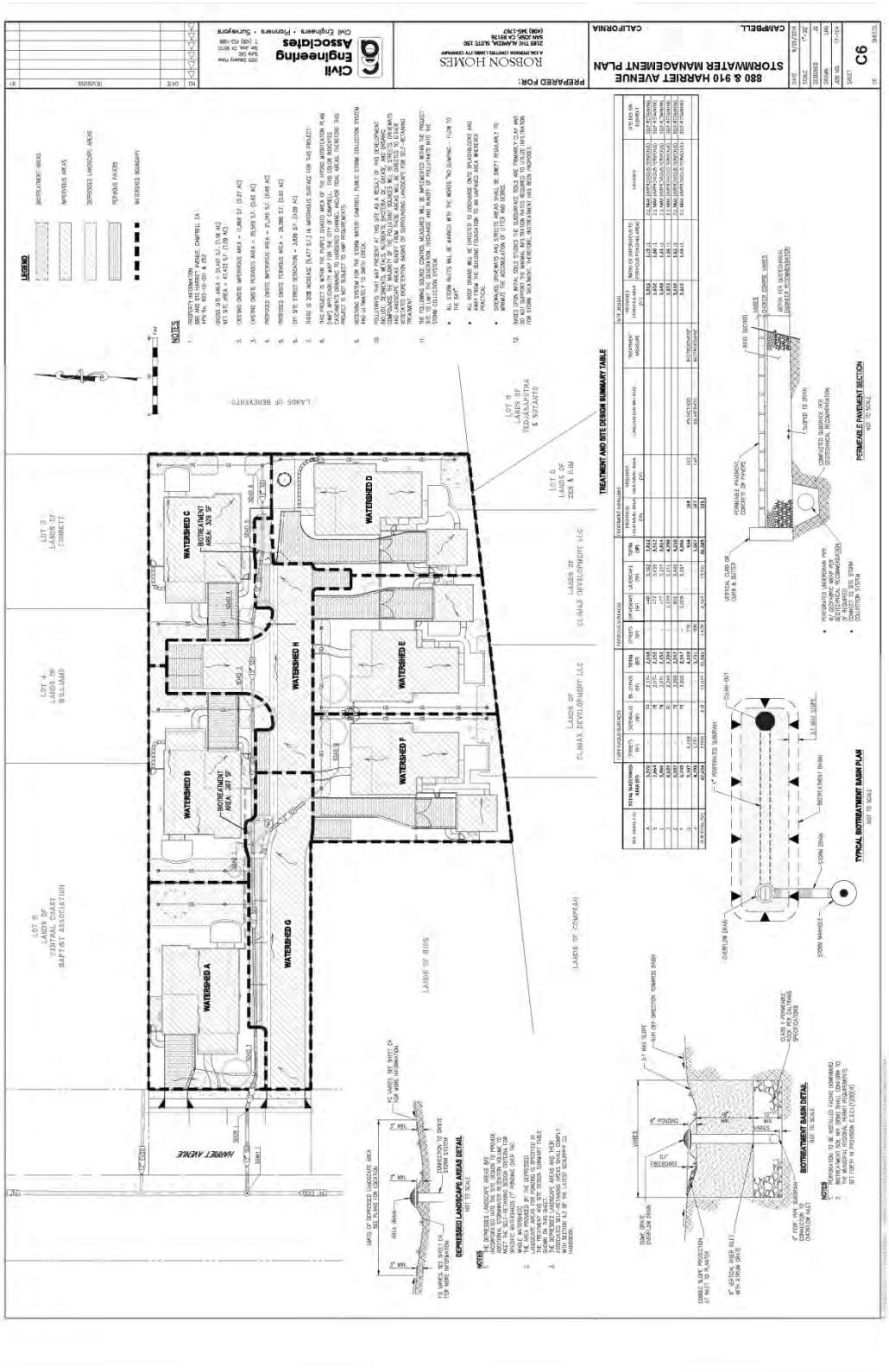


Preliminary Site Plan

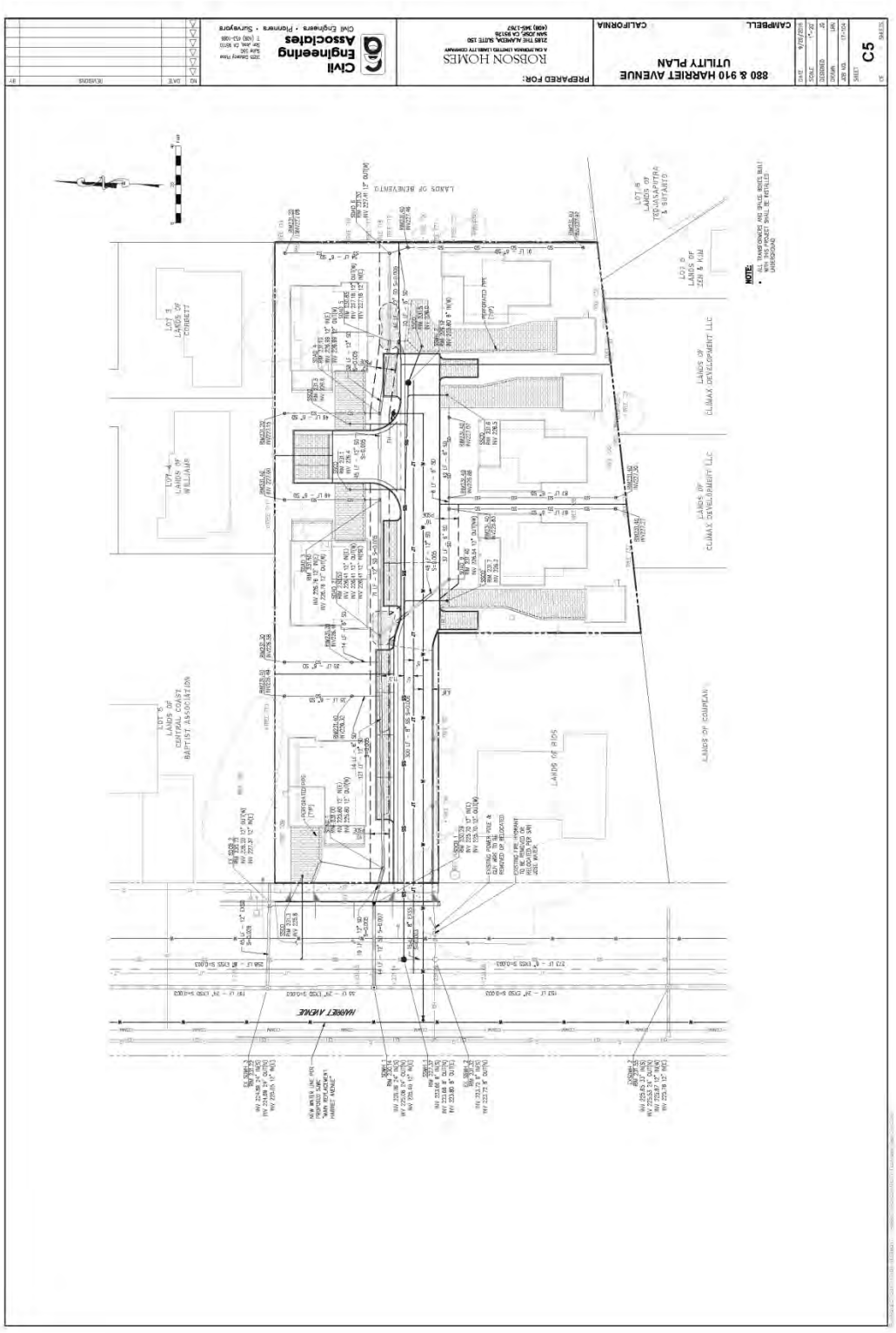


Preliminary Grading and Drainage Plan

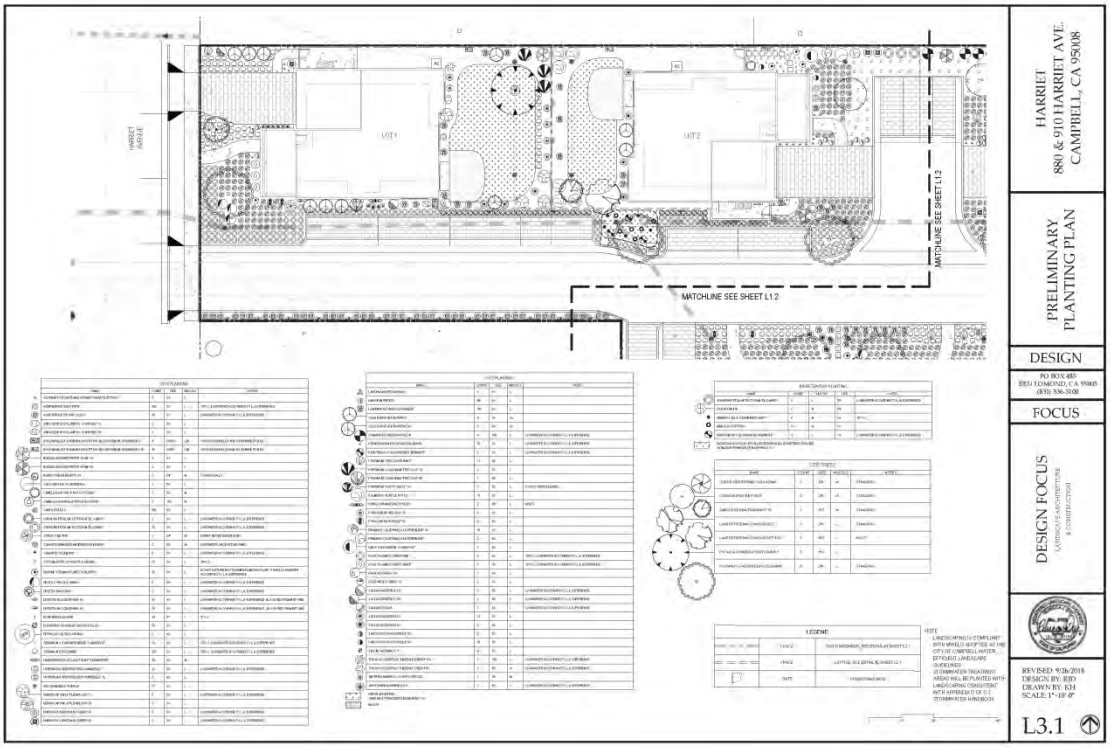
Preliminary Stormwater Treatment Plan

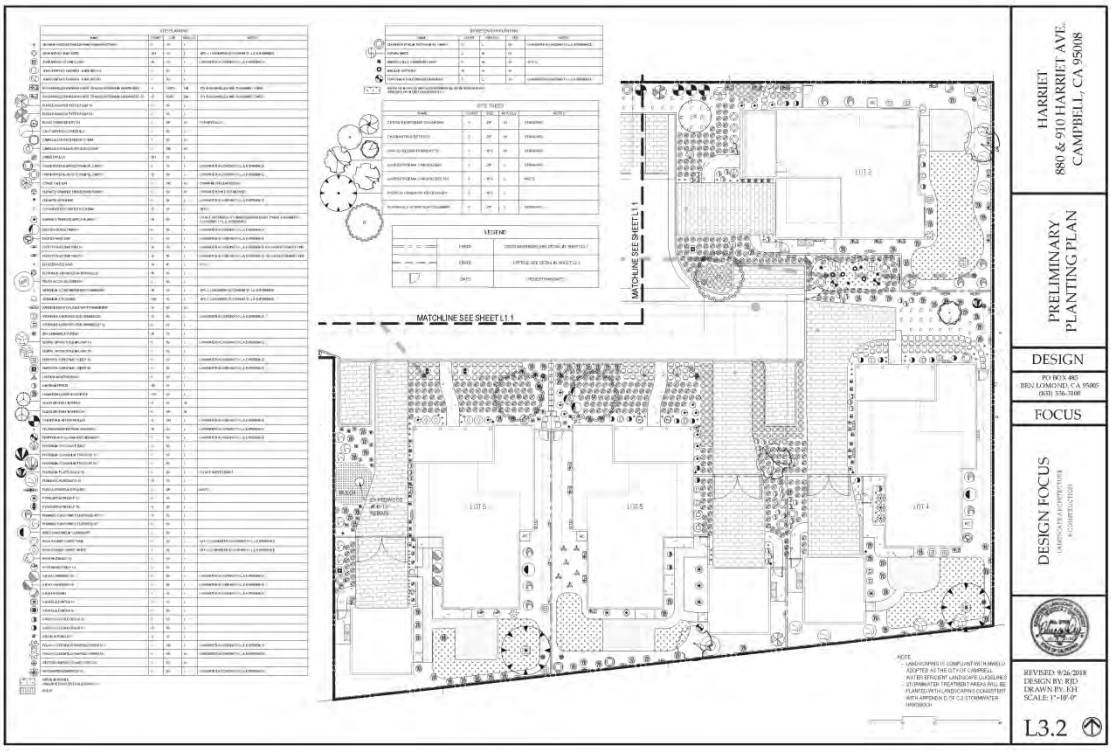


Preliminary Utility Plan



Preliminary Landscaping Plan





II. ENVIRONMENTAL IMPACT EVALUATION:

The following evaluation has been prepared to determine if the proposed project may result in a "significant impact" on the environment. For the purposes of this study, a significant impact means a substantial or potentially substantial change in the physical environment. The following terms used in the evaluation are defined as specified below:

> "**Potentially Significant Impact**" means that there is either substantial evidence that an effect may be significant or, due to lack of existing information, may have potential to be a significant effect.
>
> "**Less than Significant With Mitigation Incorporated**" means the incorporation of one or more mitigation measures can reduce the effect from potentially significant to a less than significant level.
>
> "**Less Than Significant Impact**" means that there is sufficient evidence available to determine that the effect is less than significant and no mitigation is necessary to reduce the impact to a lesser level.
>
> "**No Impact**" means that the effect does not apply to the proposed project, or clearly will not impact nor be impacted by the project.

A description of the proposed mitigation measures and the factual data or evidence used to reach conclusions regarding impact significance follows each section. The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Less Than Significant with Mitigation Incorporation" as indicated by the checklist on the following pages. The recommended mitigation measures are summarized in Section III: Summary of Mitigation Measures.

☐ Aesthetics	☐ Agricultural Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☐ Greenhouse Gas Emissions	☒ Hazards/Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral/Energy Resources	☒ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/ Circulation	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

1. AESTHETICS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
(d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

(a-c) – No Impact: The project will alter the existing visual character of the site and its surroundings through demolition of existing structures and eventual development of a six unit planned residential development. However, since the project site, nor any area, roadway or view-corridor in vicinity of the project site, is a recognized scenic vista or scenic resource, these activities will not result in an adverse environmental affect. Further, the project is subject to various policies and strategies of the Campbell General Plan and the Zoning Ordinance, intended to facilitate development that improves the visual character of the community through good design and site planning through an iterative design review and approval process which takes into account public input.

(d) – No Impact: Currently, the project site has very limited lighting associated with the existing single-family residence. New site lighting is anticipated to include down-lit fixtures for the new residences. As all new lighting is subject to the City's Lighting Design Standards (CMC Sec. 21.18.090)—which requires lighting to be designed and installed so that light rays are not emitted across property lines—the project would not result in new sources of substantial light or glare.

Mitigation Measures(s): None Required.

2. AGRICULTURAL RESOURCES

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
(b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
(c)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

(a-c) – No Impact: The project site may have historically been used for agricultural production, but is no longer used for, nor zoned for farmland or other agricultural or horticultural purpose. Neither the project site nor surrounding properties contain farmland or support agricultural activity that could be impacted by the project.

Mitigation Measure(s): None Required.

3. AIR QUALITY

Issues *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
(b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
(c)	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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
(d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
(e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

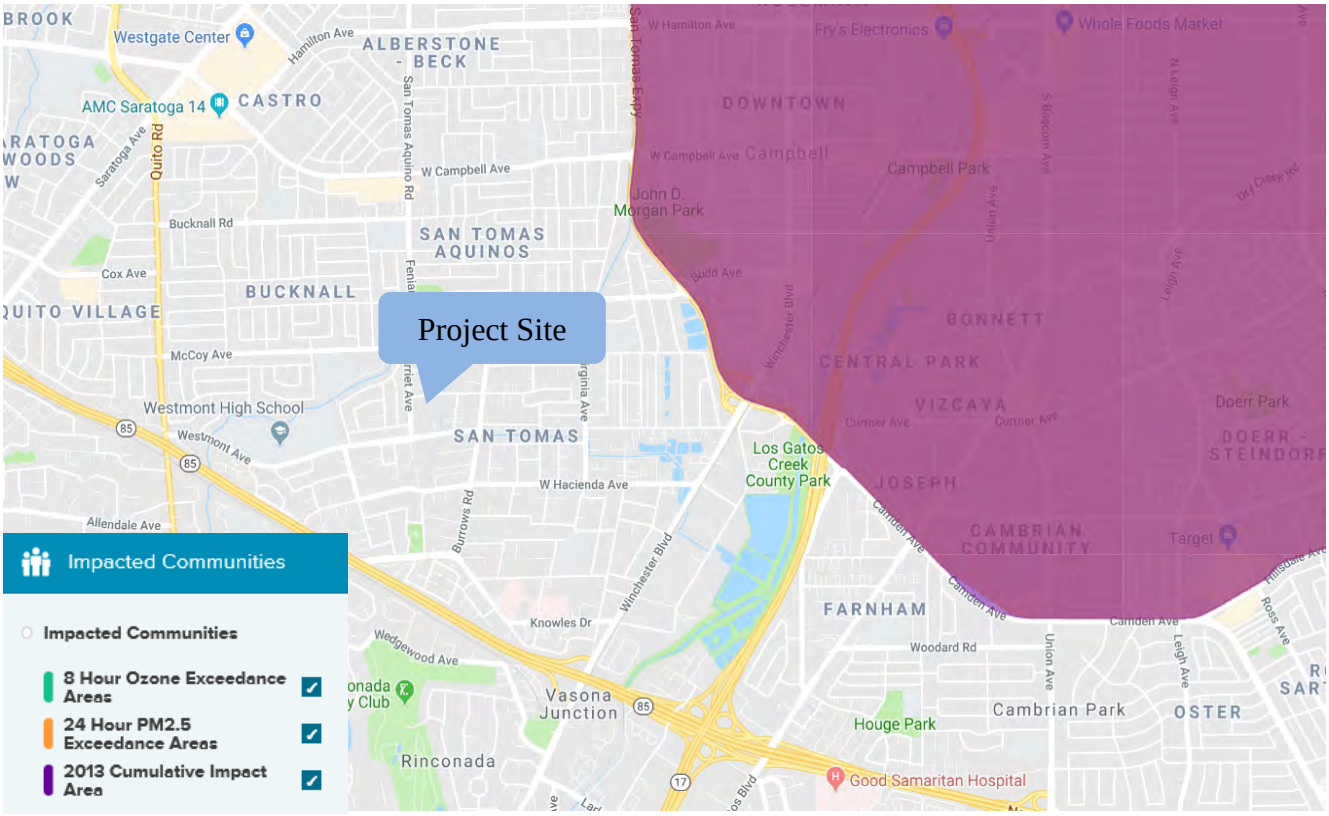
(a) – Less than Significant Impact: The proposed project consists of six single-family residences and would not increase regional population growth or cause changes in vehicle travel that would affect implementation of the Bay Area 2017 Final Clean Air Plan (CAP). Based on Bay Area Air Quality Management District (BAAQMD) criteria air quality will not be significantly impacted.

(b-c) – Less than Significant Impact with Mitigation: The BAAQMD's 2017 CEQA Guidelines (BAAQMD, May 2017) make recommendations for evaluation of activities that could impact air quality, including use of thresholds of significance and screening criteria developed by the BAAQMD (BAAQMD, May 2017). The BAAQMD screening levels are based on project size for air pollutant emissions. The applicable land use category from the BAAQMD's screening criteria tables for the project is "single-family." For operational impacts from criteria pollutants, the screening size is 325 dwelling units. For construction impacts, the screening size is 114 units. The project, which consists of six single-family residential units, is well below the BAAQMD significance thresholds for such uses and, therefore, the project would have a less than-significant air quality impact.

Construction activities would generate dust and equipment exhaust on a temporary basis. The BAAQMD identifies best management practices for all projects to limit air quality impacts during construction. The short-term air quality effects during project construction would be avoided with implementation of the measures prescribed by the BAAQMD (see ***Mitigation Measure AQ-1***).

(d) – Less than Significant Impact with Mitigation: The BAAQMD defines sensitive receptors as facilities where sensitive receptor population groups (e.g., children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses can include residences, hospitals, schools, child-care centers, retirement centers, convalescent homes, and medical clinics. The nearest off-site sensitive receptors include the occupants of residences located around the project site. While sensitive receptors do occur within a reasonable proximity to the site, the short-term air quality effects during project construction would be avoided with implementation of the measures prescribed by the BAAQMD (see ***Mitigation Measure AQ-1***) and the potential for hazardous particulates from demolition activities (e.g. lead-based paint (LBP) and Asbestos containing building materials (ACBM) would be mitigated (see ***Mitigation Measure HAZ-1***) to a less than significant level.

Furthermore, in consideration of ambient air quality conditions, the project site is located outside of a "Cumulative Impacted Area" as identified in the BAAQMD CARE (Community Air Risk Evaluation) Program Report Mapping Tool (reference map, below) and therefore does not require further analysis to reduce potential health impacts to future residents.



(d) – No Impact: No element of construction or normal activities associated with single-family residences would result in creation of objectionable odors.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure AQ-1*: BAAQMD Basic Dust Control Measures*. The construction contractor shall reduce construction-related air pollutant emissions by implementing BAAQMD's basic fugitive dust control measures, including:

- All active construction areas shall be watered twice daily or more often if necessary. Increased watering frequency shall be required whenever wind speeds exceed 15 miles-per-hour.
- Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads and parking and staging areas at construction sites.
- Cover stockpiles of debris, soil, sand, and any other materials that can be windblown. Trucks transporting these materials shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- Subsequent to clearing, grading, or excavating, exposed portions of the Site shall be watered, landscaped, treated with soil stabilizers, or covered as soon as possible.
- Installation of sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replanting of vegetation in disturbed areas as soon as possible after completion of construction.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the City of Campbell regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

4. BIOLOGICAL RESOURCES

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
(b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
(c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (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?	☐	☐	☐	☒

The following discussion is excerpted in part from Biological Resources Study, prepared by Live Oak Associates, Inc., for this project (reference **Attachment 1**).

(a-d) – Less than Significant Impact with Mitigation:

Jurisdictional Waters: No hydrologic features were observed to be present on the site; therefore, Waters of the U.S. and Waters of the State are absent from the site (e.g., wetlands, marsh, vernal pools, coastline, etc.). Thus, the project will have no impact on jurisdictional waters.

Special Status Plants: Due to its urban setting and lack of natural vegetation, the site provides no habitat for special status plants; therefore, special status plants are considered absent from the site, and the project will have no impact on special-status plants.

Special Status Wildlife: Most special status animal species would not occur on the site, or be unlikely to occur on the site, because habitats on the site are not suitable for them, the site is located outside of the species' known range, and/or there are no known occurrences in the vicinity of the site. However, a few special status species have been documented in the immediate project vicinity. These latter species, their likelihood to occur on the site, and any potential project impacts are discussed further below:

Townsend's Big-eared Bat, Pallid Bat and Other Bat Species.

The loss of habitat for Townsend's big-eared bats and pallid bats would not be considered significant due to the small size of the site and the low-quality foraging and potential roosting habitat provided by the site. However, impacts to individuals would be considered significant.

Some of the buildings and trees of the site provide potentially suitable roosting habitat for Townsend's Big-eared bats and pallid bats—both of which are species of concern by California Department of Fish and Wildlife (CDFW)—as well as for more common bat species likewise protected by the California Fish and Game Code while roosting. Trees of the site, including the fan palm which has a thick apron of fronds, and some of the oak trees of the site that have potentially suitable rot cavities, could provide limited day roost habitat for bats. The demolition of the onsite buildings and removal of potentially suitable trees, either during the breeding season when bats have the potential to establish maternal colonies or during the non-breeding season for species that form large colonies could result in the substantial mortality to bats. The mortality of individuals would constitute a significant adverse impact of the project. Such impacts are avoidable with the following measures contained in ***Mitigation Measure Bio-1.***

Nesting Migratory Birds

Many large trees and shrubs occur on and adjacent to the site which could be used by tree-nesting raptors and other migratory birds for breeding. Also, structures of the site support nesting migratory birds such as the black phoebe and mourning dove. Most nesting migratory birds, regardless of their federal and/or state endangerment status, are protected by state and federal laws. Therefore, development activities that adversely affect the nesting success of raptors and other migratory birds (i.e., building demolition, grading, and tree removal) or that result in the mortality of individual birds constitute a violation of state and federal laws. Such impacts are avoidable with the following measures contained in ***Mitigation Measure Bio-2***.

(e) – Less than Significant Impact with Mitigation:

The City of Campbell's Municipal Code, Chapter 21.32 protects certain trees located on private property. It establishes "policies, regulations and standards to protect and manage trees on private property, recognizing the substantial aesthetic, environmental, and economic importance of trees."

Section 21.32.050 (Protected Trees) provides guidance regarding which trees are protected and, therefore, require approval in the form of a tree removal permit:

> For trees on all commercial, industrial, multi-family residential, mixed-use, and undeveloped single-family residential properties in all zoning districts, any *tree* or multi- trunk *tree* with at least one trunk measuring twelve inches (12) or greater in diameter (thirty-eight [38] inches or greater in circumference), measured four (4) feet above the adjacent grade.

Trees smaller than the minimum threshold presented in Section 21.32.050, as well as fruit (common to food production) and eucalyptus trees are not subject to the City's tree protection ordinance.

Several trees on the site would be considered protected trees under the ordinance, and, although their removal would be considered a less-than-significant biological impact, a Tree Removal Permit is required for their removal. These trees include, but may not be limited to California black walnut, coast live oak, valley oak, coastal redwood (also those within a future right-of-way required for dedication as a condition of the project), deodar cedar, alder, and fan palm.

However, a large valley oak tree located on the adjacent property would overhang a portion of the project roadway. A "Tree Inventory, Assessment, and Protection" report prepared by Monarch Consulting Arborists (reference **Attachment 2**) for the project evaluated this tree for potential damage during construction. With incorporation of the measures identified in ***Mitigation Measure BIO-3***, potential damage to this tree would be kept to a less than significant level.

