



County of Santa Cruz

PLANNING DEPARTMENT

701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131

KATHLEEN MOLLOY, PLANNING DIRECTOR

www.sccoplanning.com

NOTICE OF INTENT TO ADOPT A NEGATIVE DECLARATION

NOTICE OF PUBLIC REVIEW AND COMMENT PERIOD

Pursuant to the California Environmental Quality Act, the following project has been reviewed by the County Environmental Coordinator to determine if it has a potential to create significant impacts to the environment and, if so, how such impacts could be solved. A Negative Declaration is prepared in cases where the project is determined not to have any significant environmental impacts. Either a Mitigated Negative Declaration or Environmental Impact Report (EIR) is prepared for projects that may result in a significant impact to the environment.

Public review periods are provided for these Environmental Determinations according to the requirements of the County Environmental Review Guidelines. The environmental document is available for review at the County Planning Department located at 701 Ocean Street, in Santa Cruz. You may also view the environmental document on the web at www.sccoplanning.com under the Planning Department menu. If you have questions or comments about this Notice of Intent, please contact Matt Johnston at (831) 454-5357.

The County of Santa Cruz does not discriminate on the basis of disability, and no person shall, by reason of a disability, be denied the benefits of its services, programs or activities. If you require special assistance in order to review this information, please contact Bernice Shawver at (831) 454-3137 to make arrangements.

PROJECT: Dwellings at Soquel

APP #: 181231

APN: 037-113-26

PROJECT DESCRIPTION: This is a proposal to demolish an existing garage, relocate an existing single-family dwelling and construct 13 new townhomes and associated site improvements. The project requires a Subdivision and Residential Development Permit for creating a right of way less than 40 feet in width.

PROJECT LOCATION: The project is located on the north side of Soquel Drive within the community of Soquel in unincorporated Santa Cruz County. Santa Cruz County is bounded on the north by San Mateo County, on the south by Monterey and San Benito counties, on the east by Santa Clara County, and on the south and west by the Monterey Bay and the Pacific Ocean. From Santa Cruz, take Highway 1 south to the Park Avenue exit, head north on Park Avenue, at Soquel Avenue turn west. Property is located on the north side of Soquel Drive approximately 450 feet west of the intersection with Park Avenue (5701 Soquel Drive).

APPLICANT/OWNER: Workbench, Attn: Tim Gordin

PROJECT PLANNER: Nathan MacBeth, (831) 454-3118

EMAIL: Nathan.MacBeth@santacruzcounty.us

ACTION: Negative Declaration

REVIEW PERIOD: September 29, 2019 through October 18, 2019

This project will be considered at a public hearing before the Planning Commission. The time, date and location have not been set. When scheduling does occur, these items will be included in all public hearing notices for the project.



COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT

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(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

KATHLEEN MOLLOY, PLANNING DIRECTOR

<http://www.sccoplanning.com/>

NEGATIVE DECLARATION

Project: Dwellings at Soquel

APPLICATION #: 181231

APN: 037-113-26

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Owner: Workbench

Applicant: Workbench, Attn: Tim Gordin

Staff Planner: Nathan MacBeth, (831) 454-3118

Email: Nathan.MacBeth@santacruzcounty.us

This project will be considered at a public hearing before the Planning Commission. The time, date and location have not been set. When scheduling does occur, these items will be included in all public hearing notices for the project

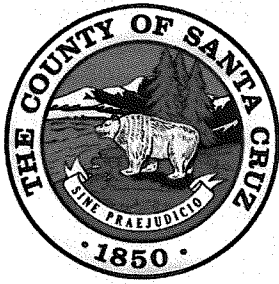
California Environmental Quality Act Negative Declaration Findings:

Find, that this Negative Declaration reflects the decision-making body's independent judgment and analysis, and; that the decision-making body has reviewed and considered the information contained in this Negative Declaration and the comments received during the public review period, and; on the basis of the whole record before the decision-making body (including this Negative Declaration) that there is no substantial evidence that the project will have a significant effect on the environment. The expected environmental impacts of the project are documented in the attached Initial Study on file with the County of Santa Cruz Clerk of the Board located at 701 Ocean Street, 5th Floor, Santa Cruz, California.