(f) – No Impact: No adopted Habitat Conservation Plan, Natural Community Conservation Plan or approved local, regional or state habitat conservation plans apply to the project or the project site.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure BIO-1: Avoidance measures that protect bat species from possible direct mortality will be warranted. Therefore, the project applicant will implement the following measures to ensure that mortality to special status bats from future ground disturbances is avoided:

- If practicable, site demolition should either be done between March 1 and April 15 or between August 15 and October 15 to avoid interfering with an active nursery and/or overwintering bats.

- Within 30-days of demolition and/or tree removal, a detailed bat survey should be conducted by a qualified biologist for the residence, out-buildings, and trees prior to demolition. If a non-breeding and non-wintering bat colony is found, the individuals should be humanely evicted via the partial dismantlement (i.e., the first of a two-step removal process typical of bat evictions) of the buildings or trees a day or two prior to demolition under the direction of a qualified biologist to ensure that no harm would occur to any bats as a result of demolition activities. Once it has been determined by a qualified biologist that the bats have safely evacuated the building, the remaining building/tree demolition can commence.

- Should the biologist not be able to visually access all potential roost areas (e.g., enclosed attic spaces), a night emergence survey may become necessary.

- If a maternity colony or overwintering colony is detected in the buildings or trees of the site, then the biologist will determine a suitable construction-free buffer to be established around the structure and to remain in place until it has been determined by the biologist that the nursery is no longer active.

Mitigation Measure BIO-2: Avoidance measures that protect nesting migratory bird species from possible direct mortality will be warranted. Project-related activities that occur during the breeding season could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season (February 1st through August 31st), pre-construction nesting bird surveys should be conducted by a qualified biologist to identify possible nesting activity within 14 calendar days prior to such activities. If project activities are subsequently delayed for more than 14-days during the breeding season then an additional survey would be needed to ensure nests have not established within the site, including project equipment, during the hiatus. A construction-free buffer of suitable dimensions must be established around any active raptor and migratory bird nest (up to

250 feet, depending on the location and species) for the duration of the project, or until it has been determined by a qualified biologist that the chicks have fledged and are foraging independently from their parents. The size and dimensions of the buffer is to be determined by a qualified biologist.

Mitigation Measure BIO-3: The following measures shall be implemented to protect the Valley Oak tree located on the adjacent property.

- Tree Protection Fence shall be placed in the area at the tree's drip line distance during the initial demolition of the site to prevent unnecessarily entering the area under the tree.

- The Project Arborist shall document the initial grading and any trenching or significant soil disturbance, including, trenching or boring for utilities.

- Do not use any mechanical trenching machinery or heavy equipment such as a back hoe.

- After opening up the trench, evaluate the size and volume of roots that will be impacted by the underground work.

- Roots greater than two inches in diameter should be cut clean "cut clean to a flat surface with all surrounding bark intact." If trenches are cut and tree roots two inches or larger are encountered they must be cleanly cut back to a sound wood lateral root. All exposed root areas shall be backfilled or covered within one hour. Roots greater than four inches in diameter should be left intact and only removed as authorized by the project arborist. Arborist should evaluate exposed roots to determine what can be root pruned and what must be retained.

- Use the thinest material possible to achieve structural compliance and use porous material that allows for water infiltration under the surface. **This shall specifically require use of pervious pavers (consistent with the overall project) at the entry of the project site driveway, to an extent determined by the Community Development Director**. Adjust the finished grade to be above the natural grade without digging for a sub-grade treatment. In this instance the pavement will be higher up and edge treatments or curbing also need to be constructed above grade. Alternatively use paving material that does not rely on the strength of a compacted sub-base for strength. This may be accomplished by reinforcing the surface layer material. Place geotextile fabric at the bottom of the sub-base to reduce displacement into the parent soil along with a reduction in compaction requirements. Use biaxial Tensar BX-1100 or equivalent to manufacturer specifications on grade.

- All tree maintenance and care shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: Tree, Shrub and Other Woody Plant Management: Standard Practices parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations. All maintenance is to be performed according to ISA Best Management Practices.

- Required tree pruning must be performed by a licensed contractor with a C-61/D-49 California Contractors License. Pruning specification shall be provided in writing

according to ANSI A300 Part 1 (Pruning) 2017 standards and limitations. All tree pruning shall be performed in accordance with ISA Best Management Practices: Tree Pruning 2008.

- Refer to Appendix D for general tree protection guidelines including recommendations for arborist assistance while working under trees, trenching, or excavation within a trees drip line or designated TPZ/CRZ.

- Provide a copy of this report to all contractors and project managers, including the architect, civil engineer, and landscape designer or architect. It is the responsibility of the owner to ensure all parties are familiar with this document.

- Arrange a pre-construction meeting with the project arborist or landscape architect to verify tree protection is in place, with the correct materials, and at the proper distances.

5. CULTURAL RESOURCES

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
(b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
(c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
(d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

(a) – No Impact: The project site does not contain known historical resources as defined in §15064.5 of the CEQA Guidelines.

(b-c) – Less than Significant Impact with Mitigation: The project site does not contain known archaeological, paleontological, or other cultural resources. However, should any cultural resources be discovered during project construction, the implementation of the ***Mitigation Measure CUL-1*** would reduce any potential impacts to a less than significant level.

(d) – Less than Significant Impact with Mitigation: No human remains are known to exist on the project site. However, should human remains be discovered during excavation or construction, the implementation of the ***Mitigation Measure CUL-2*** would reduce any potential impacts to a less than significant level.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

Mitigation Measure CUL-1: If archaeological or paleontological resources are encountered during excavation or construction, construction personnel shall be instructed to immediately suspend all activity in the immediate vicinity of the suspected resources and the City and a licensed archeologist or paleontologist shall be contacted to evaluate the situation. A licensed archeologist or paleontologist shall be retained to inspect the discovery and make any necessary recommendations to evaluate the find under current CEQA guidelines prior to the submittal of a resource mitigation plan and monitoring program to the City for review and approval prior to the continuation of any on-site construction activity.

Mitigation Measure CUL-2: In the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The City and the Santa Clara County Coroner's office shall be notified. If deemed prehistoric, the Coroner's office would notify the Native American Heritage Commission who would identify a "Most Likely Descendant (MLD)." The archeological consultant and MLD, in conjunction with the project sponsor, shall formulate an appropriate treatment plan for the find, which might include, but not be limited to, respectful scientific recording and removal, being left in place, removal and reburial on site, or elsewhere. Associated grave goods are to be treated in the same manner.

6. GEOLOGY AND SOILS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
	ii) Strong seismic ground shaking?	☐	☐	☒	☐
	iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
	iv) Landslides?	☐	☐	☒	☐
(b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
(c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
(d)	Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2016), creating substantial risks to life or property?	☐	☒	☐	☐
(e)	Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f)	Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐

(a) – Less than Significant Impact: The project site is located within the seismically active San Francisco Bay Area. According to maps prepared under the Alquist-Priolo Earthquake Fault Zone Act, there are no zoned active faults within the City of Campbell. Therefore, ground rupture is not likely to occur at the site. The nearest major earthquake faults are the Monte Vista Shannon Fault, San Andreas Fault, the Hayward-Rogers Creek Fault and the Calaveras Fault, all of which pose the greatest earthquake threat because of their high quake potential. The project will likely be subjected to at least one moderate to severe earthquake that will cause moderate to severe ground shaking during the useful life of the building. Because construction practices in the State of California—pursuant to the California Building Code—take into account that earthquakes could potentially damage buildings, they are designed to withstand moderate ground-shaking, resulting in a less than significant impact.

In regard to liquefaction, the geotechnical evaluation concluded that the property of liquefaction of the site is low due to the medium to dense sandy gravel. Lastly, according to the State Seismic Hazard Zones Map, the project site is not located in any hazard zone and therefore does not have the potential for liquefaction or earthquake-induced landslides.

(b) – No Impact: The project's preliminary grading, draining, and utility plan, indicates the project would include non-substantial grading, which would not result in substantial soil erosion or the loss of topsoil.

(c-d) – Less than Significant Impact with Mitigation: According to the Santa Clara County Geologic Hazard Zones Map, the project site is not geologically unstable and would not pose a risk of landslide, lateral spreading, subsidence, liquefaction or collapse. Additionally, a Geotechnical Investigation report prepared for this project (reference **Attachment 3**) evaluated the geotechnical conditions of the

site. The review included six exploratory drill borings drilled to depths ranging from 6 ½ feet to 45 feet below ground surface (to obtain samples for laboratory tests). Based on the results of the investigation the subject site was determined to be geotechnically suitable for the proposed development. With incorporation of ***Mitigation Measure GEO-1***—requiring compliance with all measures identified by the geotechnical report—the project would not be located soil that is unstable, or that would become unstable as a result of the project.

(e) – No Impact: The project would not involve the use of septic tanks or alternative waste water disposal systems.

(f) – Less than Significant Impact with Mitigation: As discussed in Section 5 (Cultural Resources), no unique paleontological resources or unique geological features are known to exist on the project site. However, should such resources exist, their disturbance would be a potentially significant impact. Incorporation of ***Mitigation Measure CUL-1*** will ensure that in such event, treatment of paleontological resources or unique geological features, would be conducted in an appropriate manner as to preserve their integrity.

Mitigation Measures(s): The following mitigation measures shall be incorporated into the project approval:

> ***Mitigation Measure GEO-1***: The applicant shall comply with the recommendations in the Geotechnical Investigation, dated June 27, 2018 prepared by Geo-Logic Associates dba Pacific Geotechnical Engineering. Such recommendations shall be incorporated into the project's final engineering design to prevent ponding of water in or near the building, ensure the conveyance of storm water away from the building, and avoid the saturation of foundation soils. The project shall use standard engineering techniques and conform to the requirements of the International Building Code to reduce the potential for seismic damage and risk to future occupants.

7. GREENHOUSE GAS EMISSIONS

Issues *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment?	☐	☐	☒	☐
(b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

(a) – Less than Significant Impact: The BAAQMD thresholds of significance and screening criteria also apply to greenhouse gases. For greenhouse gas impacts, the screening size for single-family residences is 56 dwelling units. The project, which consists of six single-family residential units, is well below the BAAQMD greenhouse gases threshold of significance for single-family residential land use, and thus the project would have a less-than-significant air quality impact with regards to greenhouse gases.

(b) – Less than Significant Impact: The City of Campbell has not adopted a Climate Action Plan or any comparable policy or regulation pertaining to the reduction or monitoring of greenhouse gases.

Mitigation Measure(s): None Required.

8. HAZARDS AND HAZARDOUS MATERIALS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 reasonable 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 one-quarter mile of an existing or proposed school?	☐	☒	☐	☐
(d)	Be located on a site which is included on a list of hazardous materials sites complied 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 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?	☐	☐	☐	☒
(f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
(g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
(h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

(a-b) – Less than Significant Impact with Mitigation: No routine transport, use or disposal of hazardous materials would be associated with the project. A slight hazardous potential would exist during the demolition of the existing structures (i.e., presence of lead and/or asbestos) and project construction when materials and construction equipment are at the site; however, long-term hazard risk is very low. With incorporation of ***Mitigation Measure HAZ-1***, which requires qualified contractors assess the presence of the lead and asbestos in order to property manage and dispose of such materials, the project would not create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Hazard risks during construction would be regulated by the City's standard conditions of approval and will be required to be performed in accordance with state and federal hazardous materials regulations and current Best Management Practices (BMP's) for construction activities. The use of toxic chemicals for landscaping (pesticides, herbicides, etc.) will not be above what is generally required for landscape maintenance and is not considered significant.

(c) – Less than Significant Impact with Mitigation: The project site is not known to have any existing or proposed schools within a quarter-mile of the project site. The operation of the project will not include hazardous emission or handling of hazardous or acutely hazardous materials, substances. Further, as discussed in Section 3 (Air Quality), construction and demolition related air pollutants that may constitute a hazard are regulated through Best Management Practices as required by City Ordinances and reiterated through ***Mitigation Measure AIR-1***.

(d) – No Impact: The project site is not listed on the Hazardous Waste and Substances Sites List (available at http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm) compiled pursuant to Government Code Section 65962.5, therefore it would not create a significant hazard to the public or the environment. Further the site is not listed as a past or present case (or informational item) on the State Water Resources Control Board GeoTracker website (https://geotracker.waterboards.ca.gov/). Lastly, Additionally, a Phase I Environmental Site Assessment (reference **Attachment 3**) did not identify any '"recognized environmental conditions"—meeting the standard set forth by American Society for Testing and Materials (ASTM)—that could be considered "significant effect" under CEQA (Guideline § 21068).

(e-f) – No Impact: The project site is not located within the Santa Clara County Airport Land Use Commission jurisdiction, within two miles of a public airport or within the vicinity of a private airstrip.

(g) – No Impact: The project would not interfere with emergency response or evacuation plans. Sufficient emergency access and emergency services staff would be provided for the project site in compliance with the State of California Building Code Standards and requirements of the Santa Clara County Fire and Health Departments.

(h) – No Impact: The project site is not located near any wildland areas and would not cause an increase in wildland fire hazard.

Mitigation Measure(s): The following mitigation measures shall be incorporated into the project approval:

> ***Mitigation Measure HAZ-1***: Prior to issuance of a demolition permit, a qualified contractor shall assess the property for presence of Lead-based paint (LBP) and Asbestos containing building materials (ACBM), and if present, prepare a plan, to the satisfaction of the Building Official, to properly manage and dispose of such materials.

9. HYDROLOGY AND WATER QUALITY

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
(b)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in a substantial erosion or siltation on- or off-site.	☐	☐	☐	☒
(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 substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
(d)	Create the potential for significant changes in the flow velocity or volume of stormwater runoff to cause environmental harm?	☐	☐	☐	☒
(e)	Create significant increases in erosion of the project site or surrounding areas?	☐	☐	☐	☒
(f)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
(g)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
(h)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
(i)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
(j)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
(k)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒
(l)	Potentially impact stormwater runoff from construction activities?	☐	☒	☐	☐
(m)	Potentially impact stormwater runoff from post-construction activities?	☐	☐	☒	☐
(n)	Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas?	☐	☐	☒	☐
(o)	Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters?	☐	☐	☒	☐
(p)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

(a) – No Impact: The project will be adequately served by existing water supplies, and will be served by the local area water utility as confirmed in written correspondence ("will serve" letter) by the San Jose Water Company (reference **Attachment 5**). No violations of any water quality standards are expected from the project. The project would not directly deplete groundwater supplies (no wells) or interfere substantially with groundwater recharge (the project is evaluated for the amount of proposed pervious and impervious area to maintain or improve upon existing conditions) such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

(b-e) – No Impact: The project would entirely alter the existing drainage pattern of the project site through re-grading to accommodate residential development. As discussed below, the project includes advanced stormwater treatment and retention that will prevent erosion, siltation, runoff related flooding, or increases in flow velocity or volume of stormwater runoff. The changes to the project site as a result of on-site improvements will not substantially alter the existing drainage pattern of the surrounding area, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site.

(**f-g, m-p**) **– Less than Significant Impact**: In compliance with Provision C.3 of the National Pollution Discharge Elimination System (NPDES), the project incorporates stormwater management measures. The project's stormwater treatment plan indicates use of private bio-retention areas (vegetated swales) that allow water to percolate into the ground through a passive (natural) infiltration medium before flowing to a central storm drain within the street. The proposed treatment system will treat and contain stormwater on-site and therefore not exceed the capacity of existing or planned storm water drainage systems, provide substantial additional sources of polluted stormwater runoff, otherwise substantially degrade water quality or violate any water quality standards or waste discharge requirements.

(h to i) – No Impact: According to the Federal Emergency Management Agency Flood Insurance Rate Maps (https://msc.fema.gov), the project site is located in Zone X, an area determined to be outside the 100-year annual chance floodplain.

(j and k) – No Impact: The project site is located downstream of Lexington Reservoir, in an area defined by the Association of Bay Area Governments as a dam failure inundation area. However, the project is only would not expose any additional people or structures to a new significant risk of loss, injury, or death involving flooding. Furthermore, as the project is not modifying flood protection measures or creating a condition where adjacent properties are exposed to a new significant risk of loss, injury or death involving flooding, no additional exposure to water-related hazards is expected as a result of the project construction or operation.

(l) – Less than Significant Impact with Mitigation: As discussed in Section 3 (Air Quality), construction and demolition activities are regulated through Best Management Practices as required by City ordinances and reiterated by ***Mitigation Measure AQ-1***, which is designed to limit air and water contamination related to construction activity. With the implementation of this measure, as well as ***Mitigation Measure HAZ-1*** which requires qualified contractors assess the presence of the lead and asbestos in order to property manage and dispose of such materials, the project would not create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Mitigation Measure(s): None Required.

10. LAND USE and PLANNING

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Physically divide an established community?	☐	☐	☐	☒
(b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
(c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

(a) – No Impact: Projects that have the potential to physically divide an established community typically include construction that would eliminate formal or informal travel ways through a property. No such pathways or other forms of informal access through the project site currently exist. Therefore, the project would not physically divide an established community.

(b) – No Impact: The Campbell General Plan Land Use Element Diagram and Campbell Zoning Map designate the project site as *Low Density Residential (less than 6 units/gr. acre)* and R-1-6 (Single-Family Residential), respectively. The project would result in the creation of six residential parcels and a common lot at a density of 5 units per gross acre and rezone the property to P-D (Planned Development) which allows for residential development within this density range. As such, the proposed subdivision would be consistent with the City of Campbell General Plan and Zoning Ordinance.

(c) – No Impact: No habitat conservation plan or natural community conservation plans are applicable to the project site.

Mitigation Measure(s): None Required.

11. MINERAL RESOURCES

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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-b) – No Impact: No known mineral resources are present at the project site.

Mitigation Measure(s): None Required.

12. NOISE

Issues *Would the project:*		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
(b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
(c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
(d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
(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 expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
(f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

(a-b) – Less than Significant Impact with Mitigation: The City's Noise Ordinance (CMC Sec. 21.16.070.E) provides the following noise exposure standards for new residential development:

- Noise from stationary sources. New residential development shall conform to a stationary source noise exposure standard of 65 dBA for exterior noise levels and 45 dBA for interior noise levels.
- Traffic-related noise. New residential development shall conform to a traffic-related noise exposure standard of 60 dBA CNEL for outdoor noise in noise-sensitive outdoor activity areas and 45 dBA CNEL for indoor noise.

As required by CMC Sec. 21.16.070, an Environmental Noise Study was prepared for this project (reference **Attachment 6**). The study identified that existing traffic-related noise along Hacienda Avenue reaches 64 dBA CNEL which may result in interior noise levels in excess of 45 dBNA CNEL, assuming windows/doors were open for ventilation. As such, study recommends that the entire window assembly be STC rated, not just the glass component. This recommendation has been incorporated as ***Mitigation Measure NOI-1***, below. In terms of outdoor noise exposure, the project includes traditional back yards which are considered "noise-sensitive outdoor activity areas". The Environmental Noise Study found that the backyards are expected to be below the 65 dBNA CNEL threshold, therefore no mitigation is required.

(c) – No Impact: Single-family residences are classified as sensitive receptors of noise, and to this extent do not themselves generate noise of any appreciable level. As such, the project would not result in increase in ambient noise within the vicinity of the project site.

(d) – Less than Significant Impact: Construction of single-family residences that will eventually result from the project will temporarily increase ambient noise levels in the project vicinity. However, future construction is governed by CMC Sec. 18.04.052, which limits construction activity from 8 AM to 5 PM., Monday through Friday, 9 AM to 4 PM on Saturday, and prohibits construction on Sunday or National Holidays. Additionally, loud environmentally disruptive noise over 50 dBA (e.g., air compressors without mufflers, continuously running motors or generators, loud playing musical

instruments or radios) is prohibited. As such, temporary ambient noise level increases associated with construction will be less than significant.

(e-f) – No Impact: The project is not located within the vicinity of an airport land use plan or within two miles of an airport. The project is not located within the vicinity of a private airstrip.

Mitigation Measure(s):

> ***Mitigation Measure NOI-1***: The entire window assembly shall be STC rated as recommended by the Environmental Noise Study prepared by prepared by Charles Salter and Associates.

13. POPULATION AND HOUSING

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Induce substantial 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)?	☐	☐	☐	☒
(b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
(c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

(a) – No Impact: The project will result in the construction of six single-family residential units on a property identified by the Campbell General Plan Housing Element as being suitable and appropriate for housing. The introduction of six single-family residences in a predominantly developed residential neighborhood represents only a nominal increase of population growth. There is no foreseeable indirect population growth associated with the project. The infrastructure provided to service the project site is designed to serve only the proposed residential units.

(b-c) – No Impact: The project will require the demolition of the existing residences occupied by the property owner and construction of six new residential units. Therefore the project will not result in the displacement of any people or housing units, which would necessitate the construction of replacement housing elsewhere.

Mitigation Measure(s): None Required.

14. PUBLIC SERVICES

	Issues *Would the project:*	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 or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	i) Fire Protection?	☐	☐	☒	☐
	ii) Police Protection?	☐	☐	☒	☐
	iii) Schools?	☐	☐	☒	☐
	iv) Parks?	☐	☐	☒	☐
	v) Other public facilities?	☐	☐	☒	☐

(a) – Less than Significant Impact: The project will require public services such as fire, police services, schools, open space, and street maintenance, commensurate with the scale of the project. The County Fire District, Campbell Police Department, City stakeholder agencies, and area school districts reviewed the project and determined services could be provided at an acceptable level. Existing parkland is sufficient to serve the residents of the project, as discussed in Section 15 (Recreation) and the developer will be required to pay park fees for the creation of new residential units less a credit for the removal existing units.

Mitigation Measure(s): None Required.

15. RECREATION

	Issues *Would the project:*	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) – Less than Significant Impact: Residents of the project are likely to access nearby recreational facilities. However, due to the limited scope and scale of the project, only a nominal increase in the use of City and regional parks and other recreational facilities can be expected as a result of the project. Moreover, the applicant will be required to pay park fees for the creation of new residential units less a credit for the removal existing units.

(b) – No Impact: The project does not any include recreational facilities.

Mitigation Measure(s): None Required.

16. TRANSPORTATION and TRAFFIC

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
(b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
(c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
(d)	Substantially increase hazards due to a design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(e)	Result in inadequate emergency access?	☐	☐	☐	☒
(f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	☐	☐	☐	☒

(a) – No Impact: The proposed project would maintain a residential land use consistent with the anticipated density of the General Plan Roadway Classification Diagram (Figure LUT-3).

(b) – No Impact: The project will not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

(**c) – No Impact**: The proposed public roadway is designed consistent with public roadway standards for residential streets as determined by the City Engineer and would not result in hazards due to a design features or incompatible uses.

(e) – No Impact: The project has been designed to comply with emergency access requirements of the Santa Clara Fire Department. The project plans include an emergency vehicle access plan that illustrates compliance with said standards. The County Fire Department has reviewed the project during the City's department review committee process and will again review the access routes during review of construction drawings.

(f) – No Impact: The project site is not in vicinity of any light-rail or comparable bus rapid transit (BRT) line and as a result is not subject to City policies encouraging alternative transporting solutions (e.g., provision of transit-passes, incorporation of bicycle parking, etc.). Additionally, the City's adopted requirements for alternative transportation solutions per CMC Sec. 21.28.070 require provision bicycle and clean-air vehicle parking only for non-residential development subject to the Green Building Standards Code (CALGreen). The project, therefore, will not conflict with adopted policies, plans, or programs supporting alternative transportation.

Mitigation Measure(s): None Required.

17. UTILITIES and SERVICE SYSTEMS

	Issues *Would the project:*	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
(b)	Require or result in the construction of new water or wastewater treatment or collection facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
(c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
(d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
(e)	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?	☐	☐	☒	☐
(f)	Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
(g)	Comply with federal, state, and local statutes and regulations related to solid wastes.	☐	☐	☒	☐

(a-b) – Less than Significant Impact: The project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board; require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. The West Valley Sanitation District has provided written correspondence ("will serve" letter) which indicates that the sewer facilities are adequate to support the site.

(c) – Less than Significant Impact: The stormwater runoff generated by the project site would be collected and treated on-site in compliance with Provision C.3 of the National Pollution Discharge Elimination System (NPDES) requirements as discussed in Section 9 (Hydrology and Water Quality) and will not require expansion or construction of new stormwater treatment facilities.

(d) – Less than Significant Impact: The project will be adequately served by the existing water supplies, as confirmed in written correspondence ("will serve" letter) by San Jose Water Company, the local area water utility (reference **Attachment 5**).

(e) – Less than Significant Impact: The project would connect to the existing waste water treatment system, which currently has sufficient capacity to receive the additional waste water generated from the proposed project. Therefore, the project would not impact the ability of the waste water treatment provider (West Valley Sanitation District) to meet its current commitments for service.

(f-g) – Less than Significant Impact: Existing capacity at local landfills can accommodate the amount of waste generated as a result of project operation. The project would comply with Federal, State and local statutes and regulations related to solid waste.

Mitigation Measure(s): None Required.

18. MANDATORY FINDINGS OF SIGNIFICANCE

	Issues	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project have the potential to 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, 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)	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?)	☐	☐	☒	☐
(c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

(a) – Less than Significant Impact: Based on the findings of the Initial Study, construction and operation of the project, with mitigation, would not substantially degrade the quality the environment; reduce the habitat, population, or range of species; nor eliminate important examples of California history or prehistory.

(b) – Less than Significant Impact: Based on the findings of this Initial Study, the project would not have individual or cumulative environmental impacts that cannot be mitigated to a less than significant level.

(c) – Less than Significant Impact: Based on the findings of the Initial Study, there is no evidence to demonstrate that the project would cause a substantial adverse effect on human beings, either directly or indirectly.

Mitigation Measure(s): None Required.