Review Period Ends: October 18, 2019

Date: _____

MATT JOHNSTON, Environmental Coordinator
(831) 454-5357



County of Santa Cruz

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KATHLEEN MOLLOY, PLANNING DIRECTOR

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CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) INITIAL STUDY/ENVIRONMENTAL CHECKLIST

Date: September 17, 2019

Application Number: 181231

Project Name: Dwellings at Soquel

Staff Planner: Nathan MacBeth

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Workbench Attn Tim Gordin APN(s): 037-113-26

OWNER: Workbench

SUPERVISORAL DISTRICT: First District

PROJECT LOCATION: The project is located on the north side of Soquel Drive within the community of Soquel in unincorporated Santa Cruz County. Santa Cruz County is bounded on the north by San Mateo County, on the south by Monterey and San Benito counties, on the east by Santa Clara County, and on the south and west by the Monterey Bay and the Pacific Ocean.

From Santa Cruz, take Highway 1 south to the Park Avenue exist, head north on Park Avenue, at Soquel Avenue turn west. Property is located on the north side of Soquel Drive approximately 450 feet west of the intersection with Park Avenue (5701 Soquel Drive).

SUMMARY PROJECT DESCRIPTION:

This is a proposal to demolish an existing garage, relocate an existing single family dwelling and construct 13 new townhomes and associated site improvements. The project requires a Subdivision and Residential Development Permit for creating a right of way less than 40 feet in width.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: *All of the following potential environmental impacts are evaluated in this Initial Study. Categories that are marked have been analyzed in greater detail based on project specific information.*

- | | |
|---|---|
| <input type="checkbox"/> Aesthetics and Visual Resources | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Noise |
| <input checked="" type="checkbox"/> Air Quality | <input type="checkbox"/> Population and Housing |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Transportation |

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: All of the following potential environmental impacts are evaluated in this Initial Study. Categories that are marked have been analyzed in greater detail based on project specific information.

- | | |
|---|---|
| <input type="checkbox"/> Geology and Soils | <input type="checkbox"/> Tribal Cultural Resources |
| <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Utilities and Service Systems |
| <input type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Wildfire |
| <input type="checkbox"/> Hydrology/Water Supply/Water Quality | <input type="checkbox"/> Mandatory Findings of Significance |
| <input type="checkbox"/> Land Use and Planning | |

DISCRETIONARY APPROVAL(S) BEING CONSIDERED:

- | | |
|--|---|
| <input type="checkbox"/> General Plan Amendment | <input type="checkbox"/> Coastal Development Permit |
| <input checked="" type="checkbox"/> Land Division | <input type="checkbox"/> Grading Permit |
| <input type="checkbox"/> Rezoning | <input type="checkbox"/> Riparian Exception |
| <input checked="" type="checkbox"/> Development Permit | <input type="checkbox"/> LAFCO Annexation |
| <input type="checkbox"/> Sewer Connection Permit | <input type="checkbox"/> Other: |

OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED (e.g., permits, financing approval, or participation agreement):

<u>Permit Type/Action</u>	<u>Agency</u>
Not Applicable (N/A)	N/A

CONSULTATION WITH NATIVE AMERICAN TRIBES: Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

No California Native American tribes traditionally and culturally affiliated with the area of Santa Cruz County have requested consultation pursuant to Public Resources Code section 21080.3.1.


DETERMINATION:

On the basis of this initial evaluation:

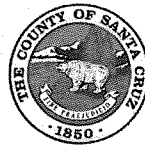
- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in

the project have been made or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