III. SUMMARY OF MITIGATION MEASURES

1. **Aesthetics**: None Required

2. **Agricultural Resources**: None Required

3. **Air Quality**: One mitigation measure is required:

   Mitigation Measure AQ-1*: BAAQMD Basic Dust Control Measures*. The construction contractor shall reduce construction-related air pollutant emissions by implementing BAAQMD's basic fugitive dust control measures, including:

   - All active construction areas shall be watered twice daily or more often if necessary. Increased watering frequency shall be required whenever wind speeds exceed 15 miles-per-hour.
   - Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads and parking and staging areas at construction sites.
   - Cover stockpiles of debris, soil, sand, and any other materials that can be windblown. Trucks transporting these materials shall be covered.
   - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
   - Subsequent to clearing, grading, or excavating, exposed portions of the Site shall be watered, landscaped, treated with soil stabilizers, or covered as soon as possible.
   - Installation of sandbags or other erosion control measures to prevent silt runoff to public roadways.
   - Replanting of vegetation in disturbed areas as soon as possible after completion of construction.
   - Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear signage shall be provided for construction workers at all access points.
   - All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
   - Post a publicly visible sign with the telephone number and person to contact at the City of Campbell regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

4. **Biological Resources**: Three mitigation measures are required:

   Mitigation Measure BIO-1: Avoidance measures that protect bat species from possible direct mortality will be warranted. Therefore, the project applicant will implement the following

measures to ensure that mortality to special status bats from future ground disturbances is avoided:

- If practicable, site demolition should either be done between March 1 and April 15 or between August 15 and October 15 to avoid interfering with an active nursery and/or overwintering bats.
- Within 30-days of demolition and/or tree removal, a detailed bat survey should be conducted by a qualified biologist for the residence, out-buildings, and trees prior to demolition. If a non-breeding and non-wintering bat colony is found, the individuals should be humanely evicted via the partial dismantlement (i.e., the first of a two-step removal process typical of bat evictions) of the buildings or trees a day or two prior to demolition under the direction of a qualified biologist to ensure that no harm would occur to any bats as a result of demolition activities. Once it has been determined by a qualified biologist that the bats have safely evacuated the building, the remaining building/tree demolition can commence.
- Should the biologist not be able to visually access all potential roost areas (e.g., enclosed attic spaces), a night emergence survey may become necessary.
- If a maternity colony or overwintering colony is detected in the buildings or trees of the site, then the biologist will determine a suitable construction-free buffer to be established around the structure and to remain in place until it has been determined by the biologist that the nursery is no longer active.

Mitigation Measure BIO-2: Avoidance measures that protect nesting migratory bird species from possible direct mortality will be warranted. Project-related activities that occur during the breeding season could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season (February 1st through August 31st), pre-construction nesting bird surveys should be conducted by a qualified biologist to identify possible nesting activity within 14 calendar days prior to such activities. If project activities are subsequently delayed for more than 14-days during the breeding season then an additional survey would be needed to ensure nests have not established within the site, including project equipment, during the hiatus. A construction-free buffer of suitable dimensions must be established around any active raptor and migratory bird nest (up to 250 feet, depending on the location and species) for the duration of the project, or until it has been determined by a qualified biologist that the chicks have fledged and are foraging independently from their parents. The size and dimensions of the buffer is to be determined by a qualified biologist.

Mitigation Measure BIO-3: The following measures shall be implemented to protect the Valley Oak tree located on the adjacent property.

- Tree Protection Fence shall be placed in the area at the tree's drip line distance during the initial demolition of the site to prevent unnecessarily entering the area under the tree.
- The Project Arborist shall document the initial grading and any trenching or significant soil disturbance, including, trenching or boring for utilities.
- Do not use any mechanical trenching machinery or heavy equipment such as a back hoe.

- After opening up the trench, evaluate the size and volume of roots that will be impacted by the underground work.
- Roots greater than two inches in diameter should be cut clean "cut clean to a flat surface with all surrounding bark intact." If trenches are cut and tree roots two inches or larger are encountered they must be cleanly cut back to a sound wood lateral root. All exposed root areas shall be backfilled or covered within one hour. Roots greater than four inches in diameter should be left intact and only removed as authorized by the project arborist. Arborist should evaluate exposed roots to determine what can be root pruned and what must be retained.
- Use the thinest material possible to achieve structural compliance and use porous material that allows for water infiltration under the surface. This shall specifically require use of pervious pavers (consistent with the overall project) at the entry of the project site driveway, to an extent determined by the Community Development Director. Adjust the finished grade to be above the natural grade without digging for a sub-grade treatment. In this instance the pavement will be higher up and edge treatments or curbing also need to be constructed above grade. Alternatively use paving material that does not rely on the strength of a compacted sub-base for strength. This may be accomplished by reinforcing the surface layer material. Place geotextile fabric at the bottom of the sub-base to reduce displacement into the parent soil along with a reduction in compaction requirements. Use biaxial Tensar BX-1100 or equivalent to manufacturer specifications on grade.
- All tree maintenance and care shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: Tree, Shrub and Other Woody Plant Management: Standard Practices parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations. All maintenance is to be performed according to ISA Best Management Practices.
- Required tree pruning must be performed by a licensed contractor with a C-61/D-49 California Contractors License. Pruning specification shall be provided in writing according to ANSI A300 Part 1 (Pruning) 2017 standards and limitations. All tree pruning shall be performed in accordance with ISA Best Management Practices: Tree Pruning 2008.
- Refer to Appendix D for general tree protection guidelines including recommendations for arborist assistance while working under trees, trenching, or excavation within a trees drip line or designated TPZ/CRZ.
- Provide a copy of this report to all contractors and project managers, including the architect, civil engineer, and landscape designer or architect. It is the responsibility of the owner to ensure all parties are familiar with this document.
- Arrange a pre-construction meeting with the project arborist or landscape architect to verify tree protection is in place, with the correct materials, and at the proper distances.

5. **Cultural Resources**: Two mitigation measures are required:

   Mitigation Measure CUL-1: If archaeological or paleontological resources are encountered during excavation or construction, construction personnel shall be instructed to immediately suspend all activity in the immediate vicinity of the suspected resources and the City and a licensed archeologist or paleontologist shall be contacted to evaluate the situation. A licensed archeologist or paleontologist shall be retained to inspect the discovery and make any necessary recommendations to evaluate the find under current CEQA guidelines prior to the submittal of a resource mitigation plan and monitoring program to the City for review and approval prior to the continuation of any on-site construction activity.

   Mitigation Measure CUL-2: In the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The City and the Santa Clara County Coroner's office shall be notified. If deemed prehistoric, the Coroner's office would notify the Native American Heritage Commission who would identify a "Most Likely Descendant (MLD)." The archeological consultant and MLD, in conjunction with the project sponsor, shall formulate an appropriate treatment plan for the find, which might include, but not be limited to, respectful scientific recording and removal, being left in place, removal and reburial on site, or elsewhere. Associated grave goods are to be treated in the same manner.

6. **Geology and Soils**: One mitigation measure is required:

   Mitigation Measure GEO-1: The applicant shall comply with the recommendations in the Geotechnical Investigation, dated June 27, 2018 prepared by Geo-Logic Associates dba Pacific Geotechnical Engineering. Such recommendations shall be incorporated into the project's final engineering design to prevent ponding of water in or near the building, ensure the conveyance of storm water away from the building, and avoid the saturation of foundation soils. The project shall use standard engineering techniques and conform to the requirements of the International Building Code to reduce the potential for seismic damage and risk to future occupants.

7. **Greenhouse Gas Emissions:** None Required

8. **Hazards and Hazardous Materials**:

   Mitigation Measure HAZ-1: Prior to issuance of a demolition permit, a qualified contractor shall assess the property for presence of Lead-based paint (LBP) and Asbestos containing building materials (ACBM), and if present, prepare a plan, to the satisfaction of the Building Official, to properly manage and dispose of such materials.

9. **Hydrology and Water Quality**: Refer to ***Mitigation Measure AQ-1*** and ***Mitigation Measure HAZ-1*.**

10. **Land Use and Planning**: None Required

11. **Mineral Resources**: None Required

12. Noise: One mitigation measure is required:

Mitigation Measure NOI-1: The entire window assembly shall be STC rated as recommended by the Environmental Noise Study prepared by prepared by Charles Salter and Associates.

13. Population and Housing: None Required

14. Public Services: None Required

15. Recreation: None Required

16. Transportation and Traffic: None Required

17. Utilities and Service Systems: None Required

18. Mandatory Findings of Significance: None Required

Determination: On the basis of this initial evaluation, and incorporation of the recommended mitigation measures into the project design:

1.	I find that the project **could not** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.	☐
2.	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.	☒
3.	I find the proposed project **may have a significant effect** on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.	☐
4.	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.	☐
5.	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or Negative Declaration pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	☐

Daniel Fama
PROJECT PLANNER

Senior Planner
TITLE

City of Campbell
AGENCY

SIGNATURE

October 10, 2018
DATE

IV. REFERENCE MATERIALS

Attachments (May be viewed at http://www.ci.campbell.ca.us/Archive.aspx?AMID=48):

1. Biological Resources Study by Live Oaks Associates, Inc., dated June 28, 2018
2. Tree Inventory, Assessment, and Protection Report by Monarch Consulting Arborists, dated September 4, 2018
3. Geotechnical Investigation by Geo-Logic Associates, dated June 27, 2018
4. Phase I Environmental Site Assessment by Ramboll US Corporation, dated August 31, 2018
5. Will Serve Letters (WVSD, PG&E, & San Jose Water)
6. Environmental Noise Study by Charles M. Salter and Associates, dated June 26, 2018

Reference Documents:

1. Bay Area Air Quality Management District (BAAQMD). (Adopted) April 19, 2017. Final 2017 Clean Air Plan (CAP).
2. Bay Area Air Quality Management District (BAAQMD). May 2017. California Environmental Quality Act Air Quality Guidelines. Table 2-1. Air Quality CEQA Thresholds of Significance. (Including Risk and Hazards for new sources and receptors).
3. Bay Area Air Quality Management District (BAAQMD). Accessed online in November 2017. Tools and Methodologies, BAAQMD CEQA Air Quality Risks and Hazards Analysis Tools. (various online risks and hazards screening analysis tools) (Primary Webpage [with links to various online screening tools]. http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools (accessed online).
4. Hazardous Waste & Substances Sites List. http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm (accessed online)
5. State Water Resources Control Board Geotracker data management system. https://geotracker.waterboards.ca.gov/ (accessed online)
6. State Water Resource Control Board: https://geotracker.waterboards.ca.gov/ (accessed online)
7. State of California, Seismic Hazard Zones Map, San Jose West Quadrangle, February 7, 2002. http://www.conservation.ca.gov/cgs/shzp (accessed online)
8. California Natural Diversity Database, 2000.
9. CEQA Guidelines, 2017 version. http://www.califaep.org/images/ceqa/statute-guidelines/2017/CEQA_Handbook_2017_with_covers.pdf (accessed online)
10. City of Campbell General Plan.
11. City of Campbell Zoning Code.

ATTACHMENT 1

BIOLOGICAL RESOURCES STUDY

LIVE OAK ASSOCIATES, INC.
an Ecological Consulting Firm

June 28, 2018

Mr. Richard Yee
Robson Homes
2185 The Alameda, Suite 150
San Jose, CA 95126

RE: Biological Resources Study of the Harriet Avenue project site, City of Campbell, Santa Clara County, California (PN 2285-01).

Dear Mr. Yee:

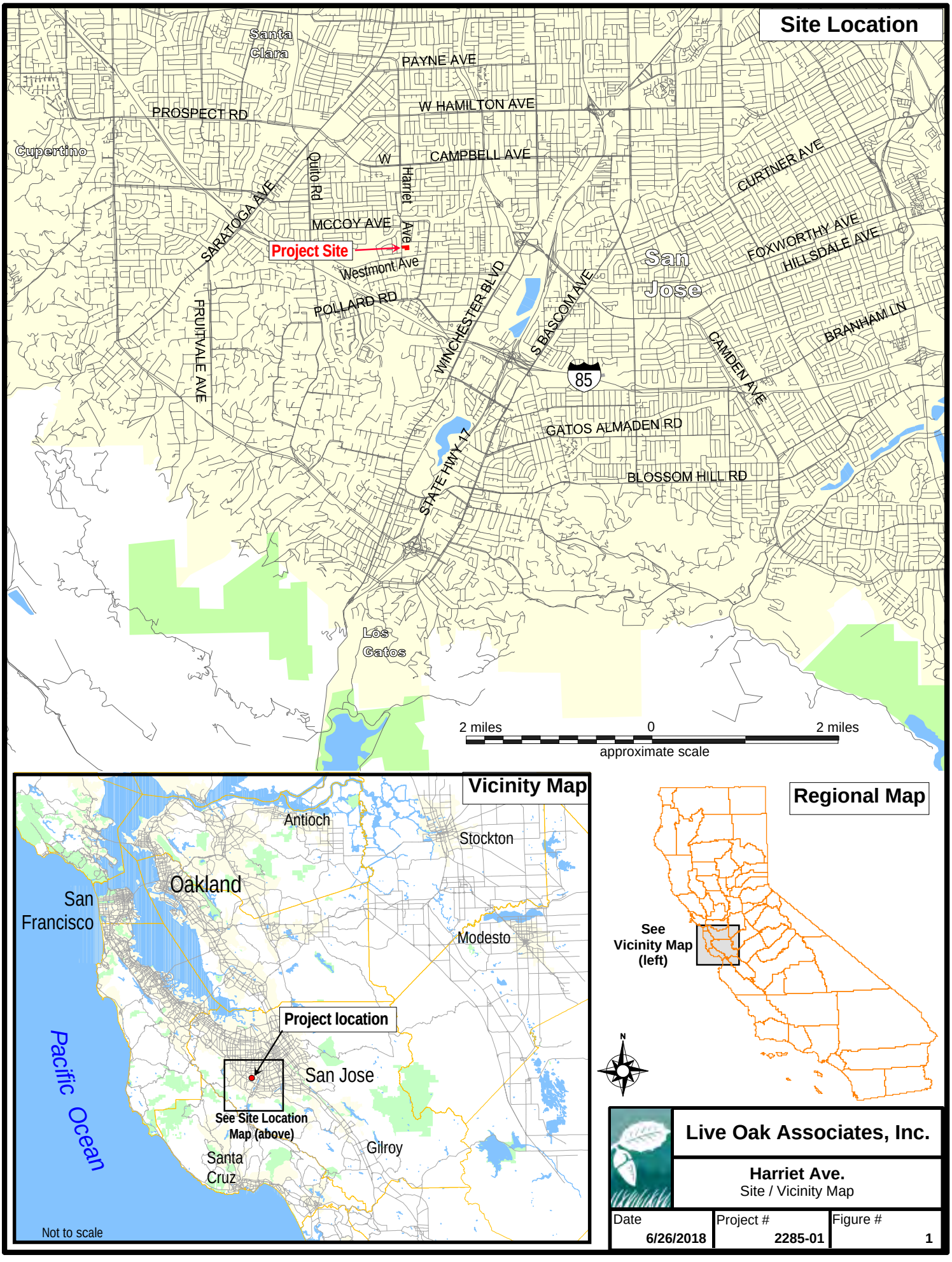
At your request, Live Oak Associates, Inc. (LOA) completed a biological resource evaluation of the approximately 1.18-acre (gross) property located at 880 and 910 Harriet Avenue, in the City of Campbell, California (Figure 1). The project site is comprised of two parcels: APN 403-10-051 and 403-10-052. As we understand it, the proposed project involves the subdivision of the existing property to allow for the development of six single family homes and roadway. It appears that the project will include removal of all structures and vegetation within the project site.

LOA ecologist Nathan Hale conducted a reconnaissance-level site visit on June 25, 2018. The primary objective of the site visit was to: 1) identify the constituent species and habitats of the site and 2) assess the potential of the site to support sensitive habitats (e.g., wetland and riparian habitats) or suitable habitat for special status plant or animal species. Background sources of information reviewed in the preparation of this analysis included the Natural Resource Conservation Service's websoil survey (NRCS 2018), the *California Natural Diversity Data Base* (CDFW 2018a; accessed April 17, 2018), special status species lists prepared by the California Department of Fish and Wildlife (CDFW 2018b), U.S. Fish and Wildlife Service (USFWS 2018), and California Native Plant Society (CNPS 2018), and manuals and references related to plants and animals found in and around Santa Clara County.

EXISTING CONDITIONS

Regional Setting

The approximately 1.18-acre site is located within an urban/residential setting in the south western portion of the City of Campbell. The site is generally located about 0.2 miles to the southwest from San Tomas Aquinas Creek and 0.6 miles northeast of SR 85, and 1.55 miles northwest of Highway 17. A channelized creek, Smith Creek, occurs approximately 270 feet to the east. The site contains low density residential development with scattered sheds, barns, and other structures, and the site is boundary to the north, east, and south is fenced with chain-link



Live Oak Associates, Inc.		
Harriet Ave. Site / Vicinity Map		
Date **6/26/2018**	Project # **2285-01**	Figure # **1**

fencing. The project site is located in the San Jose West 7.5" U.S. Geological Survey (USGS) quadrangle. The site is topographically level, at approximately 232 ft. (71 m) National Geodetic Vertical Datum (NGVD). Surrounding land uses include residential development to the north, west, and south, and a vacant lot to the east. Residential development is a mix of older, low-density residences and newer high density residences.

Soils

Two soil types occur on the site: Urbanland/Flaskan complex, 0 to 2 percent slopes and Urbanland/Botella complex, 0 to 2 percent slopes (NRCS 2018). Neither of these soil types are known to support edaphic plant species such as serpentine species or species that require highly alkaline or highly acidic conditions. Also, both are considered to be highly disturbed by human activities.

Habitats

The site consists of two land types: developed/landscaped and ruderal/annual grassland. These are described in greater detail below.

Developed/Landscaped. The site currently contains existing development in the form of two houses, two garage structures, and various sheds and shade structures. A driveway, composed of a mix of pavement and gravel, provides access to both houses. Various intentional plantings in the forms of mature trees, fruit trees, shrubs, and vines occur throughout the property. All structures on the property are generally older and each is a single story building. The residences are both actively occupied by families.

Trees occurring within landscaped areas of the site included deodar cedar (*Cedrus deodara*), lemon (*Citrus sp.*), blue gum (*Eucalyptus globulus*), black walnut (*Juglans nigra*), olive (*Olea europaea*), almond (*Prunus dulces*), coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), coast redwood (*Sequoia sempervirens*), and fan palm (*Washingtonia filifera*). Other shrubs and plants observed included, but were not limited to aloe vera (*Aloe sp.*), English ivy (*Hedera helix*), and periwinkle (*Vinca* sp.). Non-native weed species typical of the ruderal annual grassland portion of the site also contributed to the understory.

Animal species observed within the developed areas of the site were predominantly birds including American crow (*Corvus brachyrhynchos*), Bewick's wren (*Thryomanes bewickii*), Western scrub jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), Anna's hummingbird (*Calypte anna*), house sparrow (*Passer domesticus*), and house finch (*Haemorhous mexicanus*). Domestic chickens (*Gallus gallus*) were also observed. Non-avian species observed included evidence of tree squirrels (*Sciurus sp.*) in the form of nests and possible chewing by rats (*Rattus* sp.). Numerous other animals would be expected to occur including, but not limited to, pacific slender salamander (*Batrachoseps attenuatus*), pacific chorus frog (*Pseudacris regilla*), western fence lizard (*Sceloporus occidentalis occidentalis*), alligator lizard (*Elgaria multicarinata multicarinata*), Cooper's hawk (*Accipiter cooperii*), mourning dove (*Zenaida macroura*), chestnut-backed chickadee (*Poecile rufescens*), pallid bats (*Antrozous pallidus*), Mexican free tailed bat (*Tadarida brasiliensis*), Yuma myotis (*Myotis yumanensis*),

and long-eared myotis (*Myotis evotis*). Some of these bat species are known to roost in abandoned buildings. Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*) could also occur in the developed/landscaped habitat areas.

Ruderal/Annual Grassland. A small area within the eastern half of the site consists of ruderal grassland habitat. While this area is used as a yard and for material storage by property inhabitants, this habitat consists of vegetation that is common to typical California annual grasslands in the region. Vegetation is dominated by non-native annual species adapted to human disturbances, including wild oat (*Avena* sp.), foxtail barley (*Hordeum murinum*), ripgut (*Bromus diandrus*), and rat-tail fescue (*Vulpia myuros*). Forbs observed included, but were not limited to, bindweed (*Convolvulus arvensis*), redstem filaree (*Erodium cicutarium*), summer mustard (*Hirschfeldia incana*), serrated lettuce (*Lactuca serriola*), common mallow (*Malva neglecta*), and bur clover (*Medicago polymorpha*). No native plant species were observed in this habitat. This habitat is heavily disturbed by human activities including use of the area as a playground, gardening, soil storage, storage of materials, and other miscellaneous activities.

Due to the small and contiguous nature of the habitat area with the surrounding development, the same suite of animals that would be expected in the developed and landscaped area would likely co-occur in the ruderal grassland portion of the site.

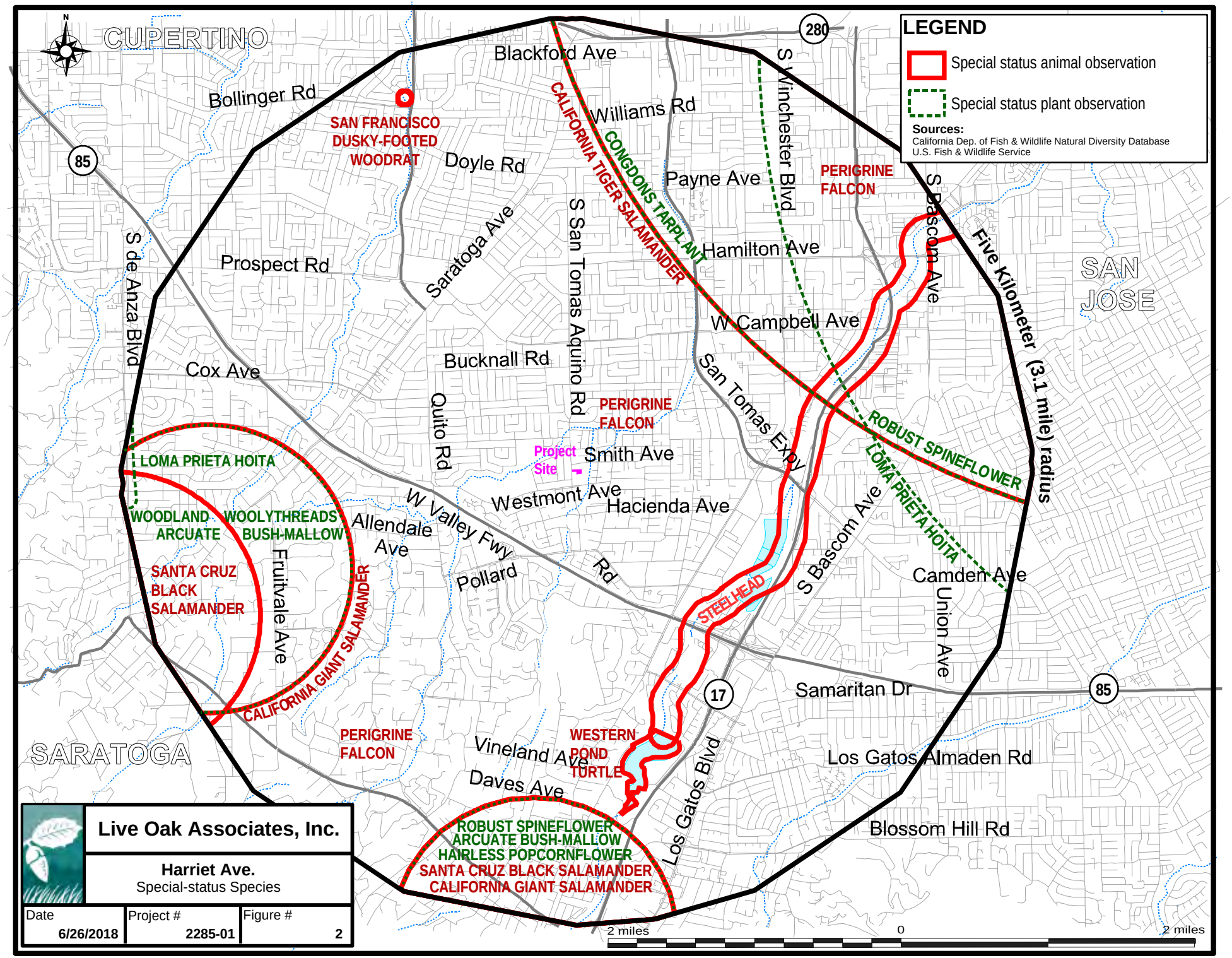
Special Status Species

Special status species include plants and animals that are listed as threatened or endangered under the state and federal Endangered Species Acts, as well as other species considered to be species of concern or fully protected species in California, and plants maintained on lists compiled by CDFW and the California Native Plant Society.

A search of published accounts for all relevant special status plant and animal species was conducted for the San Jose West USGS 7.5" quadrangle in which the project site occurs and for the eight surrounding quadrangles (San Jose East, Santa Teresa Hills, Los Gatos, Castle Rock Ridge, Cupertino, Mountain View, Milpitas, and Calaveras Reservoir) using the California Natural Diversity Data Base (CNDDB) Rarefind (CDFW 2018). Special status species documented as occurring, or historically occurring, within a five-kilometer radius of the project site are depicted in Figure 2.

Due to the highly impacted nature of vegetation of the site, compared with native woodland or grassland habitats, the site provides no habitat for sensitive plant species; therefore, no special status plants are expected to occur on the site and the project will have no impact on them.

Additionally, due to the site's urban setting and lack of native vegetation, most special status wildlife species would also be expected to be absent from the site. However, vacant homes may provide future roosting habitat for special status bats, and trees on and adjacent to the site could provide suitable nesting habitat for migratory birds that are protected under the federal and state laws. Aquatic species such as the California red-legged frog and the western pond turtle, were considered due to the presence of Smith Creek to the east of the site; however, the nature of Smith Creek is a concrete lined channel without riparian vegetation. If either species does use the adjacent reach of Smith Creek it would only be in the form of an aquatic corridor between



Live Oak Associates, Inc.

Harriet Ave.
Special-status Species

Date	Project #	Figure #
6/26/2018	2285-01	2

suitable foraging and/or breeding habitat. No California red-legged frogs or western pond turtles are expected to occur within the project area.

Impacts to protected bats and nesting migratory birds is discussed in greater detail below.

Jurisdictional Waters

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). Hydrologic features are absent from the site; therefore, jurisdictional waters will not be impacted by the project.

City of Campbell Tree Protection Regulations. The City of Campbell's Municipal Code, Chapter 21.32 protects certain trees located on private property. It establishes "policies, regulations and standards to protect and manage trees on private property, recognizing the substantial aesthetic, environmental, and economic importance of trees."

Section 21.32.050 (Protected Trees) provides guidance regarding which trees are protected and, therefore, require approval in the form of a tree removal permit:

> For trees on all commercial, industrial, multi-family residential, mixed-use, and undeveloped single-family residential properties in all zoning districts, any *tree* or multi-trunk *tree* with at least one trunk measuring twelve inches (12) or greater in diameter (thirty-eight [38] inches or greater in circumference), measured four (4) feet above the adjacent grade.

Trees smaller than the minimum threshold presented in Section 21.32.050 are not subject to the City's tree protection ordinance. Fruit trees are also not protected.

Section 21.32.020 defines exempt "fruit trees":

> "Fruit *tree*" means any *tree* that has the characteristic of bearing edible fruit, common to commercial production varieties including, but not limited to, stone fruits (e.g., prunes, peaches, etc.), citrus (e.g., lemons, oranges), nut varieties (e.g., almonds, English walnut [except for California Black Walnut], peppers (g. *Schinus*), and olives (g. Oleaceae)). A "fruit *tree*" shall not mean any *tree* that bears a fruit or nut produced primarily as seed, (e.g., oaks, pines, etc.).

Several trees on the site would be considered protected trees under the ordinance, and, although their removal would be considered a less-than-significant biological impact, a tree removal permit may be required for their removal. These trees include, but may not be limited to California black walnut, coast live oak, valley oak, coastal redwood, deodar cedar, alder, and fan palm. In addition, several offsite trees have significant overlapping canopies within the site including a large mature valley oak tree that would overhang a portion of the project roadway. Potential impacts to offsite trees with root systems and driplines within the site may also be regulated by the City of Campbell's tree protection regulations.

BIOLOGICAL IMPACTS AND MITIGATIONS

The following analysis of biological impacts is based on the proposed project, which will include the demolition of two single-family homes, two garages, sheds, concrete and gravel areas, trees, and other landscaping of the site and construction of up to six single family homes and a access roadway. Significance was determined based on criteria, including regulations, summarized in Appendix A.

Jurisdictional Waters

Impact. No hydrologic features were observed to be present on the site; therefore, Waters of the U.S. and Waters of the State are absent from the site. Thus, the project will have no impact on jurisdictional waters.

Mitigation. None required.

Special Status Plants

Impact. Due to its urban setting and lack of natural vegetation, the site provides no habitat for special status plants; therefore, special status plants are considered absent from the site, and the project will have no impact on special-status plants.

Mitigation. None required.

Special Status Wildlife

Most special status animal species would not occur on the site, or be unlikely to occur on the site, because habitats on the site are not suitable for them, the site is located outside of the species' known range, and/or there are no known occurrences in the vicinity of the site. However, a few special status species have been documented in the immediate project vicinity (Figure 1). These latter species, their likelihood to occur on the site, and any potential project impacts are discussed further below.

Townsend's Big-eared Bat, Pallid Bat and Other Bat Species.

Impact. The loss of habitat for Townsend's big-eared bats and pallid bats would not be considered significant due to the small size of the site and the low-quality foraging and potential roosting habitat provided by the site. However, impacts to individuals would be considered significant.

Some of the buildings and trees of the site provide potentially suitable roosting habitat for Townsend's Big-eared bats and pallid bats—both of which are species of concern by California Department of Fish and Wildlife (CDFW)—as well as for more common bat species likewise protected by the California Fish and Game Code while roosting. Trees of the site, including the fan palm which has a thick apron of fronds, and some of the oak trees of the site that have potentially suitable rot cavities, could provide limited day roost habitat for bats. The demolition of the onsite buildings and removal of potentially suitable trees, either during the breeding season when bats have the potential to establish maternal colonies or during the non-breeding

season for species that form large colonies could result in the substantial mortality to bats. The mortality of individuals would constitute a significant adverse impact of the project. Such impacts are avoidable with the following measures.

Mitigation. Avoidance measures that protect bat species from possible direct mortality will be warranted. Therefore, the project applicant will implement the following measures to ensure that mortality to special status bats from future ground disturbances is avoided:

- If practicable, site demolition should either be done between March 1 and April 15 or between August 15 and October 15 to avoid interfering with an active nursery and/or overwintering bats.
- Within 30-days of demolition and/or tree removal, a detailed bat survey should be conducted by a qualified biologist for the residence, out-buildings, and trees prior to demolition. If a non-breeding and non-wintering bat colony is found, the individuals should be humanely evicted via the partial dismantlement (i.e., the first of a two-step removal process typical of bat evictions) of the buildings or trees a day or two prior to demolition under the direction of a qualified biologist to ensure that no harm would occur to any bats as a result of demolition activities. Once it has been determined by a qualified biologist that the bats have safely evacuated the building, the remaining building/tree demolition can commence.
- Should the biologist not be able to visually access all potential roost areas (e.g., enclosed attic spaces), a night emergence survey may become necessary.
- If a maternity colony or overwintering colony is detected in the buildings or trees of the site, then the biologist will determine a suitable construction-free buffer to be established around the structure and to remain in place until it has been determined by the biologist that the nursery is no longer active.

Nesting Migratory Birds

Impact. Many large trees and shrubs occur on and adjacent to the site which could be used by tree-nesting raptors and other migratory birds for breeding. Also, structures of the site support nesting migratory birds such as the black phoebe and mourning dove. Most nesting migratory birds, regardless of their federal and/or state endangerment status, are protected by state and federal laws. Therefore, development activities that adversely affect the nesting success of raptors and other migratory birds (i.e., building demolition, grading, and tree removal) or that result in the mortality of individual birds constitute a violation of state and federal laws.

Mitigation. Avoidance measures that protect nesting migratory bird species from possible direct mortality will be warranted. Project-related activities that occur during the breeding season could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season (February 1st through August 31st), pre-construction nesting bird surveys should be conducted by a qualified biologist to identify possible nesting activity within 14 calendar days prior to such activities. If project activities are subsequently delayed for more than 14-days during the breeding season then an additional survey would be needed to ensure nests have not established within the site, including project

equipment, during the hiatus. A construction-free buffer of suitable dimensions must be established around any active raptor and migratory bird nest (up to 250 feet, depending on the location and species) for the duration of the project, or until it has been determined by a qualified biologist that the chicks have fledged and are foraging independently from their parents. The size and dimensions of the buffer is to be determined by a qualified biologist.

Loss of Protected Trees

Impact. As indicated previously, many trees occur on the site that would qualify as protected trees under the City's ordinance. The loss of these trees would not be considered a biologically-significant impact due to the urban setting of the project site, and no mitigation would be required under CEQA; however, removal will likely require a permit from the City of Campbell. The City permit would impose established ratios for replacement trees for tree losses, and the City would require establishment of a tree protection strategy for any preserved trees occurring on adjacent properties (e.g., tree #701, which is a Valley oak with a 58 inch diameter/182 inch circumference) that could be impacted by project buildout.

Mitigation. None required.

Conclusion

In summary, the proposed Harriet Avenue project will result in either no impacts or less-than-significant impacts, to most sensitive biological resources that are known to occur in the project vicinity. Exceptions include the potential for the project to impact protected bats and migratory birds. However, mitigation measures have been provided in all cases to ensure that the project results in no significant impacts to these sensitive biological resources. In addition, the project will be required to obtain a tree removal permit and follow any related conditions from the City of Campbell.

If you have any questions regarding our conclusions, please contact me at nhale@loainc.com or (408) 281-5888.

Sincerely,

Nathan Hale
Project Manager
Staff Ecologist

REFERENCES

California Department of Fish and Wildlife (CDFW). 2018b. Annual report on the status of California state listed threatened and endangered animals and plants. The Resources Agency, Sacramento, CA.

_____. 2018a. California natural diversity database. The Resources Agency, Sacramento, CA. Accessed June 25, 2018 from https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

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Natural Resource Conservation Service. 2018. Custom Soil Resource Report for Santa Clara Area, California, USDA. Accessed on June 27, 2018 at https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

U. S. Fish and Wildlife Service. 2018. Endangered and threatened wildlife and plants.

APPENDIX A:

SIGNIFICANCE CRITERIA AND RELEVANT GOALS, POLICIES, AND LAWS

Significance Criteria

Approval of general plans, area plans, and specific projects is subject to the provisions of the California Environmental Quality Act (CEQA). The purpose of CEQA is to assess the significance of a proposed project's impacts on the environment before they are carried out. Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures.

According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest."

Specific project impacts to biological resources may be considered "significant" if they would:

- 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;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- 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;

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a "mandatory findings of significance" if the project has 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, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

Relevant Goals, Policies, and Laws

Threatened and Endangered Species

State and federal "endangered species" legislation has provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special status." Permits may be required from both the CDFW and USFWS if activities associated with a proposed project will result in the "take" of a listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFW and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

Migratory Birds

Most birds are also protected by state and federal law. The Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, 1992), which states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto". Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

Bats

Section 2000 and 4150 of the California Fish and Game Code states that it is unlawful to take or possess a number of species, including bats, without a license or permit, as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as "an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering." For these reasons, bat colonies in particular are considered to be sensitive and therefore, disturbances that cause harm to bat colonies are unlawful.

Wetlands and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered "Waters of the United States" (hereafter referred to as "jurisdictional waters") subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts.
Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands:
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As recently determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. However, the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* (referred together as the Rapanos decision) impose a "significant nexus" test for federal jurisdiction over wetlands. In June 2007, the USACE and Environmental Protection Agency (EPA) established guidelines for applying the significant nexus standard. This standard includes 1) a case-by-case analysis of the flow characteristics and functions of the tributary or wetland to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters and 2) consideration of hydrologic and ecologic factors (EPA and USACE 2007).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by "ordinary high water marks" on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity

will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

The California Department of Fish and Wildlife has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Wildlife Code (2011). Activities that would disturb these drainages are regulated by the CDFW via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented that protect the habitat values of the drainage in question.

ATTACHMENT 2

TREE INVENTORY, ASSESSMENT, AND PROTECTION REPORT

Tree Inventory, Assessment, and Protection

880 and 910 Harriet Avenue
Campbell, CA 95008

Prepared for:

Robson Homes, LLC

September 4, 2018

Prepared By:

Richard Gessner
ASCA - Registered Consulting Arborist ® #496
ISA - Board Certified Master Arborist® WE-4341B
ISA - Tree Risk Assessor Qualified
CA Qualified Applicators License QL 104230

Monarch Consulting Arborists LLC
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Felton, CA 95018
831. 331. 8982

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Summary

The results of the exploratory trenching assessment near valley oak (*Quercus lobata*) #701 revealed fine roots as to be expected. Only two roots of significant size were observed at a depth of about 30 inches below the soil surface and 8 feet from the trunk. Based on the exploratory excavation and the site conditions I would expect the impact from the proposed construction to be moderate to low depending on construction techniques. Utilities will need to be installed using hydraulic air or water excavation (AirSpade® or Hydrovac®), by hand, or using directional boring, all under the supervision of the Project Arborist. The road surface installation can be constructed of reinforced materials or alternative techniques both requiring little sub-base excavation.

The coast redwood (*Sequoia sempervirens*) #740 possesses an inherent structural defect with its codominant stems and the tree is in poor health with a very sparse crown. The suitability for conservation assessment indicated the tree has poor suitability for retention.

Introduction

Assignment

- Make observations of the exploratory trench along the property boundary adjacent to valley oak #701.
- Valley oak #701 provide expected impact ratings and tree protection guidelines and specifications.
- Assess the coast redwood #740 to help determine the tree's suitability to be conserved.

Limits of the Assignment

- The primary plan reviewed for this assignment is C5 Utility Plan provided by Civil Engineering Associates dated August 29, 2018.
- The assessment is limited to the tree and site conditions during my visit on August 24, 2018.
- The assessment considers only known and visibly detectable conditions.
- No risk rating is to be provided for this assignment and it does not account for the likelihood of the tree or its parts to fail and strike a target, or a determination of the consequences of such an event.

Purpose and Use of the Report

The report is intended to address the potential impacts and retention of the two trees which are the subject of this report. The report is to be used by the property owners, owner's agents, and the City of Campbell as a reference for existing tree and site conditions to help satisfy planning requirements.

Observations

Valley Oak #701

The valley oak is located about eight feet from the property boundary on the adjacent parcel. The tree has a trunk diameter of 58 inches and is about 70 feet tall with approximately 80 feet of crown diameter (40 foot radius). Foliar color, size, and density are somewhat normal for the species and maturity of the tree. The crown is comprised of large scaffold branches and there are typical cavities and decay throughout which are common on a tree of this age. The main stem is vertical with no lean and the trunk flare is buried with no visible buttressing roots at the soil surface.

The exploratory trench was dug using a Hydrovac machine that sucks up the soil exposing roots. The trench was 20 feet long and about 36 inches deep running parallel to the property boundary 8t feet from the outer trunk of the valley oak. There were copious smaller roots less than a half inch in diameter located within six inches of the soil surface and many of these were identified to be from the English ivy (*Hedera helix*). There were also fine roots from the valley oak located within the first twelve inches of the soil medium. Inside the trench there were two significant roots observed labeled #1 and #2. Root #1 was three and #2 six inches in diameter both at 30 inches below grade. There were no other roots of significant size greater than one inch in diameter exposed or observed.

- The proposed edge of drive isle is approximately 10 feet from the outer edge of the trunk.
- The proposed water utility is approximately 15 feet from the outer edge of the trunk.
- The proposed joint trench is approximately 20 feet from the outer edge of the trunk.

Coast Redwood #740

The coast redwood is located centrally within the site and is comprised of codominant stems with diameters of 32 and 24 inches respectively. The tree is about 75 feet tall with a crown diameter of approximately 40 feet (20 foot radius). Foliar color and size are normal and crown density is sparse. The trunks are vertical and the top was removed or has been stunted. The trunk flare is partially exposed and there is a shed, compacted gravel driveway, and a residence within the drip line.

Discussion

Valley Oak #701

There are proposed improvements including a drive isle and utilities that are to be placed in close proximity to the tree and within its drip line. Prior to developing any mitigation or tree protection recommendations exploratory trenching was required (Image 1). The purpose of the trenching was to help determine the significance of the tree's root system on the property. Tree roots generally taper down and get smaller the farther from the trunk. By trenching close to the trunk at the property boundary it would be possible to determine if large roots would be encountered or damaged during any proposed trenching or excavation. The trench revealed only two roots of signifiant size, #1 and #2. While there will be destruction of fine roots from construction processes on the site there will likely be little or no roots of significant size encountered during trenching or excavation.

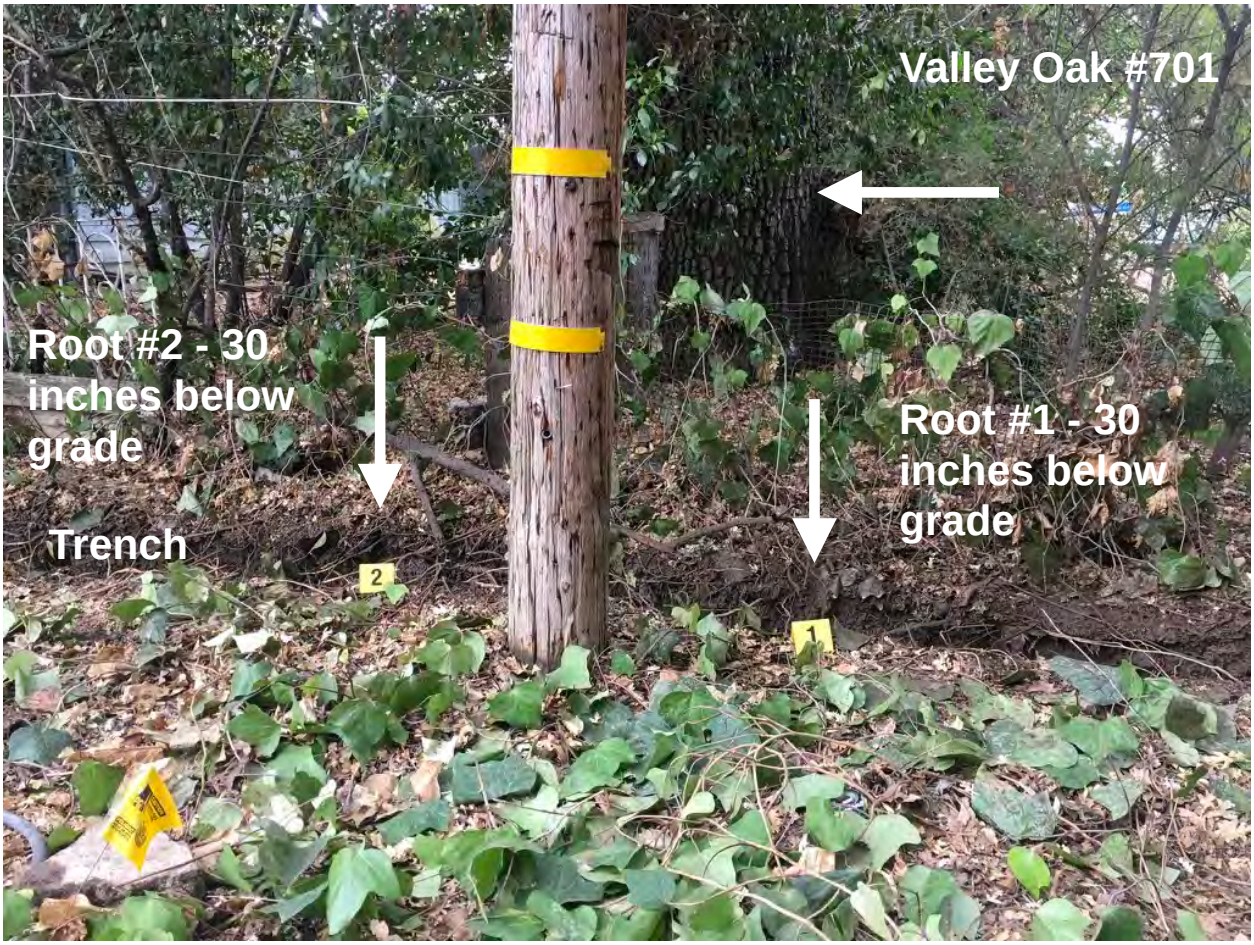


Image 1: Trench and signifiant size root locations near valley oak #701

Expected Impact Level

Impact level defines how a tree may be affected by construction activity and proximity to the tree, and is described as low, moderate, or high. The following scale defines the impact rating:

- Low = The construction activity will have little influence on the tree.
- Moderate = The construction may cause future health or structural problems, and steps must be taken to protect the tree to reduce future problems.
- High = Tree structure and health will be compromised and removal is recommended, or other actions must be taken for the tree to remain. The tree is located in the building envelope.

The proposed construction is in portions of the root zone and within the drip line area. The property boundary is only about eight feet from the trunk. Most of the tree's crown, greater than 75 percent, is growing on the property the tree originates on and is asymmetrically concentrated to the south and west. Based on the exploratory excavation and the site conditions I would expect the impact from the proposed construction to be moderate to low depending on construction techniques and materials.

Tree Protection

Tree protection focuses on protecting trees from damage to the roots, trunk, or scaffold branches from heavy equipment. The tree protection zone (TPZ) is the defined area in which certain activities are prohibited to minimize potential injury to the tree. The most current accepted method for determining the TPZ is to use a formula based on species tolerance, tree age/vigor, and trunk diameter (Matheny, N. and Clark, J. 1998) (Fite, K, and Smiley, E. T., 2016).

In this instance because the tree is large, the species is moderately tolerant of construction impacts (Matheny, N. and Clark, J. 1998) (Fite, K, and Smiley, E. T., 2016), and mature to over-nature in age a tree protection zone would be calculated at 58 to 72 feet in radius. It is not possible or reasonable to expect these types of radial distances of no disturbance under this tree. In this situation it is expected there will be some root loss on the north side and improvements will occur within the drip line.

Mitigating potential damage can be accomplished by means other than simple exclusion by fence. In this instance trenching will need to be done through hydraulic air or water excavation (AirSpade® or Hydrovac®), by carefully hand digging without tearing or shattering roots with heavy equipment, or through directional boring. Any of these means for installing the water, joint trench, and sewer line could be acceptable. The road surface installation can be constructed of reinforced concrete that does not rely on a deep sub-base treatment or with alternative materials that allow water infiltration into the soil medium. It is best to place these features on or near grade or by using very minimal sub-base excavation.

Coast Redwood #740

A tree's suitability for conservation is determined based on its health, structure, age, species and disturbance tolerances, proximity to cutting and filling, proximity to construction or demolition, and potential longevity using a scale of good, fair, or poor (Fite, K, and Smiley, E. T., 2016). The following list defines the rating scale:

- Good = Trees with good health, structural stability and longevity after construction.
- Fair = Trees with fair health and/or structural defects that may be mitigated through treatment. These trees require more intense management and monitoring, before, during, and after construction, and may have shorter life expectancy after development.
- Poor = Trees are expected to decline during or after construction regardless of management. The species or individual may possess characteristics that are incompatible or undesirable in landscape settings or unsuited for the intended use of the site.

The coast redwood possesses an inherent structural defect with its codominant stems and the tree is in poor health with a very sparse and transparent crown. When performing the suitability assessment I used the ISA Best Management Practices "Suitability for Conservation Worksheet" (Page 5). The result of this assessment indicated the tree has poor suitability for conservation. To be as objective as possible I rated the "location of construction" and "root cut/fill" as high as possible to create a best case scenario. Even under the premiss the tree could be retained with maximum protection effort, and distances from the tree, it still rated to be a poor candidate for retention.

Image 2: Coast redwood #740 with a sparse crown and codominant stems

Worksheet: Fite, Kelby, and Edgar Thomas. Smiley. *Managing trees during construction*, second edition. Champaign, IL: International Society of Arboriculture, 2016. Page 7.

CONSERVATION SUITABILITY WORKSHEET

This worksheet is intended to guide the arborist through the evaluation of an existing tree on a development site to determine suitability for conservation. This guide is just one tool and should not be used as a sole determinant of a tree's suitability. An arborist's judgment should override the total score if any one category is determined to be low enough to eliminate the tree from preservation status.

Health* (1-15)	Decline 1			Vigorous 15	**5**
Root Cut/Fill Distance From Trunk* (1-15 possible)	<6" per 1" dbh 1	6-12" per 1" dbh 5	1-1½' per 1" dbh 10	>1½' per 1" dbh 15	**15**
Structural Defects** (1-15)	Many 1	Some 5	Few 10	None 15	**5**
Construction Tolerance of Species[1] (1-15)	Poor 1	Poor/Mod 3	Moderate 7	Mod/Good 11	Good 15 **7**
Age (relative to typical species lifespan) (1-10)	Overmature (> ⅔) 1		Mature (⅓ - ⅔) 5	Young (< ⅓) 10	**7**
Location of Construction Activity (1-10)	Within 3x dbh 1			>2x drip line 10	**10**
Soil Quality/ Characteristics (1-10)	Poorly-drained, low organic matter and/or wet or dry site, heavy clay 1			Well-drained, high organic matter, moderate moisture 10	**2**
Species Desirability (1-10)	Low 1			High 10	**7**

Metric: 1" = 2.5 cm, 1' = 0.3 m
*If less than 5, generally this tree would not be a candidate for preservation.
**If less than 10, be aware of the risks surrounding preservation. If less than 5, generally this tree would not be a candidate for preservation.
[1]See Appendix A

58
Total (100)

Suitability ratings:
>80 = Good: High potential for longevity on the site after construction.
60-79 = Moderate: May require more in-depth management and monitoring, before, during, and after construction, and may have a shorter lifespan than those in the "good" category.
<59 = Poor: These trees can be expected to decline during or after construction regardless of management.

Conclusion

Valley Oak #701

I observed the exploratory trenching to help determine the presence of signifiant size roots greater than two inches in diameter in the area adjacent to valley oak #701. The results of the assessment were many fine roots near the soil surface. Only two roots of significant size were exposed and observed at a depth of about 30 inches below the soil surface and 8 feet from the tree's trunk. Based on the exploratory excavation and the site conditions under the tree I would expect the impact from the proposed construction to be moderate to low depending on construction techniques and materials. Mitigating potential damage can be accomplished by means other than simple exclusion by fence. Utility installation will need to be done through hydraulic air or water excavation (AirSpade® or Hydrovac®), by carefully hand digging without tearing or shattering roots with heavy equipment, or through directional boring. The road surface installation can be constructed of reinforced concrete that does not rely on a deep sub-base treatment or with alternative materials that allow water infiltration into the soil medium such as pavers on grade.

Coast Redwood #740

The coast redwood possesses an inherent structural defect with its codominant stems and the tree is in poor health with a very sparse and transparent crown. The suitability assessment using the "Suitability for Conservation Worksheet" indicated the tree has poor suitability to be conserved. Even under the premiss the tree could be retained with maximum protection effort, and distances from the trunk, it still rated to be a poor candidate for retention.

Recommendations

Valley Oak #701

1. Tree Protection Fence shall be placed in the area at the tree's drip line distance during the initial demolition of the site to prevent unnecessarily entering the area under the tree.

2. The Project Arborist shall document the initial grading and any trenching or significant soil disturbance, including, trenching or boring for utilities.

3. Do not use any mechanical trenching machinery or heavy equipment such as a back hoe.

4. After opening up the trench, evaluate the size and volume of roots that will be impacted by the underground work.

5. Roots greater than two inches in diameter should be cut clean "cut clean to a flat surface with all surrounding bark intact." If trenches are cut and tree roots two inches or larger are encountered they must be cleanly cut back to a sound wood lateral root. All exposed root areas shall be backfilled or covered within one hour. Roots greater than four inches in diameter should be left intact and only removed as authorized by the project arborist. Arborist should evaluate exposed roots to determine what can be root pruned and what must be retained.

6. Use the thinest material possible to achieve structural compliance and use porous material that allows for water infiltration under the surface. Adjust the finished grade to be above the natural grade without digging for a sub-grade treatment. In this instance the pavement will be higher up and edge treatments or curbing also need to be constructed above grade. Alternatively use paving material that does not rely on the strength of a compacted sub-base for strength. This may be accomplished by reinforcing the surface layer material. Place geotextile fabric at the bottom of the sub-base to reduce displacement into the parent soil along with a reduction in compaction requirements. Use biaxial Tensar BX-1100 or equivalent to manufacturer specifications on grade.

7. All tree maintenance and care shall be performed by a qualified arborist with a C-61/D-49 California Contractors License. Tree maintenance and care shall be specified in writing according to American National Standard for Tree Care Operations: *Tree, Shrub and Other Woody Plant Management: Standard Practices* parts 1 through 10 and adhere to ANSI Z133.1 safety standards and local regulations. All maintenance is to be performed according to ISA Best Management Practices.

8. Required tree pruning must be performed by a licensed contractor with a C-61/D-49 California Contractors License. Pruning specification shall be provided in writing according to ANSI A300 Part 1 (Pruning) 2017 standards and limitations. All tree pruning shall be performed in accordance with ISA Best Management Practices: Tree Pruning 2008.