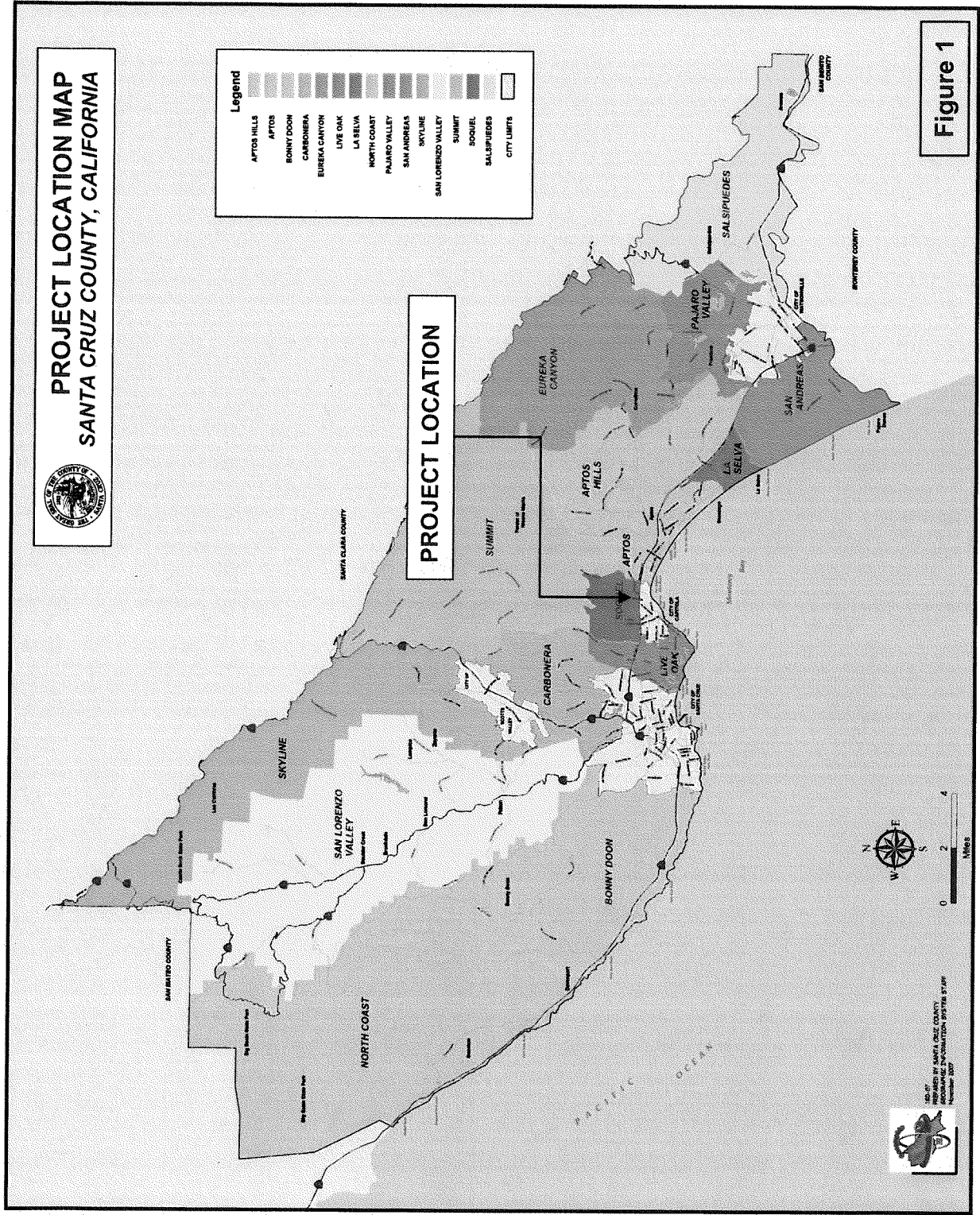
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one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