9. Refer to Appendix D for general tree protection guidelines including recommendations for arborist assistance while working under trees, trenching, or excavation within a trees drip line or designated TPZ/CRZ.

10. Provide a copy of this report to all contractors and project managers, including the architect, civil engineer, and landscape designer or architect. It is the responsibility of the owner to ensure all parties are familiar with this document.

11. Arrange a pre-construction meeting with the project arborist or landscape architect to verify tree protection is in place, with the correct materials, and at the proper distances.

Coast Redwood #740

Explore removing coast redwood #740 and installing a more appropriate specimen and species for the site and its intended use or function.

Bibliography

Costello, Lawrence, Gary Watson, E. Thomas Smiley, 2017. Best Management Practices: Root Management International Society of Arboriculture, Print.

Fite, Kelby, and Edgar Thomas. Smiley. *Managing trees during construction*, second edition. Champaign, IL: International Society of Arboriculture, 2016.

Matheny, Nelda P., Clark, James R. Trees and development: A technical guide to preservation of trees during land development. Bedminster, PA: International Society of Arboriculture1998.

Smiley, E, Matheny, N, Lilly, S, ISA. *Best Management Practices: Tree Risk Assessment:* International Society of Arboriculture, 2017. Print

Appendix A: General Tree Protection Guidelines

Tree protection locations should be marked before any fencing contractor arrives.

Pre-Construction Meeting with the Project Arborist

Prior to beginning work, all contractors involved with the project should attend a pre construction meeting with the project arborist to review the tree protection guidelines. Access routes, storage areas, and work procedures will be discussed.

Tree Protection Zones and Fence Specifications

Tree protection fence should be established prior to the arrival of construction equipment or materials on site. Fence should be comprised of six-foot high chain link fence mounted on eight-foot tall, 1 7/8-inch diameter galvanized posts, driven 24 inches into the ground and spaced no more than 10 feet apart. Once established, the fence must remain undisturbed and be maintained throughout the construction process until final inspection.

The fence should be maintained throughout the site during the construction period and should be inspected periodically for damage and proper functions.

Fence should be repaired, as necessary, to provide a physical barrier from construction activities.

A final inspection by the city arborist at the end of the project will be required prior to removing any tree protection fence and replacement tree shall be planted at this time.

Monitoring

Any trenching, construction or demolition that is expected to damage or encounter tree roots should be monitored by the project arborist or a qualified ISA Certified Arborist and should be documented.

The site should be evaluated by the project arborist or a qualified ISA Certified Arborist after construction is complete, and any necessary remedial work that needs to be performed should be noted.

Restrictions Within the Tree Protection Zone

No storage of construction materials, debris, or excess soil will be allowed within the Tree Protection Zone. Spoils from the trenching shall not be placed within the tree protection zone either temporarily or permanently. Construction personnel and equipment shall be routed outside the tree protection zones.

Root Pruning

Root pruning shall be supervised by the project arborist. When roots over two inches in diameter are encountered they should be pruned by hand with loppers, handsaw, reciprocating saw, or chain saw rather than left crushed or torn. Roots should be cut beyond sinker roots or outside root branch junctions and be supervised by the project arborist. When completed, exposed roots should be kept moist with burlap or backfilled within one hour.

Boring or Tunneling

Boring machines should be set up outside the drip line or established Tree Protection Zone. Boring may also be performed by digging a trench on both sides of the tree until roots one inch in diameter are encountered and then hand dug or excavated with an Air Spade® or similar air or water excavation tool. Bore holes should be adjacent to the trunk and never go directly under the main stem to avoid oblique (heart) roots. Bore holes should be a minimum of three feet deep.

Timing

If the construction is to occur during the summer months supplemental watering treatments should be applied to help ensure survival during and after construction.

Tree Pruning and Removal Operations

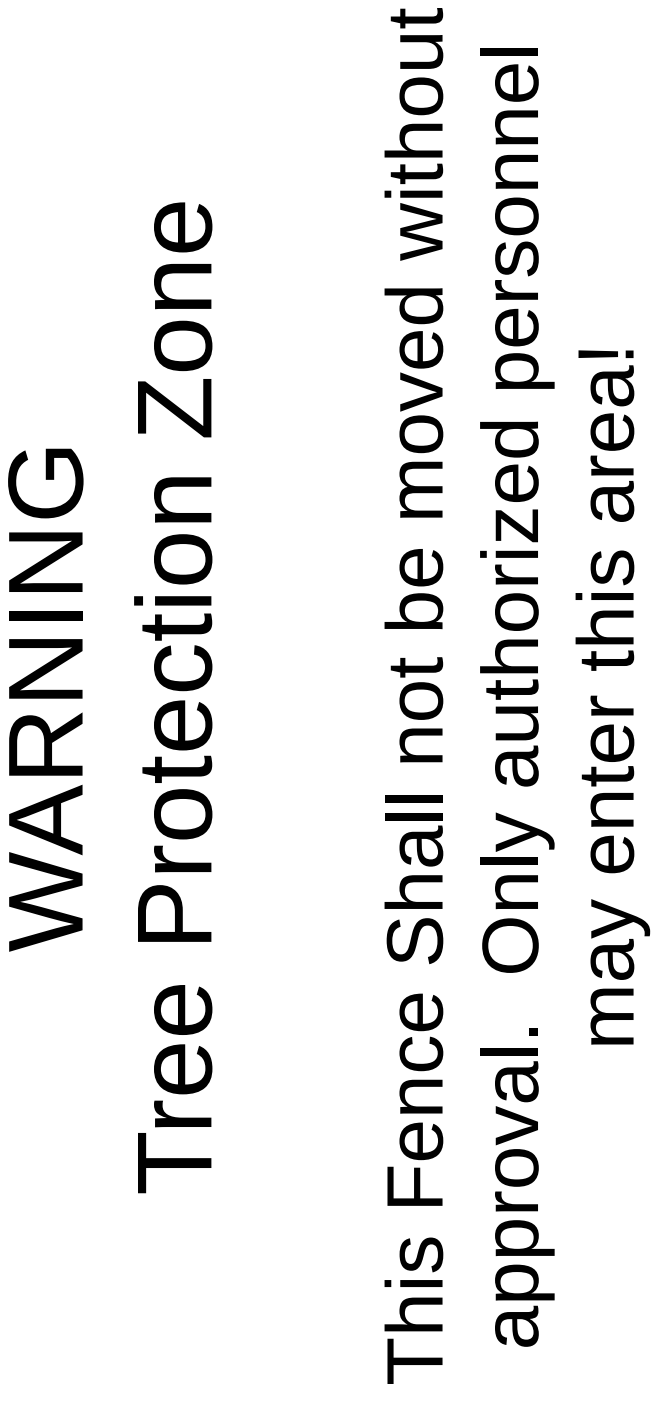
All tree pruning or removals should be performed by a qualified arborist with a C-61/D-49 California Contractors License. Tree pruning should be specified according to ANSI A-300A pruning standards and adhere to ANSI Z133.1 safety standards. Trees that need to be removed or pruned should be identified in the pre-construction walk through.

Tree Protection Signs

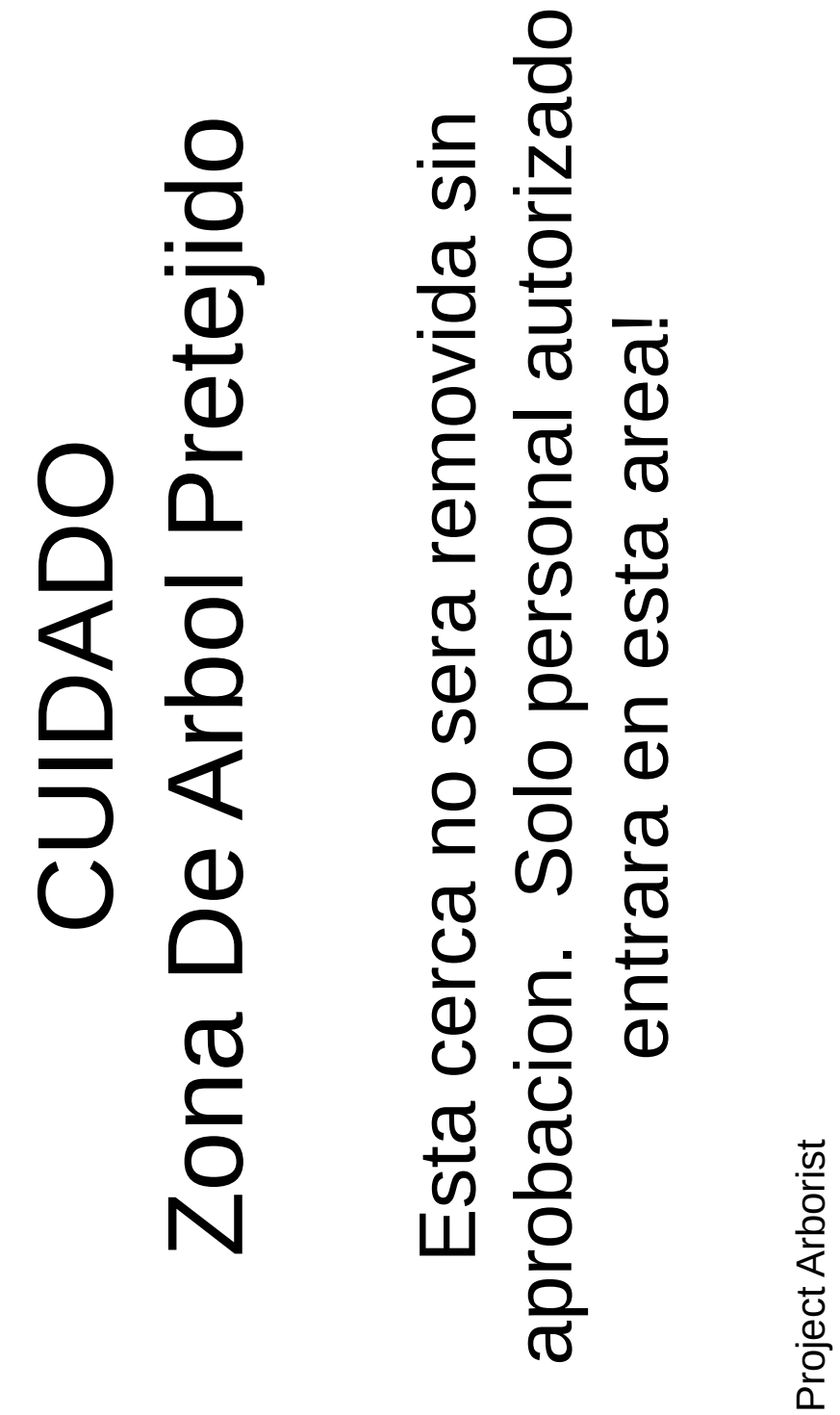
All sections of fencing should be clearly marked with signs stating that all areas within the fencing are Tree Protection Zones and that disturbance is prohibited. Text on the signs should be in both English and Spanish (Appendix B).

Appendix B: Tree Protection Signs

B1: English



B2: Spanish


CUIDADO
Zona De Arbol Pretejido
Esta cerca no sera removida sin aprobacion. Solo personal autorizado entrara en esta area!
Project Arborist

Qualifications, Assumptions, and Limiting Conditions

Any legal description provided to the consultant is assumed to be correct. Any titles or ownership of properties are assumed to be good and marketable. All property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

All property is presumed to be in conformance with applicable codes, ordinances, statutes, or other regulations.

Care has been taken to obtain information from reliable sources. However, the consultant cannot be responsible for the accuracy of information provided by others.

The consultant shall not be required to give testimony or attend meetings, hearings, conferences, mediations, arbitration, or trials by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

This report and any appraisal value expressed herein represent the opinion of the consultant, and the consultant's fee is not contingent upon the reporting of a specified appraisal value, a stipulated result, or the occurrence of a subsequent event.

Sketches, drawings, and photographs in this report are intended for use as visual aids, are not necessarily to scale, and should not be construed as engineering or architectural reports or surveys. The reproduction of information generated by architects, engineers, or other consultants on any sketches, drawings, or photographs is only for coordination and ease of reference. Inclusion of said information with any drawings or other documents does not constitute a representation as to the sufficiency or accuracy of said information.

Unless otherwise expressed: a) this report covers only examined items and their condition at the time of inspection; and b) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that structural problems or deficiencies of plants or property may not arise in the future.

Certification of Performance

I Richard Gessner, Certify:

That I have personally inspected the tree(s) and/or the property referred to in this report, and have stated my findings accurately. The extent of the evaluation and/or appraisal is stated in the attached report and Terms of Assignment;

That I have no current or prospective interest in the vegetation or the property that is the subject of this report, and I have no personal interest or bias with respect to the parties involved;

That the analysis, opinions and conclusions stated herein are my own;

That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted Arboricultural practices;

That no one provided significant professional assistance to the consultant, except as indicated within the report.

That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party, nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any other subsequent events;

I further certify that I am a Registered Consulting Arborist® with the American Society of Consulting Arborists, and that I acknowledge, accept and adhere to the ASCA Standards of Professional Practice. I am an International Society of Arboriculture Board Certified Master Arborist® and Tree Risk Assessor Qualified. I have been involved with the practice of Arboriculture and the care and study of trees since 1998.

Richard J. Gessner 

ASCA Registered Consulting Arborist® #496
ISA Board Certified Master Arborist® WE-4341B
ISA Tree Risk Assessor Qualified

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ATTACHMENT 3

GEOTECHNICAL INVESTIGATION

GEOTECHNICAL INVESTIGATION
RESIDENTIAL DEVELOPMENT

880 & 910 HARRIET AVENUE
CAMPBELL, CALIFORNIA

JUNE 27, 2018
PROJECT PA18.1011

SUBMITTED TO:

Robson Homes
2185 The Alameda, Suite 150
San Jose, CA 95126

PREPARED BY:

Geo-Logic Associates
dba Pacific Geotechnical Engineering
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GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
880 AND 910 HARRIET AVENUE
CAMPBELL, CALIFORNIA

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Figures

1 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed residential development at 880 and 910 Harriet Avenue in Campbell, California. The combined parcels are referenced as the "property," "site," or "project site" in this report. The approximate location of the project site is shown on the Vicinity Map included with Figures 1 and 2 of this report. Figure 1 shows a layout of the existing site features. Figure 2 shows a layout of the proposed development.

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

1.1 Project Description

The 1.05-acre project site consists of two adjoining parcels, identified with Assessor Parcel Numbers (APNs) 403-10-52 and 403-10-51 for 880 and 910 Harriet Avenue, respectively. The project will involve demolition of the existing structures and improvements on the property, followed by construction of six, single-family residences and associated improvements. The residential units will be two-story, wood frame structures each with an attached garage. No swimming pools or basements are planned.

Associated improvements will include underground utilities, on-site street, landscaping, and on-site stormwater management. Retaining walls, up to about 3 feet in height, may be required for landscaping purposes.

Our review of the preliminary grading design indicates that cuts and fills of about 1 to 3 feet thick will be required to construct the building pads and to achieve design grades.

The above project descriptions are based on information provided to us. If the actual project differs from those described above, Geo-Logic Associates (GLA) should be contacted to review our findings, conclusions, and recommendations and present any necessary modifications to address the different project development schemes.

1.2 Information Provided

For this investigation, Robson Homes provided us with: 1) preliminary project development information; and 2) a set of 6 sheets of drawing titled "Formal Planning Submittal, 880 & 910 Harriet Avenue, Campbell, California," prepared by Civil Engineering Associates, dated April 23, 2018.

1.3 Purpose and Scope of Services

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

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

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

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

4. Explored subsurface conditions by means of six exploratory drill holes.

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

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

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

8. Prepared this geotechnical investigation report.

2 SITE INVESTIGATION

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

2.1 Subsurface Exploration

Our subsurface exploration program involved drilling of six exploratory drill holes (DH-1 through DH-6) on May 25, 2018, using a truck-mounted Mobile B53 drill rig equipped with 8-inch diameter hollow-stem augers. The depth of exploration ranged between approximately 6.5 and 45 feet below ground surface (bgs). The drill holes were located in the field by referencing to existing site features and pacing; therefore, their locations are approximate. The approximate locations of the drill holes are shown on Figures 1 and 2.

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

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

2.2 Laboratory Testing

Geotechnical laboratory testing was conducted on selected soil samples collected from our drill holes. These tests included moisture content, dry density, Atterberg limits, sieve analysis, and percentage passing a No. 200 sieve. An R-value test was performed on the bulk sample collected from the site.

The laboratory test results are presented on the drill hole logs at the corresponding sample depths. Graphic presentations of the results of the Atterberg limits, sieve analysis, and R-value tests are presented in Appendix B.

3 GENERAL SITE CONDITIONS

3.1 Site Description

The L-shaped project site is bordered by Harriet Avenue on the west, existing development on the southwest and north, and vacant land on the east and southeast. The project site is currently occupied by two residences and several miscellaneous structures, sheds, and isolated trees. The ground surface across the site is essentially flat.

3.2 Subsurface Conditions

Subsurface soils encountered in our six drill holes consist generally of alluvium. The surficial soil consists of low plasticity, very stiff to hard sandy silty clay to depths of about 2 to 7 feet below ground surface (bgs). In DH-3, a layer of fill was encountered below ground surface to a depth of about 4 feet bgs.

In hole DH-1, the surficial clay is underlain by dense clayey sand to hard sandy silty clay to a depth of about 5 feet, very dense clayey sand with gravel to a depth of about 17 feet, very stiff to hard sandy lean clay to a depth of about 22 feet, very dense poorly graded gravel with sand and clay to a depth of about 27 feet, hard sandy lean clay to a depth of about 39.5 feet, and very dense clayey sand with gravel to the maximum explored depth of 45 feet.

In hole DH-2, the surficial clay layer extends to a depth of about 4.5 feet and is underlain by very dense clayey sand with gravel to a depth of about 12 feet, dense to very dense clayey gravel with sand to a depth of about 17 feet, and very stiff to hard sandy lean clay to the maximum explored depth of 20 feet.

In hole DH-3, a layer of fill with brick fragments was encountered to a depth of about 4 feet bgs. The fill has similar composition as the native soil below, consisting of very stiff to hard sandy silty clay. The native sandy silty clay extends to a depth of about 7 feet and is underlain by dense to very dense clayey sand with gravel to the maximum explored depth of 20 feet.

In hole DH-4, the surficial clay layer extends to a depth of about 3.5 feet and is underlain by dense to very dense clayey sand with gravel to a depth of about 7.5 feet, very dense clayey gravel with sand to a depth of about 12 feet, very dense clayey sand with gravel to a depth of about 19 feet, and very stiff to hard sandy lean clay to the maximum explored depth of 20 feet.

In hole DH-5, the surficial clay layer extends to a depth of about 3 feet and is underlain by dense clayey sand with gravel to a depth of about 10 feet, very dense clayey sand to hard sandy lean clay to a depth of about 17 feet, and very dense silty clayey sand to the maximum explored depth of 20 feet.

In hole DH-6, the surficial clay layer extends to a depth of about 2.5 feet and is underlain by very dense clayey sand with gravel to the maximum explored depth of 6.5 feet.

For a more detailed description of the subsurface earth materials encountered in our drill holes, refer to the drill hole logs in Appendix A.

3.3 Groundwater

Groundwater was encountered in the deepest drill hole, DH-1, at a depth of about 42 feet below ground surface (bgs) before we backfill the hole. Groundwater was not encountered in the other drill holes because of their shallower depths.

Historical high groundwater at the project site was estimated to be about 33 feet based on our review of Plate 1.2, "Depth to historically highest ground water, historical liquefaction sites, and locations of boreholes used in this study, San Jose West 7.5-minute Quadrangle, California," Seismic Hazard Zone Report 058, prepared by California Geological Survey, Department of Conservation, 2002.

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

3.4 Variations in Subsurface Conditions

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

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

4 SEISMIC CONSIDERATIONS

4.1 Earthquake Faulting

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

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

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

Fault Name	Approximate Distance	Orientation from Site
Monte Vista-Shannon	1¼ km	Southwest
San Andreas	9 km	Southwest
Sargent	15½ km	South/Southeast
Hayward (southeast extension)	19½ km	Northeast
Calaveras (central section)	22 km	Northeast
San Gregorio	34 km	Southwest

4.2 Ground Accelerations

According to the 2016 California Building Code (CBC) and American Society of Civil Engineers (ASCE) Standard 7-10, the spectral response acceleration at any period can be taken as the lesser of the spectral response accelerations from the probabilistic and deterministic ground motion approaches. The US Seismic Design Maps Application at the United States Geological Survey (USGS) website was used for this purpose to retrieve seismic design parameter values for design of buildings at the subject site. Two levels of ground motions are considered in the Application: Risk-targeted Maximum Considered Earthquake (MCER) and Design Earthquake (DE), with both probabilistic and deterministic values defined in terms of maximum-direction rather than geometric-mean, horizontal spectral acceleration. The probabilistic MCER spectral

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

Using the USGS Seismic Design Maps Application, a site Class C, and the latitude and longitude of the site (latitude 37.273181º N, longitude 121.975633º W), the calculated geometric mean peak ground acceleration adjusted for site class effects (PGAM) is 0.823g for the MCEG (Geometric Mean Maximum Considered Earthquake). PGAM is for use in evaluation of soil liquefaction, seismic settlements, and other soil issues per ASCE 7-10.

4.3 Seismicity

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

4.4 Liquefaction

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

The project area is not located in a Santa Clara County Liquefaction Hazard Zone (County of Santa Clara, October 26, 2012).

Geotechnical information from DH-1 for this investigation was used for a site-specific liquefaction assessment. Our liquefaction assessment was based on a PGA value of 0.82g, earthquake moment magnitude of 7.9, and a groundwater depth of 33 feet bgs. The results of our analysis suggest the encountered granular soils are not susceptible to liquefaction.

4.5 Seismic Design Parameters

The following site coefficients and seismic ground motion parameters are developed using the USGS Seismic Design Maps Application, the latitude and longitude of the site, and a Site Class C based on regional USGS information and data from our drill hole DH-3.

Parameter	2016 CBC Values
Site Class	C
Site Coefficient Fa	1.0
Site Coefficient Fv	1.3
S_S	2.125g
S_1	0.741g
S_{MS}	2.125g
S_{M1}	0.964g
S_{DS}	1.417g
S_{D1}	0.642g

5 CONCLUSIONS AND DISCUSSION

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

5.1 Ground Rupture

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

5.2 Seismic Shaking

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

5.3 Existing Fills

Brick fragments were encountered in our drill hole DH-3 between depths of about 3 and 4 feet bgs, suggesting presence of fill in the area. Because no brick fragments or similar foreign materials were encountered in the other drill holes, it appears the “fill” may be confined locally to the DH-3 area. The extents of this fill should be further investigated such as by means of test pits to expose the fill, before or at the time of construction. Undocumented fill should be removed during earthwork construction and the resulting excavations should be property backfilled with engineered fill.

5.4 Expansive Soil

The results of our Atterberg limits test performed on a soil sample from drill hole DH-4 at a depth of 2 feet indicate the soil has a low plasticity which generally corresponds to a low expansion potential. Therefore, soil expansion should not be a concern at this site.

5.5 Existing Improvements

Existing improvements at the site include two residences, miscellaneous structures, sheds, underground utilities, isolated trees, and possibly old septic tanks and leach fields. Prior to construction, the existing structures and improvements should be removed and the resulting excavations should be properly backfilled with engineered fill under the observation and testing

of the project Geotechnical Engineer.

5.6 Preliminary Assessment of Soil Permeability

Storm Capture stormwater management systems are being considered for this project. The project Civil Engineer provided three optional locations for the Storm Capture systems. They are located in the vicinity of drill hole DH-2 (Option 2), DH-4 (Option 1), and DH-5 (Option 3). The bottom of the Storm Capture systems would be about 10 feet below ground surface.

Subsurface conditions encountered in drill holes DH-2, DH-4, and DH-5 are described in report Section 3.2 above and the logs of these drill holes are included in Appendix A of this report. For preliminary assessment of permeability of the subsurface soils beneath the bottom of the Storm Capture systems, grain size analyses were performed on soil samples collected from these drill holes between depths of 9 and 15 feet. Based on our preliminary assessment, the estimated permeability ranges between roughly $2x10^{-5}$ and $5x10^{-4}$ cm/sec (roughly 0.03 to 0.7 inch per hour). These preliminary permeability estimates should be verified with actual field percolation testing for design of the Storm Capture systems.

6 GEOTECHNICAL RECOMMENDATIONS

6.1 Earthwork

6.1.1 Site Preparation, Clearing and Stripping

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

The lateral and vertical extents of existing fill in the vicinity of our drill hole DH-3 should be explored. Undocumented fills in this area or in other areas of the site encountered during construction should be removed and the resulting excavations should be backfilled with engineered fill under the observation and testing of the Geotechnical Engineer.

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

6.1.2 Excavation, Temporary Construction Slopes, Shoring and Dewatering

Excavations for this project are expected to include demolition excavations, cuts to achieve design grades, trenching to construct new underground utilities, and foundation excavations. Excavation walls in clayey soil and less than 5 feet in height should be able to stand near vertical with minimal bracing, provided proper moisture content in the soil is maintained. Granular soils, with little or no cohesion, will require more extensive bracing or laying back because they are prone to sudden collapse. Excavations and temporary construction slopes should be constructed in accordance with the current CAL-OSHA safety standards and local jurisdiction. The stability and safety of excavations, braced or unbraced, is the responsibility of the contractor. Care should be exercised when excavating in the proximity of existing structures and improvements. For excavations with no groundwater or seepage, the on-site clayey soils may be considered as Type B soil in OSHA 29 CFR Part 1926, Appendix A to Subpart P.

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

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

6.1.3 Subgrade Preparation

In areas to receive engineered fills, foundations, concrete slabs-on-grade, and pavements, the subgrade soils should be scarified to a depth of 12 inches, moisture-conditioned, and compacted in accordance with the recommendations given in the "Engineered Fill Placement and Compaction" section below. In building and concrete slab-on-grade areas, subgrade preparation should extend a minimum of 5 feet horizontally beyond the limits of the proposed structures and any adjoining flatwork, unless it is restricted by existing improvements. In pavement areas, subgrade preparation should extend a minimum of 3 feet beyond the back of the curbs or pavements.

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

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

6.1.4 Materials for Fill

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

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

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

6.1.5 Engineered Fill Placement and Compaction

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

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

6.1.6 Trench Backfill

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

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

6.1.7 Considerations for Soil Moisture and Seepage Control

Subgrade soil and engineered fill should be compacted at moisture content meeting our

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

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

6.1.8 Wet Weather Construction

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

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

6.2 Foundations

6.2.1 General

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

Foundation excavations should not be allowed to dry before placement of concrete. If visible

cracks appear in the foundation excavations, the excavations should be thoroughly moisture conditioned beginning at least 2 days prior to placement of concrete to close all cracks. It is also important that the base of the foundation excavations not be allowed to become excessively wet, resulting in soft soils. Water should not be allowed to pond in the bottom of the excavations. Areas that become water damaged should be over-excavated to a firm base. The foundation excavations should be monitored by our representative for compliance with appropriate moisture control and to confirm the adequacy of the bearing materials.

6.2.2 Conventional Continuous and/or Isolated Spread Footing Foundations

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

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

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

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

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

6.2.3 Post-tensioned Slabs

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

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

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

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

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

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

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

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

6.2.4 Drilled Pier Foundations

Drilled, cast-in-place, reinforced concrete piers may be considered for support of the proposed retaining walls or other site structures. Piers should be designed to derive their vertical

supporting capacity from "skin friction" between the pier shafts and the surrounding earth materials. Piers should have a diameter of 12 inches or greater. Center to center spacing of the piers should be a minimum of 3 pier diameters. Reinforcement in the piers should be determined by the structural engineer.

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

Resistance to lateral loads may be calculated based on passive soil pressure acting against the piers. For dead plus live loads, the ultimate passive resistance in soil or engineered fill may be calculated using an equivalent fluid weight of 300 pounds per cubic foot acting on 2 times the pier diameter, for level ground surface in front of the piers in the direction of load application. The upper 1 foot of soil should be ignored in the calculation of passive pressure. It should be noted that passive resistance is only applicable where the concrete is placed directly against undisturbed soil or engineered fill.

The presence of groundwater should be considered in the design and construction of the foundation piers. If piers extend below groundwater level, concrete should be placed by the "tremie" method to replace the water in the pier holes.

6.3 Concrete Slabs-on-Grade

6.3.1 Interior Building Slabs-on-grade

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

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

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

6.3.2 Exterior Slabs-on-grade

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

Exterior concrete slabs-on-grade should be cast free from adjacent foundations or other non-heaving edge restraints. This may be accomplished by using a strip of 1/2-inch asphalt-impregnated felt divider material between the slab edges and the adjacent structure. Frequent construction or control joints should be provided in all concrete slabs where cracking is objectionable. Continuous reinforcing or dowels at the construction and control joints will also aid in reducing uneven slab movements.

6.4 Retaining Walls

Retaining walls for this project are anticipated to be landscaping walls with exposed height up to about 3 feet. Retaining walls should be designed to resist lateral earth pressure and surcharge forces acting on the walls. Lateral pressures will depend on the degree of movement the walls are allowed (or desired), the type of backfill, the magnitude of external loads, and subsurface drainage provisions.

For static loading conditions, the walls may be designed using at-rest or active soil pressure. At-rest soil pressure should be used for walls where movement at the top of walls is restrained or undesirable. Wall movements could cause settlement of backfill and structures supported on the backfill. Active soil pressure may be used for retaining walls where the top of walls is free to deflect and resulting movement of the backfill is acceptable. The at-rest and active soil pressures given below are for level and sloping backfill surface up to 2:1 (horizontal:vertical) and do not include hydrostatic pressure caused by water behind the walls.

Condition	Lateral Soil Pressure (Equivalent Fluid Weight) for Level Backfill
Active	45 pcf
At-rest	55 pcf

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

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

recommendations.

Foundations for retaining walls may consist of footings or drilled piers designed using the recommendations in the "Foundations" section of this report.

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

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

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

6.5 Vehicle Pavements

Vehicle pavements for this project will be an interior street, primarily serving automobiles and light pickup trucks, with occasional heavy vehicles, such as delivery and garbage trucks. If the pavements are constructed prior to completion of construction, the pavements will be subject to construction traffic including heavy delivery and concrete trucks.

An R-value of 32 was measured on a bulk sample of soil collected from the site. For design purposes, an R-value of 30 was used to calculate the pavement sections tabulated below using the Caltrans pavement section design procedures.

DESIGN TRAFFIC INDEX	HOT MIX ASPHALT (inches)	CLASS 2 AGGREGATE BASE (inches)	TOTAL (inches)
5.0	3.0	6.0	9.0
5.5	3.0	7.0	10.0
6.0	3.5	7.5	11.0
6.5	3.5	9.0	12.5
7.0	4.0	9.5	13.5

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

6.6 Surface and Subsurface Drainage

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

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

7 PLAN REVIEW, EARTHWORK AND FOUNDATION OBSERVATION

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

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

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

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

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

8 LIMITATIONS

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

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

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

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

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

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

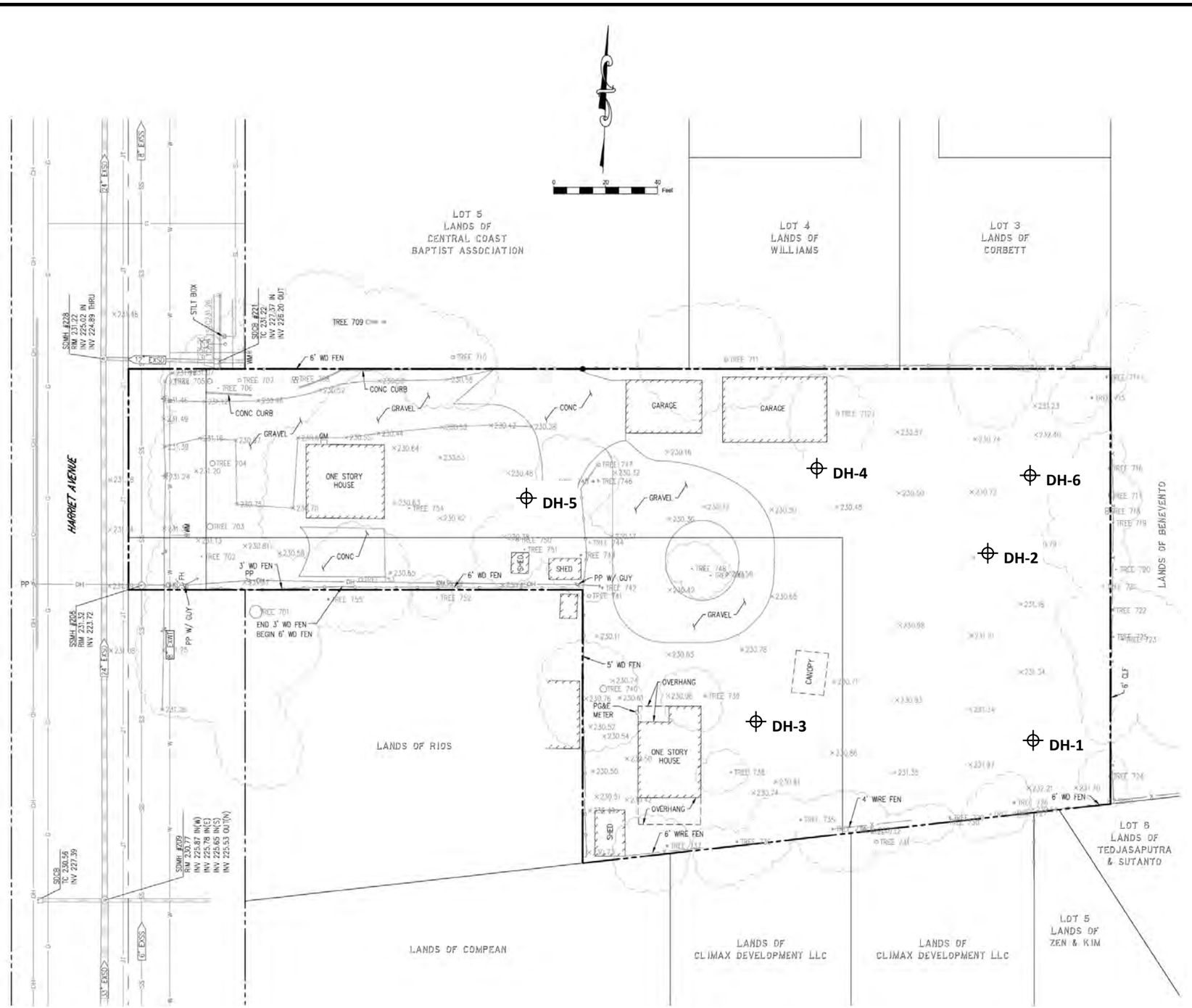
Report prepared by,

Geo-Logic Associates

Chalerm (Beeson) Liang
GE 2031

csl/jgf

Copies: Robson Homes, Richard Yee (6)



Vicinity Map (No Scale)

Legend

DH-6 Number & approximate location of exploratory drill hole

Base

880 & 910 Harriet Avenue Existing Conditions Plan, Campbell, California, prepared by Civil Engineering Associates, dated 4/23/2018.

Geo-Logic ASSOCIATES
16055 Caputo Drive, Suite D
Morgan Hill, California 95037
Phone (408) 778-2818
Fax (408) 779-6879

Drafted By:

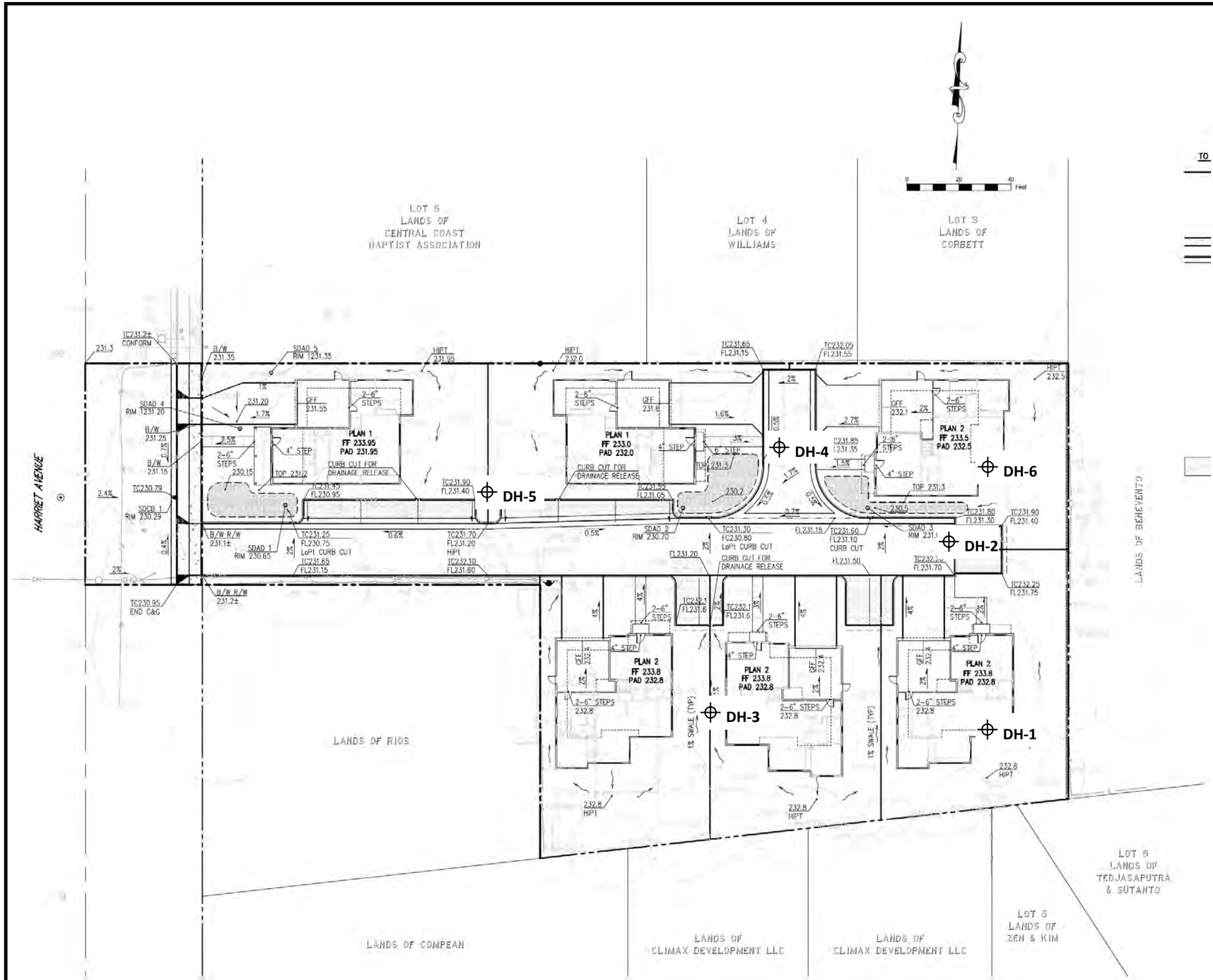
Date: June 2018

Checked By:

Revision:

SITE PLAN (Existing Conditions)
880 & 910 Harriet Avenue
Campbell, California

FIGURE
1
PROJECT
PA18.1011



Vicinity Map (No Scale)

Legend

DH-6 Number & approximate location of exploratory drill hole

Base

880 & 910 Harriet Avenue Grading and Drainage Plan, Campbell, California, prepared by Civil Engineering Associates, dated 4/23/2018.

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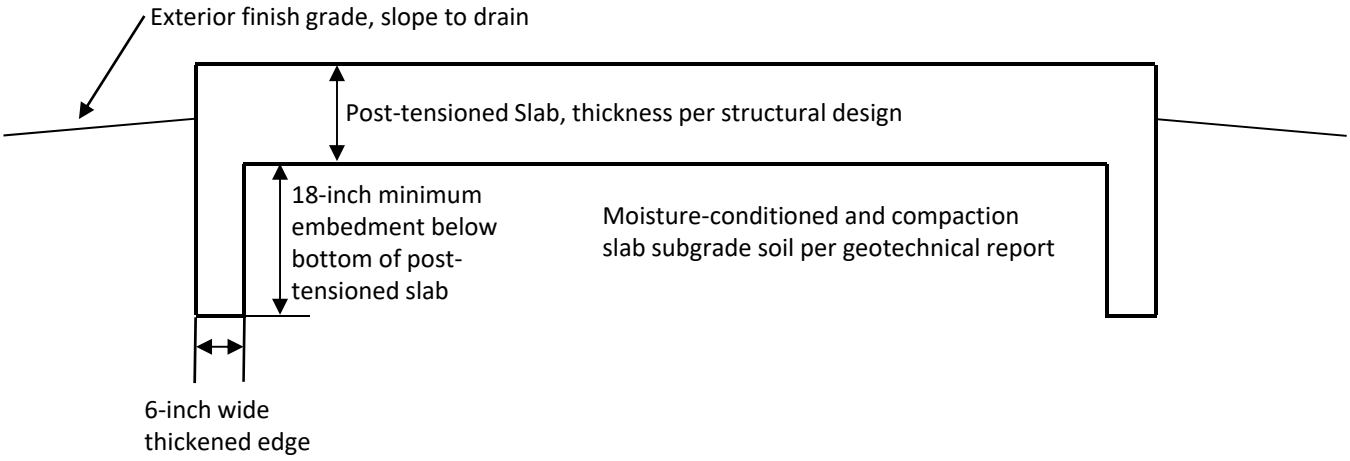
Drafted By:	
Date: June 2018	
Checked By:	
Revision:	

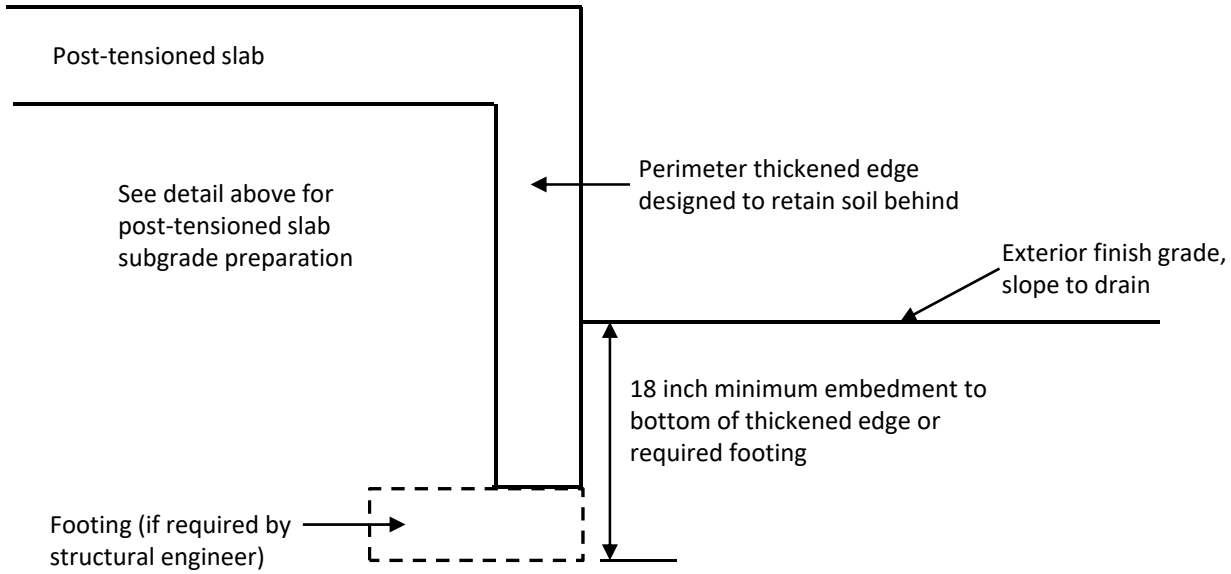
SITE PLAN (Proposed Development)
880 & 910 Harriet Avenue
Campbell, California

FIGURE
2

PROJECT
PA18.1011



Subgrade Preparation and Thickened Edge for Post-tensioned Slab Foundations



Foundation Embedment for Post-tensioned Slabs with Differential Grades

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

Schematic Only – Not to Scale

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Compiled by:	Date:
Reviewed by:	Revision:

POST-TENSIONED SLAB
TYPICAL SECTION
880 & 910 HARRIET AVENUE
CAMPBELL, CALIFORNIA

FIGURE
3
PROJECT
PA18.1011

APPENDIX A

KEYS TO SOIL CLASSIFICATION

AND

DRILL HOLE LOGS

KEY TO SOIL CLASSIFICATION - FINE GRAINED SOILS

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

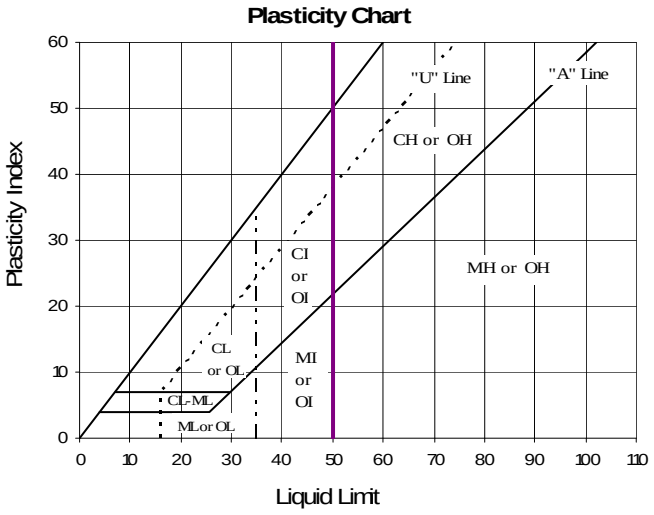
(modified from ASTM D2487 to include fine grained soils with intermediate plasticity)

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

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

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

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



GEO-LOGIC ASSOCIATES

KEY TO SOIL CLASSIFICATION – COARSE GRAINED SOILS

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

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

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

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

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

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

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

GEO-LOGIC ASSOCIATES

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 1
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B53, 140# hammer	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

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

GROUND WATER DEPTH: Initial: --- Final: 42 feet

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
ALLUVIUM, SANDY SILTY CLAY: Grayish brown (10YR 5/2), dry, very stiff to hard; with fine to coarse sand	CL-ML	1	D	50/5"								
CLAYEY SAND to SANDY SILTY CLAY: Brown (10YR 5/3), dry, dense sand/very stiff to hard clay; with mostly fine sand	SC/CL-ML	2 3 4	S I	35		49		7				
CLAYEY SAND with GRAVEL: Dark brown (7.5YR 3/4), dry to moist, very dense; subangular to subrounded, fine to coarse sand and fine gravel	SC	5 6 7 8	S I	66								
		9 10 11 12 13	S I	50/6"		26		23				
		14 15 16	S I	62								
LEAN CLAY with SAND: Brown (10YR 4/3) and gray brown (10YR 5/2), moist, very stiff to hard; with mostly fine sand	CL	17 18 19 20	S I	39		73		23				

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 1
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B53, 140# hammer	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

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

GROUND WATER DEPTH: Initial: --- Final: 42 feet

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
LEAN CLAY with SAND: continued	CL	21										
		22										
POORLY GRADED GRAVEL with SAND and CLAY: Dark brown (7.5YR 3/4), moist, very dense; fine gravel; with fine to coarse sand	GP-GC	23										
		24	S	86		11						
		25	I									
		26										
		27										
SANDY LEAN CLAY: Dark yellowish brown (10YR 4/4) with light gray (10YR 7/2), moist, hard; with mostly fine sand	CL	28										
		29	S	64		70		22				
		30	I									
		31										
		32										
		33										
		34	S	51								
		35	I									
		36										
		37										
		38										
		39	S	84/6"								
see next page		40	D									

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 1
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B53, 140# hammer	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	---

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

GROUND WATER DEPTH: Initial: --- Final: 42 feet

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
CLAYEY SAND with GRAVEL: Brown (10YR 4/3), moist to wet, very dense; fine to coarse sand and mostly fine gravel	SC	41										
		42										
		43										
		44	S	96								
		45	I									
BOTTOM OF HOLE = 45 Feet		46										
		47										
		48										
		49										
		50										
		51										
		52										
		53										
		54										
		55										
		56										
		57										
		58										
		59										
		60										

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 2
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B53, 140# hammer	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	-----

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

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

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
ALLUVIUM, SANDY SILTY CLAY: Grayish brown (10YR 5/2), dry, very stiff to hard; with subangular to subrounded, fine to coarse sand	CL-ML	1	S									
		2	D	46				9		105		
		3	S									
		4	D	74				9		110		
CLAYEY SAND with GRAVEL: Brown (7.5YR 4/4), dry to moist, very dense; fine to coarse sand; with fine gravel	SC	5	S									
		6	I	85		22						
		7										
		8										
with fine to coarse gravel		9	S	87/								
		10	I	11"		18						
		11										
CLAYEY GRAVEL with SAND: Brown (7.5YR 4/4), dry to moist, dense to very dense; fine to coarse sand; with fine to coarse gravel	GC	12										
		13										
		14	S									
		15	I	56		13						
		16										
SANDY LEAN CLAY: Brown (10YR 5/3) and strong brown (7.5YR 4/6), moist, very stiff to hard; with mostly fine sand	CL	17										
		18										
		19	S									
BOTTOM OF HOLE = 20 Feet		20	I	32								
No groundwater encountered												

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 3
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B53, 140# auto-hammer	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	-----

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

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

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
FILL, SANDY SILTY CLAY: Dark grayish brown (10YR 4/2), dry, very stiff to hard; with fine to coarse sand	CL-ML	1	S									
		2	D	38								
with brick fragments up to 2.5" in diameter down to 4 feet		3	D									
ALLUVIUM, SANDY SILTY CLAY: Dark grayish brown (10YR 4/2), dry, very stiff to hard; with fine to coarse sand	CL-ML	4	S	40								
		5	D									
		6	I	69								
CLAYEY SAND with GRAVEL: Brown (7.5YR 4/4), moist, dense to very dense; fine to coarse sand and fine gravel	SC	7										
		8										
		9	S									
		10	I	55		25		11				
		11										
		12										
		13										
very dense		14	S									
		15	I	94								
		16										
		17										
		18										
dense to very dense		19	S									
BOTTOM OF HOLE = 20 Feet		20	I	51								
No groundwater encountered												

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 4
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B53, 140# hammer	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	-----

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

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

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
ALLUVIUM, SANDY SILTY CLAY: Brown (10YR 4/3), moist, stiff to very stiff; with mostly fine sand	CL-ML	1	S									
		2	D	33			19	12	4	103		
		3	D									
CLAYEY SAND with GRAVEL: Brown to dark brown (10YR 4/3 to 3/3), moist, dense to very dense; fine to coarse sand; with fine to coarse gravel	SC	4	D	86		31		12		112		
		5	I									
		6	I	50								
		7										
CLAYEY GRAVEL with SAND: Brown (7.5YR 4/3), moist, very dense; fine to coarse sand and gravel	GC	8										
		9	I									
		10	I	90		17						
		11										
CLAYEY SAND with GRAVEL: Brown (7.5YR 4/3), moist, very dense; fine to coarse sand; with fine to coarse gravel	SC	12										
		13										
		14	I	50/6"		26						
		15										
		16										
		17										
SANDY LEAN CLAY: Grayish brown (10YR 5/2) and strong brown (7.5YR 4/6), moist, very stiff to hard; with mostly fine sand	CL	18										
		19	I	57								
BOTTOM OF HOLE = 20 Feet		20	I									
No groundwater encountered												

GEO-LOGIC ASSOCIATES | **PAGE:** 1 of 1

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 5
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B40, 140# downhole hammer & wire winch	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	-----

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

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

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
ALLUVIUM, SANDY SILTY CLAY: Brown (10YR 4/3), moist, stiff to very stiff; with mostly fine sand	CL-ML	1	S									
		2	D	22								
		3	D			61		19		106		
CLAYEY SAND with GRAVEL: Brown (7.5YR 4/4), moist, dense; fine to coarse sand and fine gravel	SC	4	S	58								
		5	D					13		105		
		6	S	42		31						
		7	I									
		8										
		9	S	38								
		10	I			32						
CLAYEY SAND to SANDY LEAN CLAY: Brown (7.5YR 4/3), moist, very dense sand/hard clay; fine to coarse sand and fine gravel	SC/CL	11										
		12										
		13										
		14	S	73								
		15	I			49						
		16										
SILTY CLAYEY SAND: Brown (7.5YR 4/4), moist, very dense; mostly fine sand	SC/SM	17										
		18										
		19	S	65								
BOTTOM OF HOLE = 20 Feet		20	I									
No groundwater encountered												