MATT JOHNSTON, Environmental Coordinator

9/23/19
Date



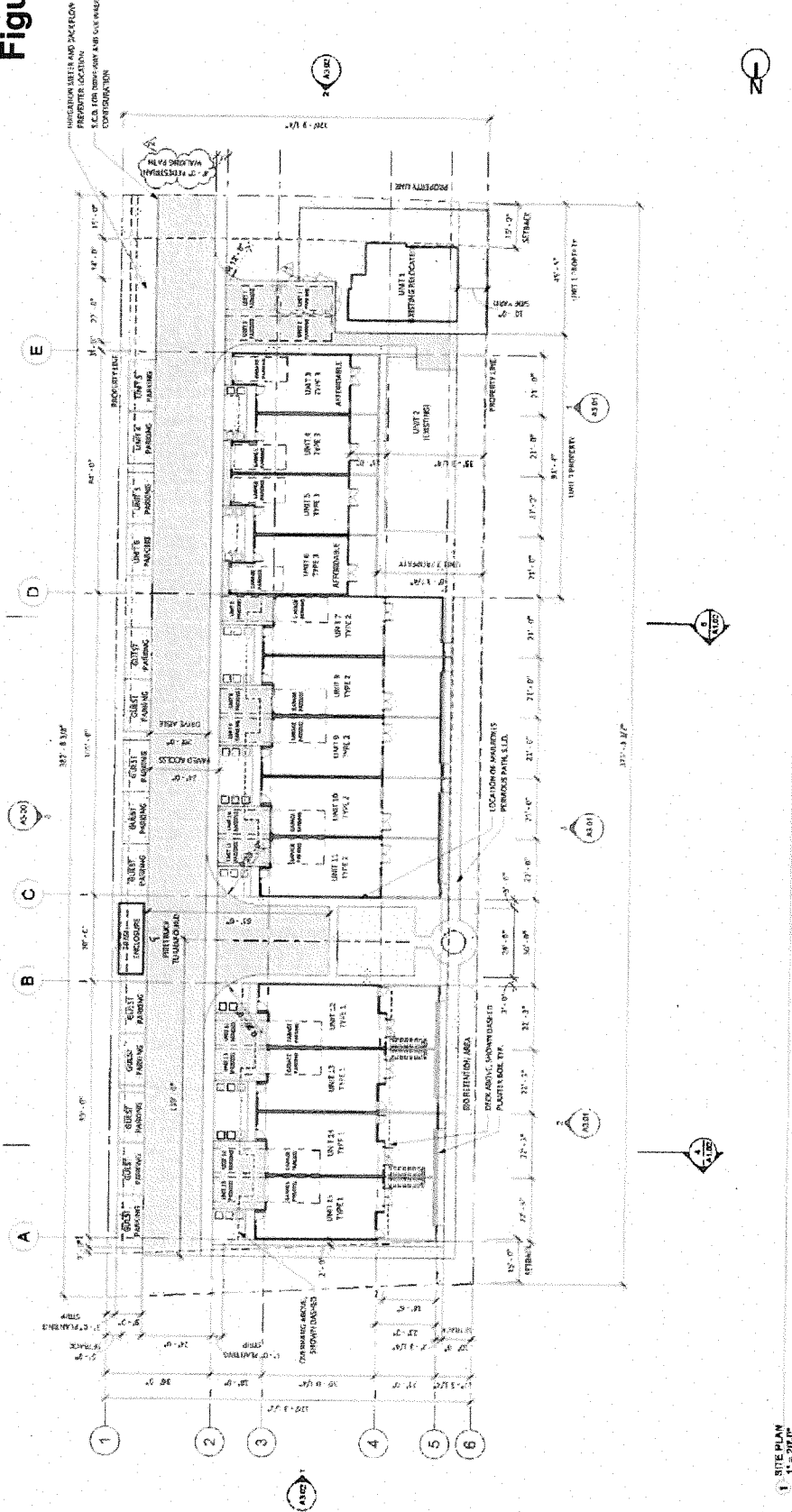
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Figure 2



Project Site Plan



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II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS:

Parcel Size (acres): 48,047 square feet
 Existing Land Use: Residential
 Vegetation: Several Oak Trees
 Slope in area affected by project: 0 - 30% 31 - 100% N/A
 Nearby Watercourse: Noble Gulch
 Distance To: Approximately 200 feet to the west of project site

ENVIRONMENTAL RESOURCES AND CONSTRAINTS:

Water Supply Watershed:	N/A	Fault Zone:	N/A
Groundwater Recharge:	Outside	Scenic Corridor:	Outside
Timber or Mineral:	N/A	Historic:	N/A
Agricultural Resource:	N/A	Archaeology:	N/A
Biologically Sensitive Habitat:	N/A	Noise Constraint:	N/A
Fire Hazard:	N/A	Electric Power Lines:	Across Soquel Drive
Floodplain:	N/A	Solar Access:	
Erosion:	N/A	Solar Orientation:	South Facing
Landslide:	N/A	Hazardous Materials:	N/A
Liquefaction:	Low	Other:	N/A

SERVICES:

Fire Protection:	Central Fire	Drainage District:	Zone 5
School District:	Santa Cruz High School	Project Access:	Soquel Drive
Sewage Disposal:	Sanitation	Water Supply:	Soquel Creek

PLANNING POLICIES:

Zone District:	RM-4 & RM-6	Special Designation:	N/A
General Plan:	R-UL, R-UM		
Urban Services Line:	<input checked="" type="checkbox"/> Inside	<input type="checkbox"/> Outside	
Coastal Zone:	<input type="checkbox"/> Inside	<input checked="" type="checkbox"/> Outside	

ENVIRONMENTAL SETTING AND SURROUNDING LAND USES:

Natural Environment

Santa Cruz County is uniquely situated along the northern end of Monterey Bay approximately 55 miles south of the City of San Francisco along the Central Coast. The

Pacific Ocean and Monterey Bay to the west and south, the mountains inland, and the prime agricultural lands along both the northern and southern coast of the county create limitations on the style and amount of building that can take place. Simultaneously, these natural features create an environment that attracts both visitors and new residents every year. The natural landscape provides the basic features that set Santa Cruz apart from the surrounding counties and require specific accommodations to ensure building is done in a safe, responsible and environmentally respectful manner.