DATE: 5/25/2018	LOG OF EXPLORATORY DRILL HOLE	DH- 6
PROJECT NAME: 880 & 910 Harriet Avenue	PROJECT NUMBER:	PA18.1011
DRILL RIG: Mobile B40, 140# downhole hammer & wire winch	LOGGED BY:	CSS
HOLE DIAMETER: 8" hollow stem auger	HOLE ELEVATION:	-----

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

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

DESCRIPTION OF EARTH MATERIALS	SOIL TYPE	DEPTH (ft)	SAMPLE	BLOWS PER FOOT	POCKET PEN (tsf)	% PASSING #200 SIEVE	LIQUID LIMIT	WATER CONTENT	PLASTICITY INDEX	DRY DENSITY (pcf)	FAILURE STRAIN (%)	UNCONFINED COMPRESSIVE STRENGTH (psf)
ALLUVIUM, SANDY SILTY CLAY: Brown (7.5YR 4/3), moist, very stiff to hard; with mostly fine sand	CL-ML	1										
		2	I	65								
CLAYEY SAND with GRAVEL: Dark brown (7.5YR 3/3), moist, very dense; fine to coarse sand; with fine gravel	SC	3	I									
		4										
		5	S									
		6	I	72								
BOTTOM OF HOLE = 6.5 Feet No groundwater encountered		7	I									
		8										
		9										
		10										
		11										
		12										
		13										
		14										
		15										
		16										
		17										
		18										
		19										
		20										

APPENDIX B

LABORATORY TEST RESULTS

ATTERBERG LIMITS

Summary Report

ASTM D-4318

Geo-Logic ASSOCIATES

Client : Pacific Geotechnical Engineering

Project No: PA18.1011.00

Lab Log No.: **4377**

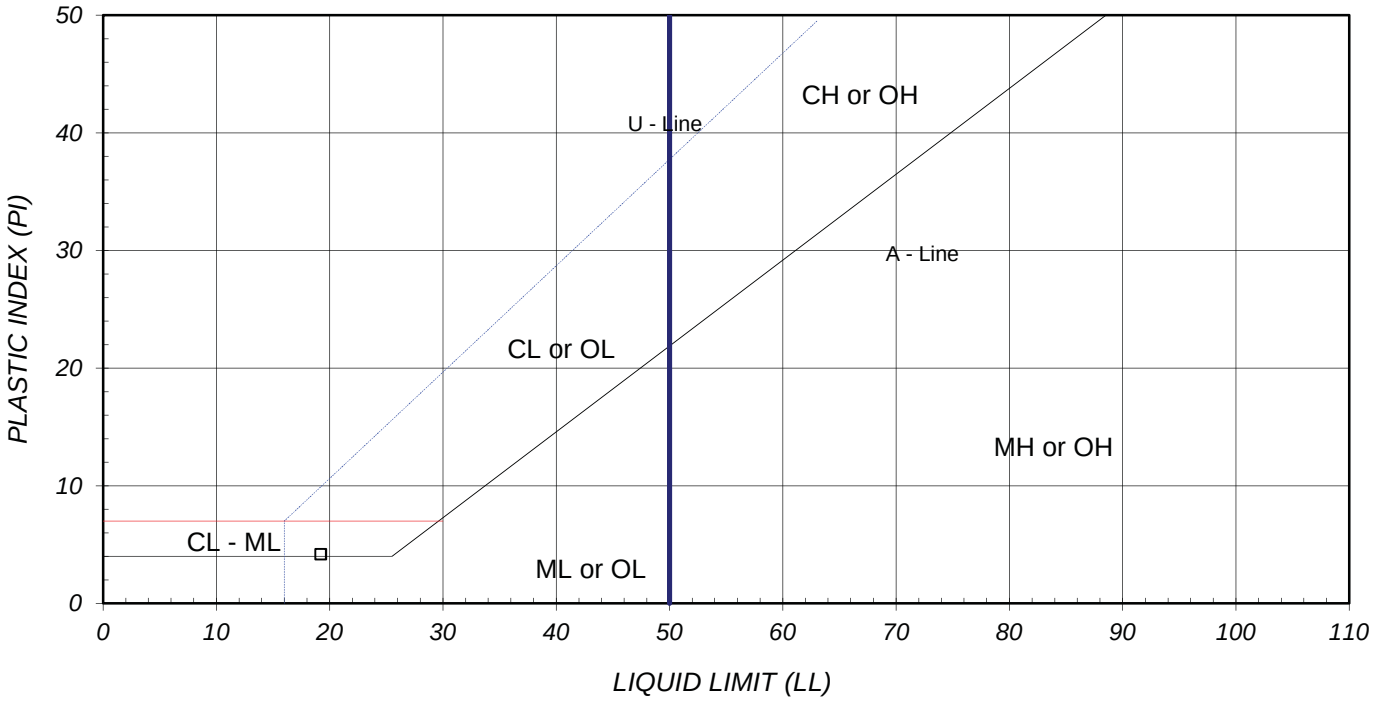
Project Name: 880 & 910 Harriet Avenue

Report Date: June 15, 2018

LSN	SYMBOL	SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX
4377M	□	DH-4 @ 2.0'	Brown Silty Clay	19	15	4

* Visual Classification based on ASTM D-2488

PLASTICITY CHART



This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the samples supplied and tested for the above referenced job.

PARTICLE SIZE ANALYSIS

Test Report

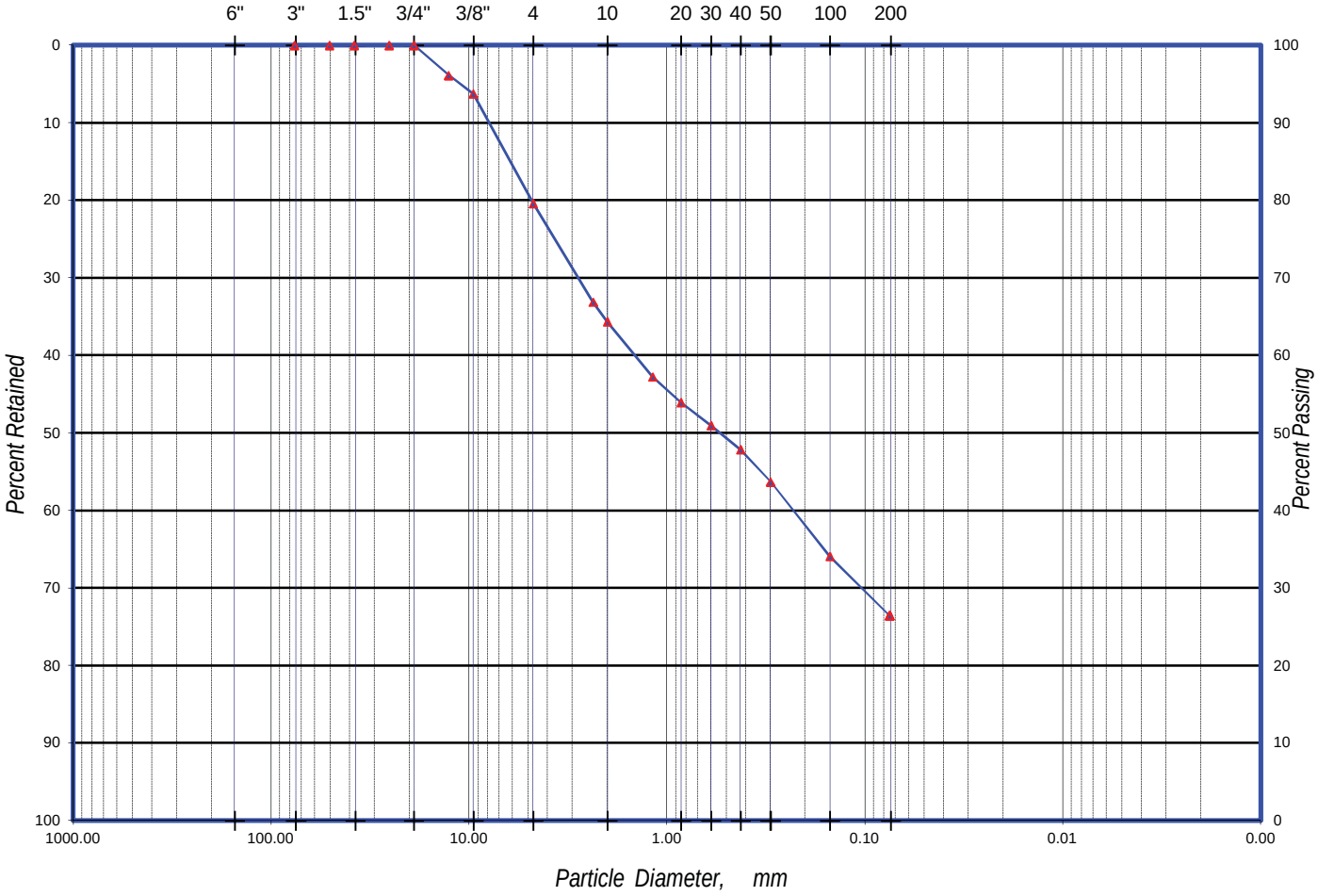
ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Geo-Logic ASSOCIATES

Client :	Project No:	Lab Sample No:
PACIFIC GEOTECHNICAL ENGINEERING	PA18.1011.00	**4377B**

Project Name:	Report Date:
880 & 910 HARRIET AVENUE	June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH1 @ 9-9.5'	Brown Clayey Sand w/ Gravel	20.4	53.2	26.4

Size Passing, mm D_{60} = 1.50 D_{30} = 0.11 D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 2.74

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the sampl supplied and tested for the above referenced job

PARTICLE SIZE ANALYSIS

Test Report

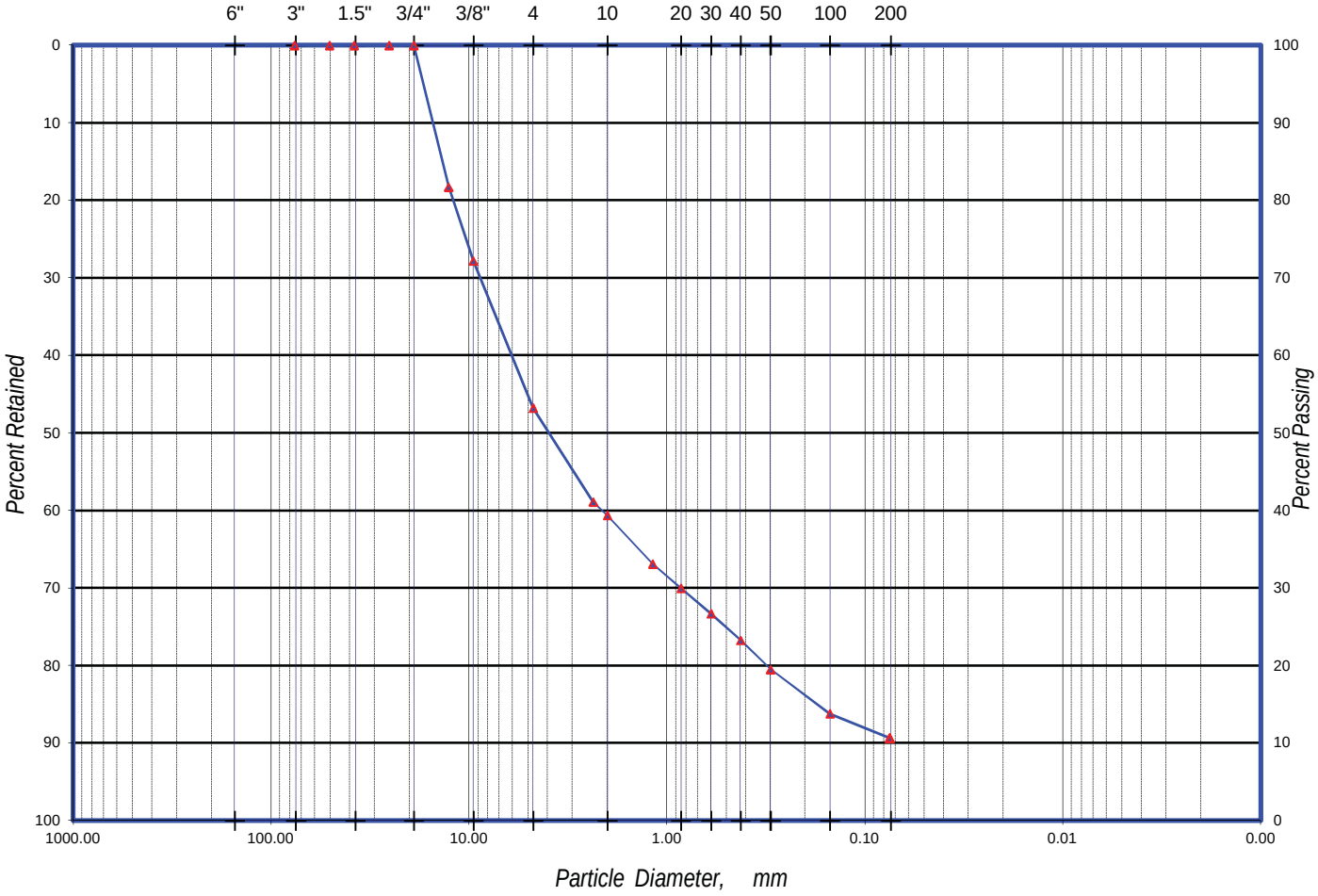
ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Geo-Logic ASSOCIATES

Client :	Project No:	Lab Sample No:
PACIFIC GEOTECHNICAL ENGINEERING	PA18.1011.00	**4377D**

Project Name:	Report Date:
880 & 910 HARRIET AVENUE	June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH1 @ 24-25'	Brown Gravel w/ Clay and Sand	46.8	42.6	10.6

Size Passing, mm D_{60} = 6.46 D_{30} = 0.85 D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 4.40

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the sampl supplied and tested for the above referenced job

PARTICLE SIZE ANALYSIS

Test Report

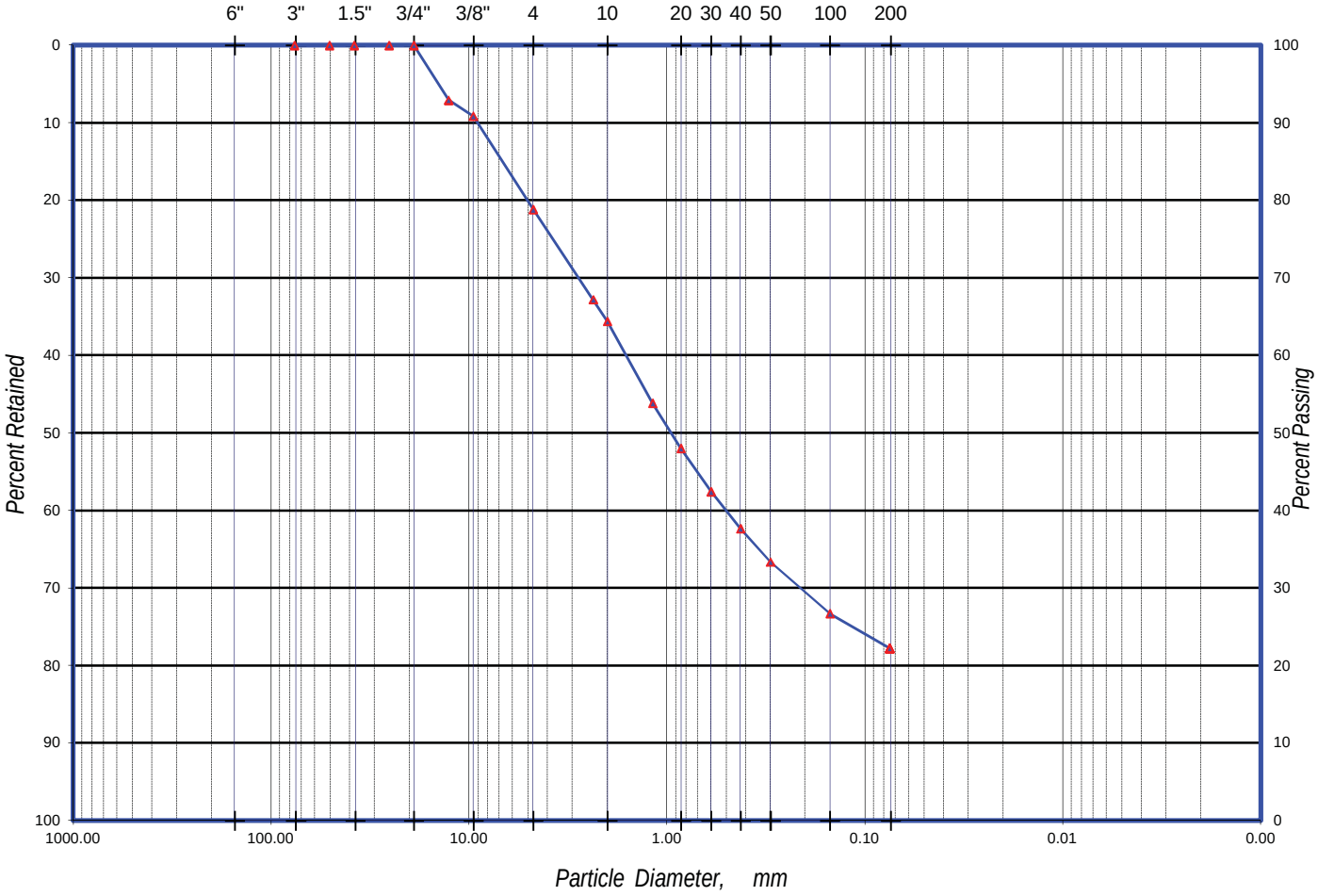
ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Geo-Logic ASSOCIATES

Client :	Project No:	Lab Sample No:
PACIFIC GEOTECHNICAL ENGINEERING	PA18.1011.00	**4377H**

Project Name:	Report Date:
880 & 910 HARRIET AVENUE	June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH2 @ 5.5-6.5'	Brown Clayey Sand w/ Gravel	21.2	56.6	22.2

Size Passing, mm D_{60} = 1.66 D_{30} = 0.22 D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 3.07

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

Geo-Logic ASSOCIATES

PARTICLE SIZE ANALYSIS

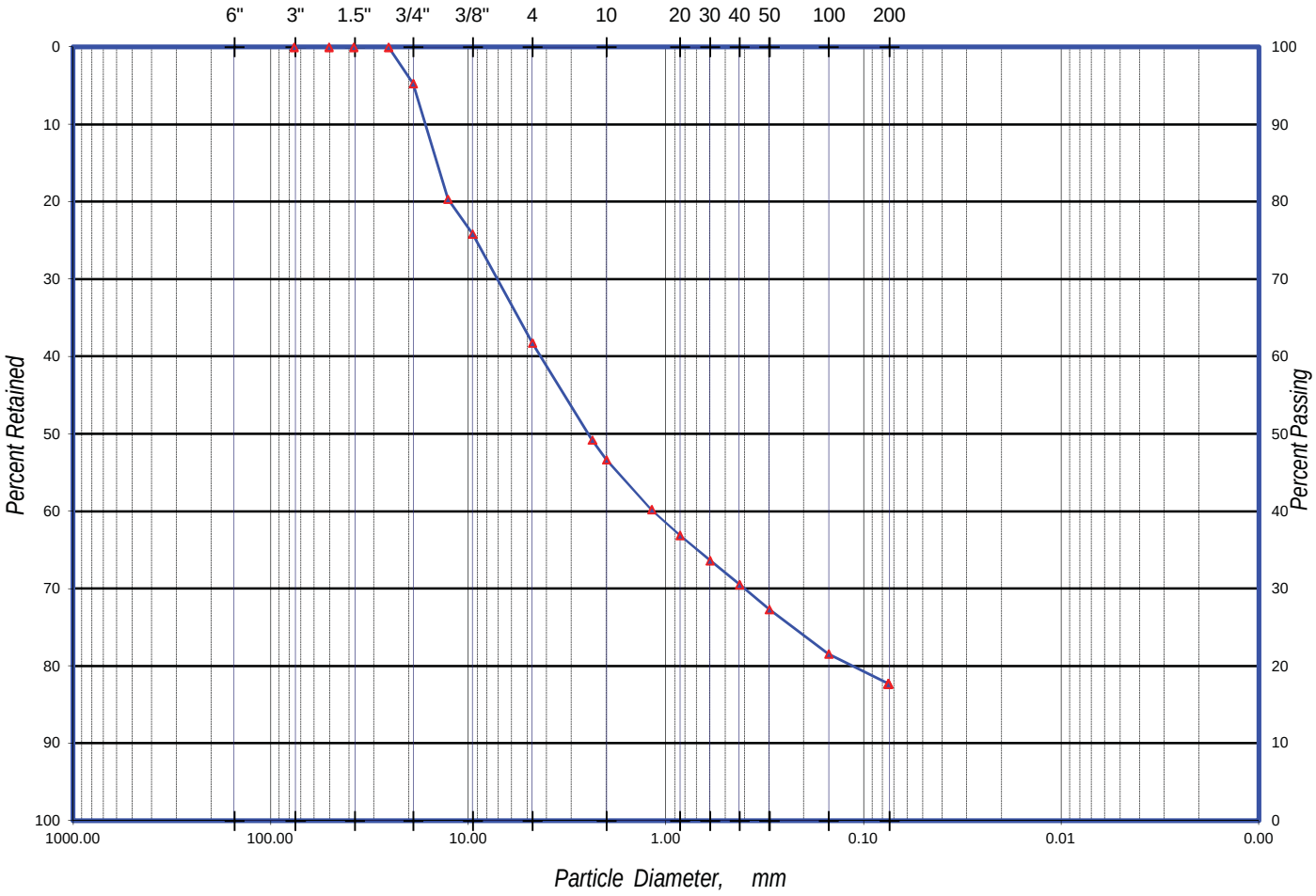
Test Report

ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Client :	Project No:	Lab Sample No:
PACIFIC GEOTECHNICAL ENGINEERING	PA18.1011.00	**4377I**

Project Name:	Report Date:
880 & 910 HARRIET AVENUE	June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH2 @ 9-10'	Brown Clayey Sand w/ Gravel	38.2	44.1	17.7

Size Passing, mm D_{60} = 4.42 D_{30} = 0.40 D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 3.95

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the sampl supplied and tested for the above referenced job

PARTICLE SIZE ANALYSIS

Test Report

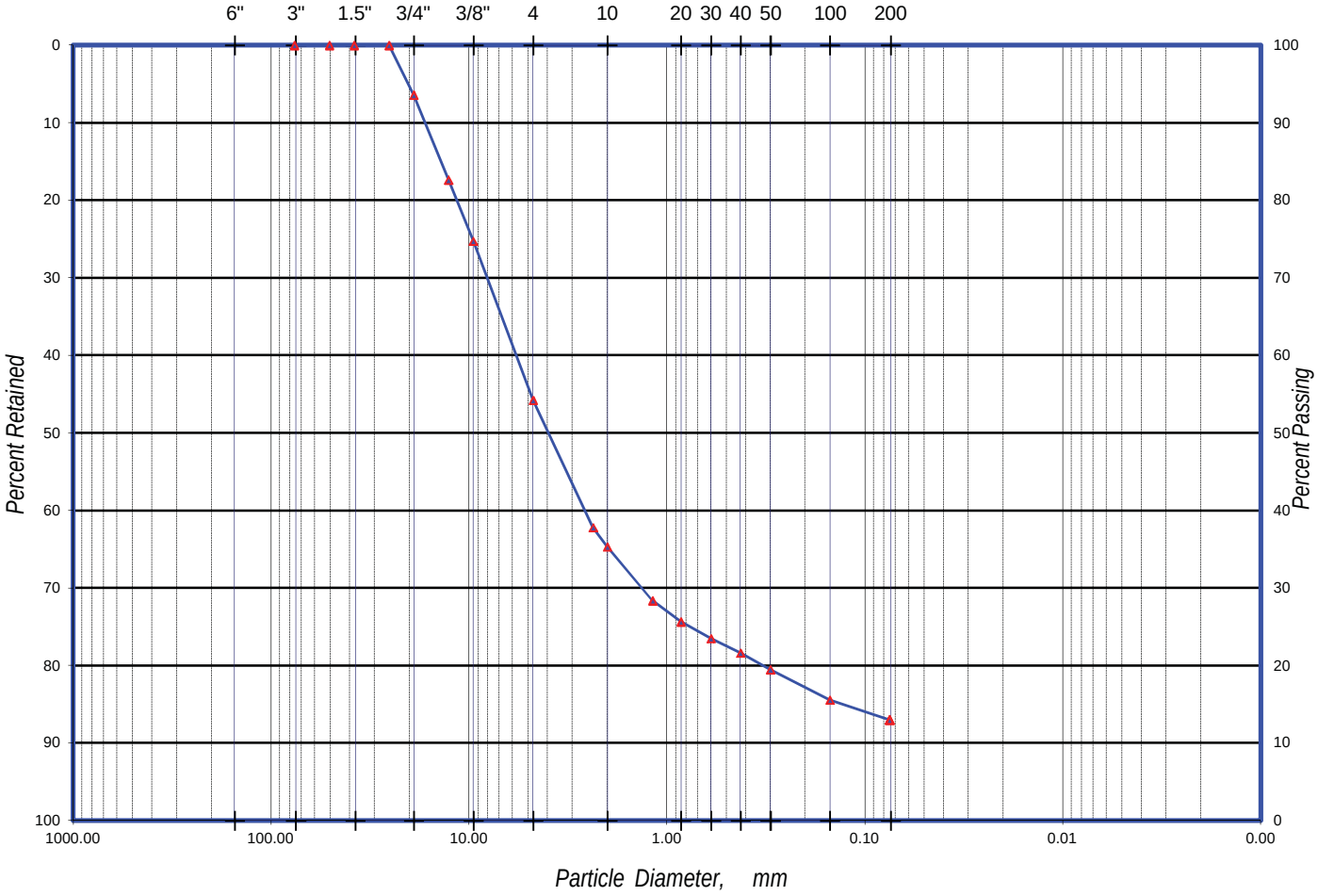
ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Geo-Logic ASSOCIATES

Client :	Project No:	Lab Sample No:
PACIFIC GEOTECHNICAL ENGINEERING	PA18.1011.00	**4377J**

Project Name:	Report Date:
880 & 910 HARRIET AVENUE	June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH2 @ 14-15'	Brown Clayey Gravel w/ Sand	45.8	41.2	13.0

Size Passing, mm D_{60} = 6.10 D_{30} = 1.37 D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 4.53

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the sampl supplied and tested for the above referenced job