The California Coastal Zone affects nearly one third of the land in the urbanized area of the unincorporated County with special restrictions, regulations, and processing procedures required for development within that area. Steep hillsides require extensive review and engineering to ensure that slopes remain stable, buildings are safe, and water quality is not impacted by increased erosion. The farmland in Santa Cruz County is among the best in the world, and the agriculture industry is a primary economic generator for the County. Preserving this industry in the face of population growth requires that soils best suited to commercial agriculture remain active in crop production rather than converting to other land uses.

PROJECT BACKGROUND:

The subject parcel is approximately 47,000 square feet in size and development with two single family dwellings and a detached garage. The project site can be accessed by two existing driveways located on the south side of the parcel (fronting Soquel Drive). The parcel is approximately 126 feet wide and 378 feet deep with the existing development located toward the front of the parcel. Six California Live Oak trees and a mix of mature vegetation surrounds the existing structures at the front of the parcel. The rear portion of the parcels lacks any notable vegetation with the exception of seasonal grass in the interior. A broken concrete slab located in the middle of the grassy area and likely the remanence of an older structure that has long since been removed. The concrete has been used for a variety of uses over the years including parking of vehicles and a basketball court. The project site has a split zoning RM-4 (Multi Family Residential (Minimum parcel 4,000 square feet)) and RM-6 (Multi Family Residential (Minimum parcel 6,000 square feet)) and General Plan designation of R-UL (Urban Low Residential Density) and R-UM (Urban Medium Residential Density). The surrounding pattern of development consists of a mix of residential and commercial development. The property is bordered to the north and east by a mobile home park, a multifamily dwelling unit is located to the west and single family dwellings are located across Soquel Drive the south.

DETAILED PROJECT DESCRIPTION:

This is a proposal to demolish an existing garage, relocate a single family dwelling, remodel the two existing single family dwellings and construct 13 new townhouse style dwellings.

Two of the proposed units would be deed restricted affordable for sale to occupants of moderate income.

The project proposes overexcavation and recompaction grading volumes in the amount of 1700 cubic yards and a total of 500 cubic yards of cut and 550 cubic yards of fill for construction of the proposed driveway and foundation preparation. Additional site improvements include construction of new drainage facilities to include bioretention and detention facilities, comprehensive landscape plan to include planting of approximately 20 new trees, site lighting, and installation of a common outdoor seating area containing accent lighting, mailboxes and fire turnaround. The project proposes to remove six California Live Oak trees and one Incense Cedar tree. Offsite improvements including realignment of an existing crosswalk on Soquel Drive, installation of Rectangular Rapid Flash Beacons (RRFB), storm drain improvements, and lane striping on Soquel Drive.

III. ENVIRONMENTAL REVIEW CHECKLIST

A. AESTHETICS AND VISUAL RESOURCES

Except as provided in Public Resources Code section 21099, would the project:

1. Have a substantial adverse effect on a scenic vista?

Discussion: The project is located in an area developed at an urban density. The project area is surrounded by a mix of one and two-story development. The project would not directly impact any public scenic vistas in the area.

No scenic vistas are in the vicinity of the project area and the sited is not within a designated scenic corridor. The project will not be visible from any public viewpoint and will have no impact on scenic vistas in this location.

2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Discussion:

The project is located within 0.25/0.5 mile of a county-designated scenic road. However, the project will not be visible from public viewpoints within the Highway 1, and impacts will be less than significant.

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

Discussion: The project is designed to be consistent with County Code sections that regulate height, bulk, density, setback, landscaping, and design of new structures in the County, including County Code Chapter 13.11, Site, Architectural and Landscape Design Review, including all applicable design guidelines.

4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Discussion: The project would create an incremental increase in night lighting. However, this increase would be small, and would be similar in character to the lighting associated with the surrounding existing uses.

B. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

- 1. 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?

Discussion: The project site does not contain any lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. In addition, the project does not contain Farmland of Local Importance. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide or Farmland of Local Importance would be converted to a non-agricultural use. No impact would occur from project implementation.

- 2. Conflict with existing zoning for agricultural use, or a Williamson Act contract?

Discussion: The project site is zoned RM-4 and RM-6, which is not considered to be an agricultural zone. Additionally, the project site's land is not under a Williamson Act contract. Therefore, the project does not conflict with existing zoning for agricultural use, or a Williamson Act contract. No impact is anticipated.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
3. <i>Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion: The project is not located near land designated as Timber Resource. Therefore, the project would not affect the resource or access to harvest the resource in the future. The timber resource may only be harvested in accordance with California Department of Forestry timber harvest rules and regulations.

4. <i>Result in the loss of forest land or conversion of forest land to non-forest use?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Discussion: No forest land occurs on the project site or in the immediate vicinity. See discussion under B-3 above. No impact is anticipated.

5. <i>Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Discussion: The project site and surrounding area within a radius of one mile does not contain any lands designated as Prime Farmland, Unique Farmland, Farmland of Statewide Importance or Farmland of Local Importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. Therefore, no Prime Farmland, Unique Farmland, Farmland of Statewide, or Farmland of Local Importance would be converted to a non-agricultural use. In addition, the project site contains no forest land, and no forest land occurs within 0.6 mile(s) of the project site. Therefore, no impacts are anticipated.

C. AIR QUALITY

The significance criteria established by the Monterey Bay Air Resources District (MBARD)¹ has been relied upon to make the following determinations. Would the project:

1. Conflict with or obstruct implementation of the applicable air quality plan?

Discussion: The project would not conflict with or obstruct any long-range air quality plans of the MBARD. Because general construction activity related emissions (i.e., temporary sources) are accounted for in the emission inventories included in the air quality plans, impacts to air quality plan objectives are less than significant.

General estimated basin-wide construction-related emissions are included in the MBARD emission inventory (which, in part, form the basis for the air quality plans cited below) and are not expected to prevent long-term attainment or maintenance of the ozone and particulate matter standards within the North Central Coast Air Basin (NCCAB). Therefore, temporary construction impacts related to air quality plans for these pollutants from the project would be less than significant, and no mitigation would be required, since they are presently estimated and accounted for in the District's emission inventory, as described below. No stationary sources would be constructed that would be long-term permanent sources of emissions.

The project would result in new long-term operational emissions from vehicle trips (mobile emissions), the use of natural gas (energy source emissions), and consumer products, architectural coatings, and landscape maintenance equipment (area source emissions). Mobile source emissions constitute most operational emissions from this type of land use development project. However, emissions associated with buildout of this type of project is not expected to exceed any applicable MBARD thresholds. No stationary sources would be constructed that would be long-term permanent sources of emissions. Therefore, impacts to regional air quality as a result of long-term operation of the project would be less than significant.

Santa Cruz County is located within the NCCAB. The NCCAB does not meet state standards for ozone (reactive organic gases [ROGs] and nitrogen oxides [NOx]) and fine particulate matter (PM₁₀). Therefore, the regional pollutants of concern that would be emitted by the project are ozone precursors and PM₁₀.

The primary sources of ROG within the air basin are on- and off-road motor vehicles, petroleum production and marketing, solvent evaporation, and prescribed burning. The primary sources of NOx are on- and off-road motor vehicles, stationary source fuel

¹ Formerly known as the Monterey Bay Unified Air Pollution Control District (MBUAPCD).

combustion, and industrial processes. In 2010, daily emissions of ROG_s were estimated at 63 tons per day. Of this, area-wide sources represented 49%, mobile sources represented 36%, and stationary sources represented 15%. Daily emissions of NO_x were estimated at 54 tons per day with 69% from mobile sources, 22% from stationary sources, and 9% from area-wide sources. In addition, the region is “NO_x sensitive,” meaning that ozone formation due to local emissions is more limited by the availability of NO_x as opposed to the availability of ROG_s (MBUAPCD, 2013b).

PM₁₀ is the other major pollutant of concern for the NCCAB. In the NCCAB, highest particulate levels and most frequent violations occur in the coastal corridor. In this area, fugitive dust from various geological and man-made sources combines to exceed the standard. The majority of NCCAB exceedances occur at coastal sites, where sea salt is often the main factor causing exceedance. In 2005 daily emissions of PM₁₀ were estimated at 102 tons per day. Of this, entrained road dust represented 35% of all PM₁₀ emission, windblown dust 20%, agricultural tilling operations 15%, waste burning 17%, construction 4%, and mobile sources, industrial processes, and other sources made up 9% (MBUAPCD, 2008).

Given the modest amount of new traffic that would be generated by the project there is no indication that new emissions of ROG_s or NO_x would exceed MBARD thresholds for these pollutants; and therefore, there would not be a significant contribution to an existing air quality violation.

Project construction may result in a short term, localized decrease in air quality due to generation of PM₁₀. However, standard dust control best management practices (BMPs), such as periodic watering, would be implemented during construction to avoid significant air quality impacts from the generation of PM₁₀.

Emissions from construction activities represent temporary impacts that are typically short in duration, depending on the size, phasing, and type of project. Air quality impacts can nevertheless be acute during construction periods, resulting in significant localized impacts to air quality. Table 1 summarizes the threshold of significance for construction activities.