PARTICLE SIZE ANALYSIS

Test Report

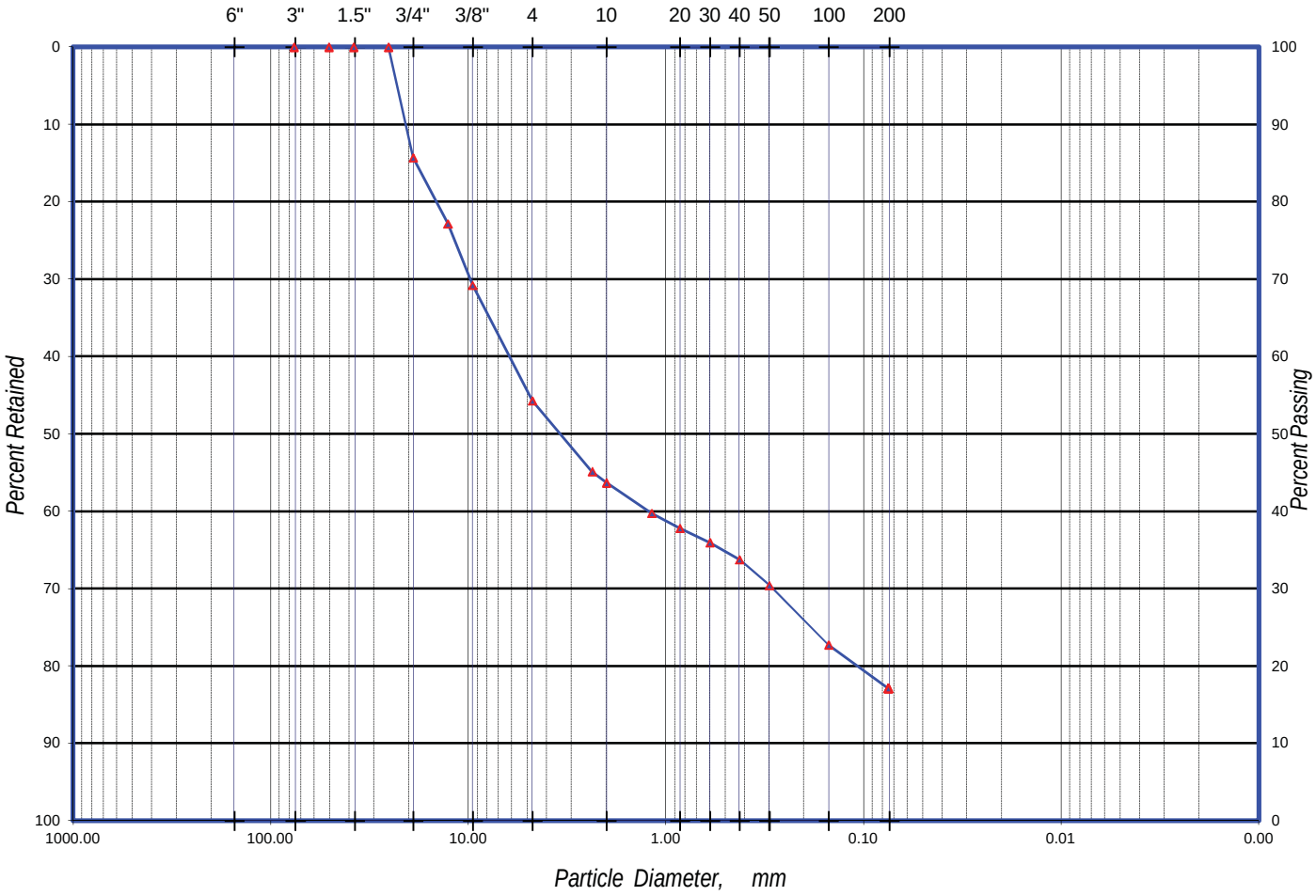
ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Geo-Logic ASSOCIATES

Client :	Project No:	Lab Sample No:
PACIFIC GEOTECHNICAL ENGINEERING	PA18.1011.00	**4377O**

Project Name:	Report Date:
880 & 910 HARRIET AVENUE	June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH4 @ 9-10'	Light Brown Clayey Gravel w/ Sand	45.7	37.1	17.1

Size Passing, mm D_{60} = 6.58 D_{30} = 0.29 D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 4.17

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the sampl supplied and tested for the above referenced job

PARTICLE SIZE ANALYSIS

Test Report

ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Client : PACIFIC GEOTECHNICAL ENGINEERING

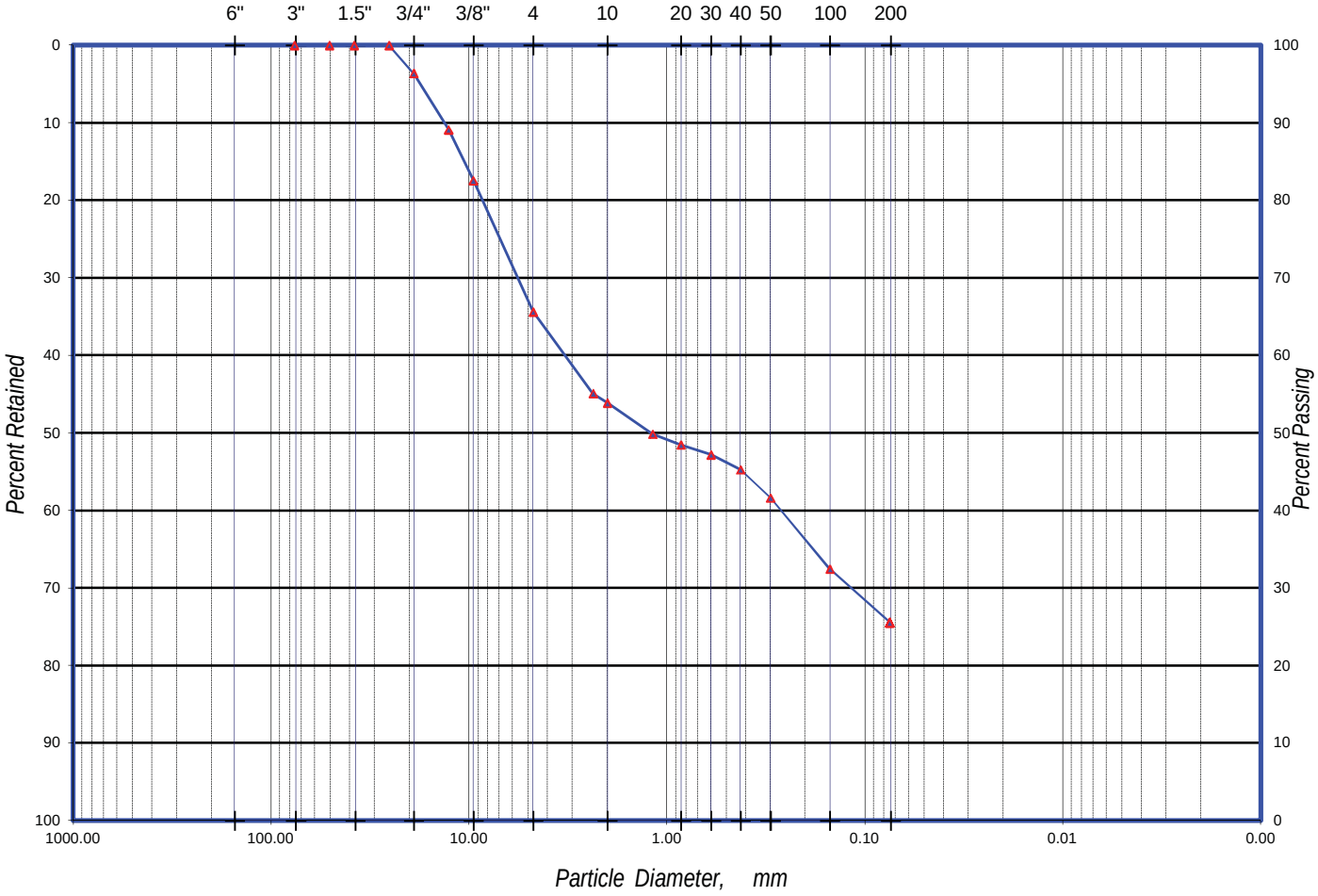
Project No: PA18.1011.00

Lab Sample No: **4377P**

Project Name: 880 & 910 HARRIET AVENUE

Report Date: June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH4 @ 14.0'	Brown Clayey Sand w/ Gravel	34.4	40.1	25.5

Size Passing, mm D_{60} = 3.47 D_{30} = 0.12 D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 3.29

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

PARTICLE SIZE ANALYSIS

Test Report

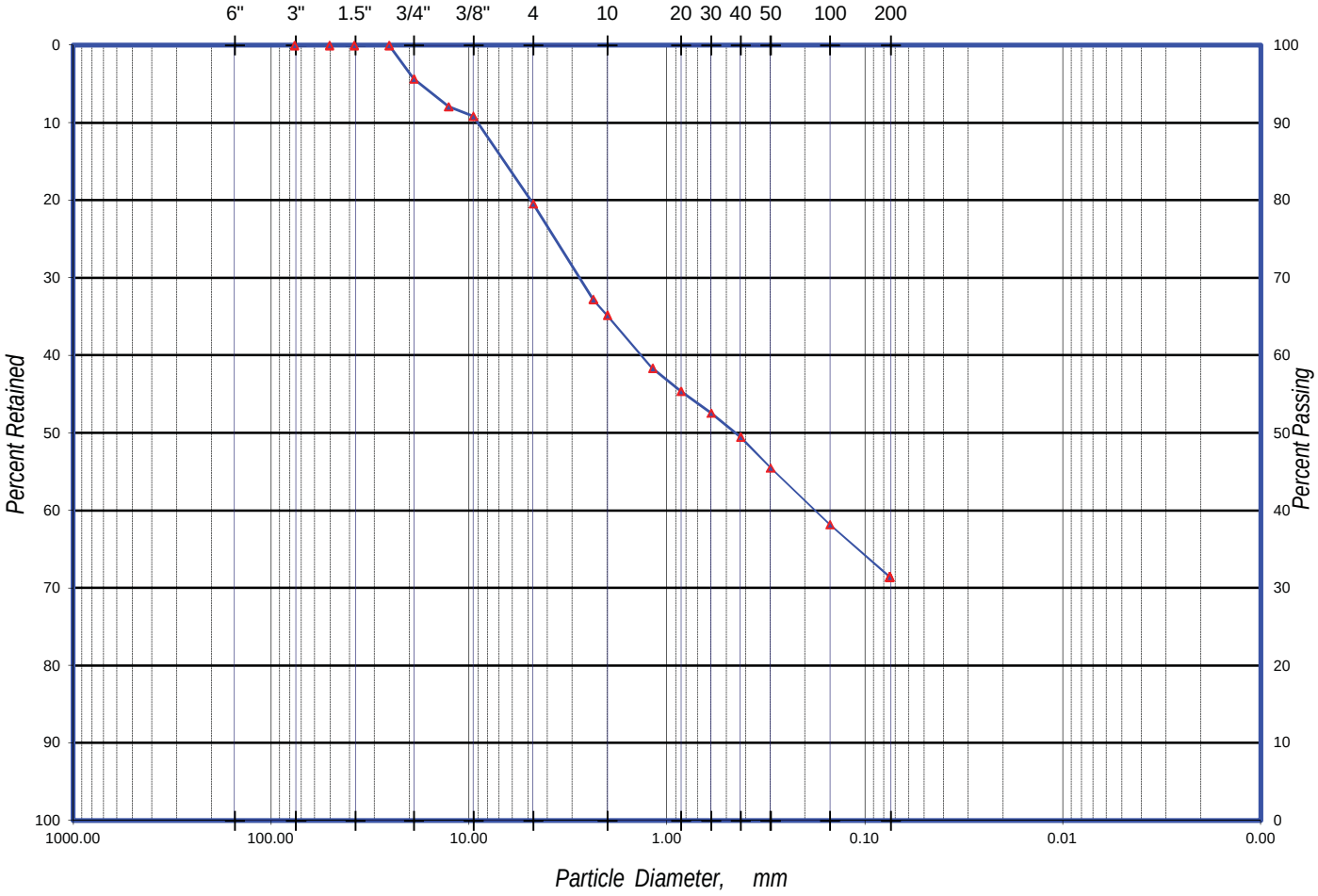
ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Geo-Logic ASSOCIATES

Client :	Project No:	Lab Sample No:
PACIFIC GEOTECHNICAL ENGINEERING	PA18.1011.00	**4377S**

Project Name:	Report Date:
880 & 910 HARRIET AVENUE	June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH5 @ 5.5-6.5'	Brown Clayey Sand w/ Gravel	20.4	48.1	31.4

Size Passing, mm D_{60} = 1.38 D_{30} = N/A D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 2.72

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

This testing is based upon accepted industry practice as well as the test method listed. These results apply only to the sampl supplied and tested for the above referenced job

PARTICLE SIZE ANALYSIS

Test Report

ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Client : PACIFIC GEOTECHNICAL ENGINEERING

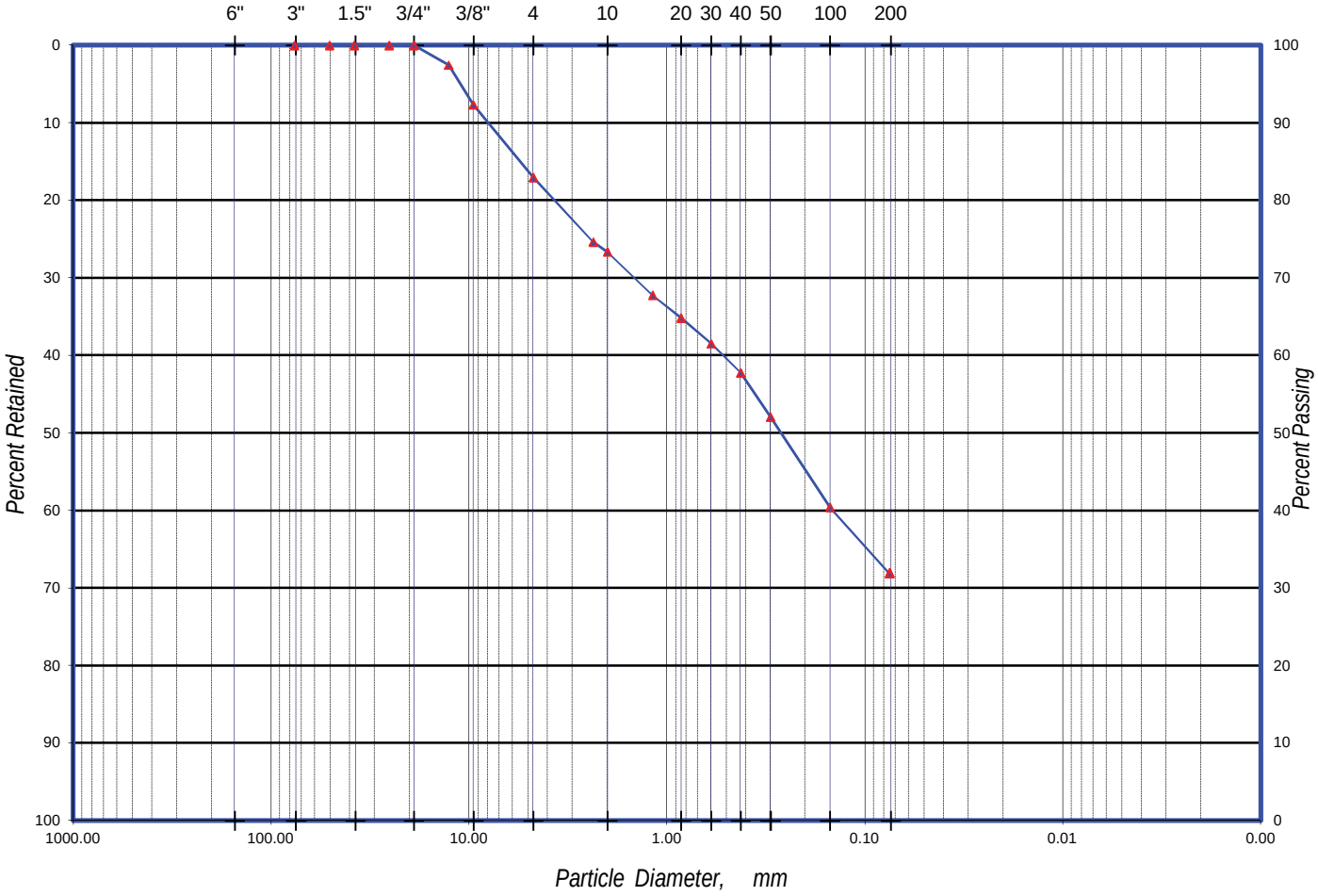
Project No: PA18.1011.00

Lab Sample No: **4377T**

Project Name: 880 & 910 HARRIET AVENUE

Report Date: June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH5 @ 9-10'	Brown Clayey Sand w/ Gravel	17.1	51.0	31.9

Size Passing, mm D_{60} = 0.53 D_{30} = N/A D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 2.28

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

PARTICLE SIZE ANALYSIS

Test Report

ASTM D-6913 / D-7928, (replacing D-422)
Method A: (+/-1%)

Client : PACIFIC GEOTECHNICAL ENGINEERING

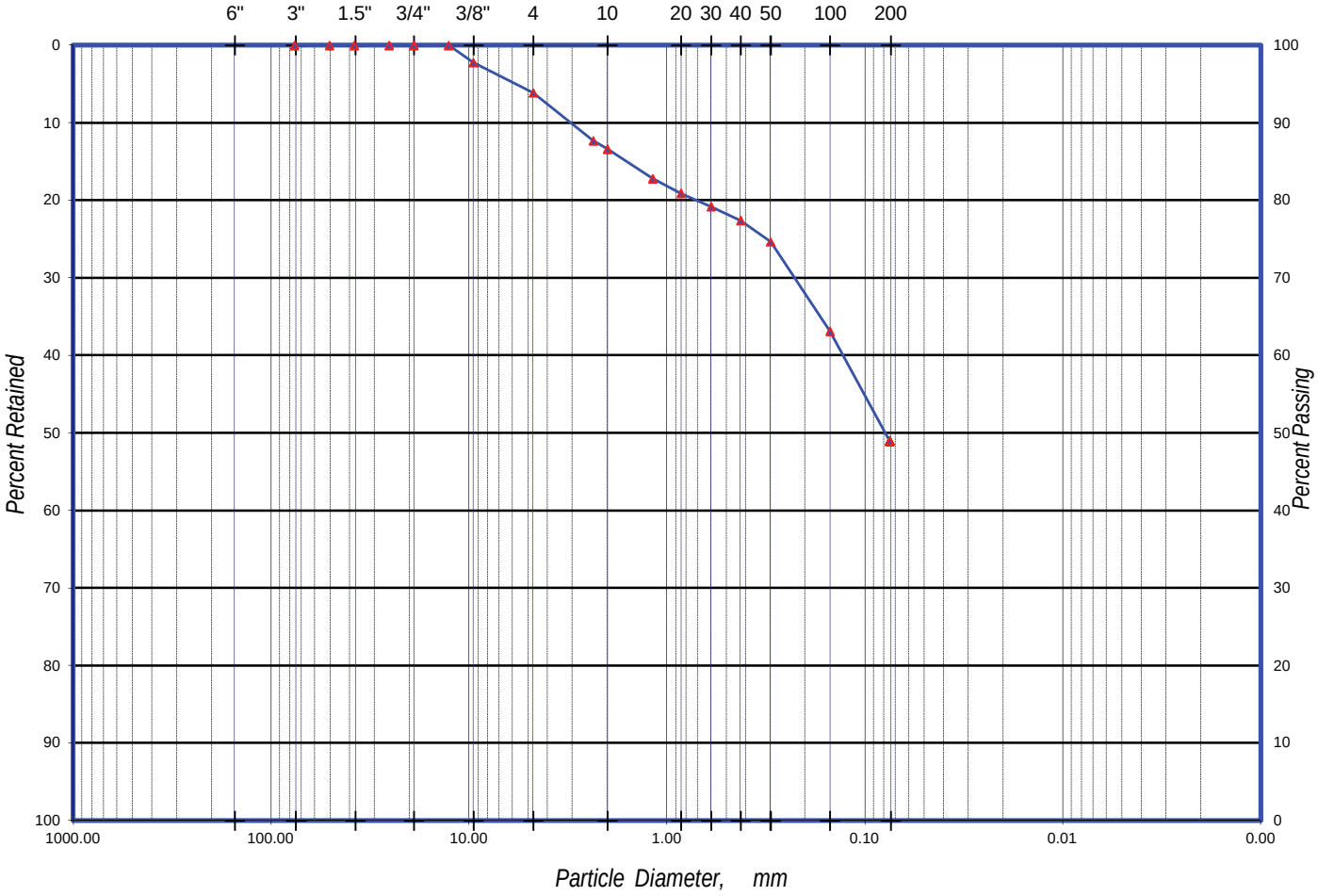
Project No: PA18.1011.00

Lab Sample No: **4377U**

Project Name: 880 & 910 HARRIET AVENUE

Report Date: June 13, 2018

BOULDERS	COBBLES	GRAVEL		SAND			SILT AND CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	
US SIEVE SIZE, INCHES				US STANDARD SIEVE SIZE No.			HYDROMETER



Symbol	Sample ID	* Description	% Gravel	% Sand	% Silt - Clay
▲	DH5 @ 14-15'	Brown Silty Clayey Sand	6.1	44.9	49.0

Size Passing, mm D_{60} = 0.13 D_{30} = N/A D_{10} = N/A

Coefficient of Curvature, C_c: N/A Coefficient of Uniformity, C_u: N/A Fineness Modulus = 1.21

* Visual Classification based on ASTM D-2488

Note: * Percentages are +/- 0.1% based on computer rounding as allowed by ASTM D-6026-01 Section 5.2.3.

Geo-Logic ASSOCIATES

R-VALUE TEST REPORT

PROJECT NAME	880 & 910 Harriet Avenue					PROJECT No.	PA18.1011
DRILL HOLE:	DH-4	DEPTH, ft:	1 to 4	SAMPLE:	Bulk 1	DATE OF TEST	6/20/2018
SOURCE/QUARRY:	on-site soil						
SOIL DESCRIPTION:	Sandy Silty Clay						

Specimen Number	A	B	C	D
Exudation Pressure, psi	202	317	496	
Prepared Weight, grams				
Final Water Added, grams/cc				
Weight of Soil & Mold, grams				
Weight of Mold, grams				
Height After Compaction, in.	2.575	2.482	2.451	
Moisture Content, %	10.8	10.0	9.1	
Dry Density, pcf	122.3	124.9	126.7	
Expansion Pressure, psf	39	134	238	
Stabilometer @ 1000	48	35	27	
Stabilometer @ 2000	118	88	60	
Turns Displacement	4.1	3.88	3.65	
R-value	18	35	53	

Remarks:

Initial Moisture= 11.5 %

R-value by Stabilometer: 33

Expansion Pressure: 121 psf

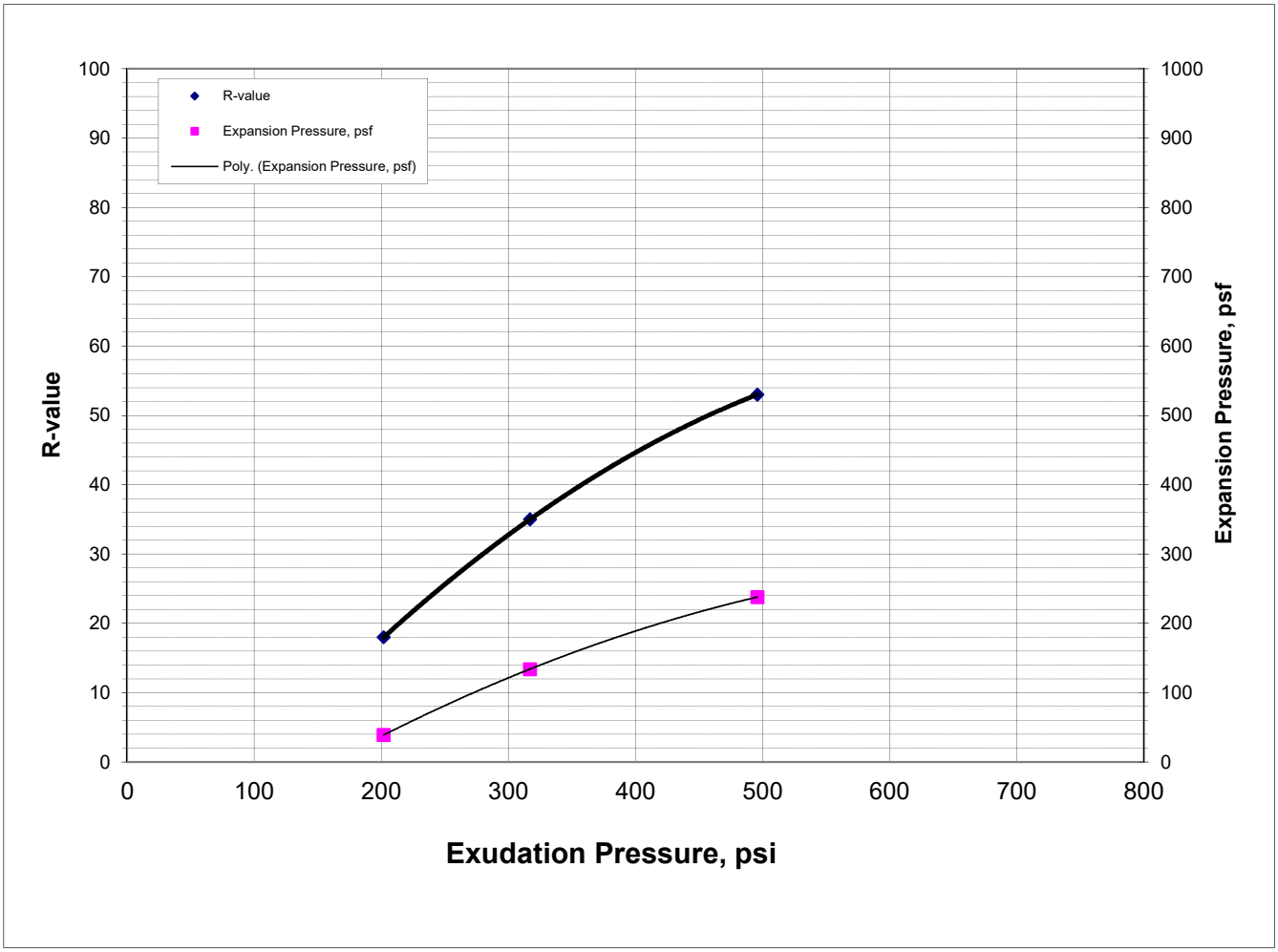


Figure B-12