Activity	Potential Threshold*
Construction site with minimal earthmoving	8.1 acres per day
Construction site with earthmoving (grading, excavation)	2.2 acres per day
*Based on Midwest Research Institute, <u>Improvement of Specific Emission Factors</u> (1995). Assumes 21.75 working weekdays per month and daily watering of site.	
Note: Construction projects below the screening level thresholds shown above are assumed to be below the 82 lb/day threshold of significance , while projects with activity levels higher than those above may have a significant impact on air quality. Additional mitigation and analysis of the project impact may be necessary for those construction activities.	
Source: Monterey Bay Unified Air Pollution Control District, 2008.	

Impacts

Construction

As required by the MBARD, construction activities (e.g., excavation, grading, on-site vehicles) which directly generate 82 pounds per day or more of PM₁₀ would have a significant impact on local air quality when they are located nearby and upwind of sensitive receptors such as the community of Soquel (Table 1). Construction projects below the screening level thresholds shown in Table 1 are assumed to be below the 82 lb/day threshold of significance, while projects with activity levels higher than those thresholds may have a significant impact on air quality. The proposed project would require minimal grading. Although the project would produce PM₁₀, it would be far below the 82 pounds per day threshold. This would result in less than significant impacts on air quality from the generation of PM₁₀.

Construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors, and front-end loaders that temporarily emit precursors of ozone (i.e., volatile organic compounds [VOC] or oxides of nitrogen [NO_x]), are accommodated in the emission inventories of state- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone ambient air quality standard (AAQS) (MBUAPCD 2008).

Although not a mitigation measure per se (i.e., required by law), California ultralow sulfur diesel fuel with a maximum sulfur content of 15 ppm by weight will be used in all diesel-powered equipment, which minimizes sulfur dioxide and particulate matter.

Operation

The following BMPs will be implemented during all site excavation and grading.

- No mitigation is required. However, MBARD recommends the use of the following BMPs for the control of short-term construction generated emissions: Water all active construction areas at least twice daily as necessary and indicated by soil and air conditions.
- Prohibit all grading during periods of high wind (over 15 mph).
- Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days)
- Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations and hydroseed areas.
- Haul trucks shall maintain at least 2' 0" freeboard.
- Cover all trucks hauling soil, sand, and other loose materials.
- Plant tree windbreaks on the windward perimeter of construction projects if

adjacent to open land.

- Plant vegetative ground cover in disturbed areas as quickly as possible.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all existing trucks.
- Pave all roads on construction sites.
- Sweep streets, if visible soil material is carried out from the construction site.
- Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and corrective action within 48 hours. The phone number of the Monterey Bay Air Resources District shall be visible to ensure compliance with Rule 402 (Nuisance),
- Limit the area under construction at any one time.

Implementation of the above recommended BMPs for the control of construction-related emissions would further reduce construction-related particulate emissions. These measures are not required by MBARD or as mitigation measures, as the impact would be less than significant without mitigation. These types of measures are commonly included as conditions of approval associated with development permits approved by the County.

2. *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?*

Discussion: The primary pollutants of concern for the NCCAB are ozone and PM₁₀, as those are the pollutants for which the district is in nonattainment. Project construction would have a limited and temporary potential to contribute to existing violations of California air quality standards for ozone and PM₁₀ primarily through diesel engine exhaust and fugitive dust. The criteria for assessing cumulative impacts on localized air quality are the same as those for assessing individual project impacts. Projects that do not exceed MBARD's construction or operational thresholds and are consistent with the AQMP would not have cumulatively considerable impacts on regional air quality (MBARD, 2008). Because the project would not exceed MBARD's thresholds and is consistent with the AQMP, there would not be cumulative impacts on regional air quality.

3. *Expose sensitive receptors to substantial pollutant concentrations?*

Discussion: The project is situated in an area developed at an urban density and adjacent to a main thoroughfare (Soquel Drive). Properties to the north, west, and northeast contain

residential development with commercial establishments located immediately east and to the south of the project site, across Soquel Drive. Sensitive receptors in the vicinity include residents and patrons of nearby commercial establishments and located approximately 30 feet from the property boundaries of the proposed development.

Diesel exhaust contains substances (diesel particulate matter [DPM], toxic air contaminants [TACs], mobile source air toxics [MSATs]) that are suspected carcinogens, along with pulmonary irritants and hazardous compounds, which may affect sensitive receptors such as young children, senior citizens, or those susceptible to respiratory disease. Where construction activity occurs in proximity to long-term sensitive receptors, a potential could exist for unhealthful exposure of those receptors to diesel exhaust, including residential receptors.

Impacts

The project is located in the community of Soquel and sensitive receptors would be as close as 30 feet from the project area. Since construction is anticipated to occur over a 24 week period, the sensitive receptors would be affected for a maximum of 24 weeks, which is less than the 70-year maximum exposed individual criteria used for assessing public health risk due to emissions of certain air pollutants (MBUAPCD 2008).

Due to the intermittent and short-term temporary nature of construction activities (i.e., 24 weeks), emissions of DPM, TACs, or MSATs would not be sufficient to pose a significant risk to sensitive receptors from construction equipment operations during the course of the project.

The project would not be expected to expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant.

4. *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

Discussion: Land uses typically producing objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses that would be associated with objectionable odors. Odor emissions from the proposed project would be limited to odors associated with vehicle and engine exhaust and idling from cars entering, parking, and exiting the facility. The project does not include any known sources of objectionable odors associated with the long-term operations phase.

During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. California ultralow sulfur diesel fuel with a maximum sulfur content of 15 ppm by weight would be used in all diesel-powered

equipment, which minimizes emissions of sulfurous gases (sulfur dioxide, hydrogen sulfide, carbon disulfide, and carbonyl sulfide). As the project site is in a coastal area that contains coastal breezes off of the Monterey Bay, construction-related odors would disperse and dissipate and would not cause substantial odors at the closest sensitive receptors (located approximately 20 feet to the west north and east of the project site). Construction-related odors would be short-term and would cease upon completion. Therefore, no objectionable odors are anticipated from construction activities associated with the project.

The project would not create objectionable odors affecting a substantial number of people; therefore, the project is not expected to result in significant impacts related to objectionable odors during construction or operation.

D. BIOLOGICAL RESOURCES

Would the project:

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|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| <p>1. <i>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?</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: A query was conducted of the California Natural Diversity Database (CNDDDB), maintained by the California Department of Fish and Wildlife. The site is mapped for Obscure bumble bee *Bombus caliginosus* and the Western Bumble bee *Bombus occidentalis* which occur in open, grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. There is no potential to occur on the project site in that the site does not support open, grassy coastal prairies or Coast Range meadows or suitable habitat for these species. Species was not observed during field surveys and is not expected to occur due to the lack of suitable habitat. Last know sightings were in 1935 and the 1950. No impact is anticipated.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| <p>2. <i>Have a substantial adverse effect on any riparian habitat or sensitive natural community identified in local or regional plans, policies, regulations (e.g., wetland, native grassland, special forests, intertidal zone, etc.) or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: There is no mapped or designated riparian habitat or other sensitive natural community on or adjacent to the project site.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: There are no mapped or designated federally protected wetlands on or adjacent to the project site. Therefore, no impacts would occur from project implementation.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project does not involve any activities that would interfere with the movements or migrations of fish or wildlife or impede use of a known wildlife nursery site.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 5. Conflict with any local policies or ordinances protecting biological resources (such as the Sensitive Habitat Ordinance, Riparian and Wetland Protection Ordinance, and the Significant Tree Protection Ordinance)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project would not conflict with any local policies or ordinances.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project would not conflict with the provisions of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

E. CULTURAL RESOURCES

Would the project:

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|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The existing structure(s) on the property is/are not designated as a historic resource on any federal, state or local inventory. As a result, no impacts to historical resources would occur from project implementation.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: No archaeological resources have been identified in the project area. Pursuant to SCCC section 16.40.040, if at any time in the preparation for or process of excavating or otherwise disturbing the ground, or any artifact or other evidence of a Native American cultural site which reasonably appears to exceed 100 years of age are discovered, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in SCCC Chapter 16.40.040.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 3. Disturb any human remains, including those interred outside of dedicated cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: Impacts are expected to be less than significant. However, pursuant to section 16.40.040 of the SCCC, and California Health and Safety Code sections 7050.5-7054, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archaeological report shall be prepared, and representatives of local Native American Indian groups shall be contacted. If it is determined that the remains are Native American, the Native American Heritage Commission will be notified as required by law. The Commission will designate a Most Likely Descendant who will be authorized to provide recommendations for management of the Native American human remains. Pursuant to Public Resources Code section 5097, the descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. Disturbance shall not resume until the significance of the resource is determined and appropriate mitigations to preserve the resource on the site are established.

F. ENERGY

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

energy resources, during project construction or operation?

Discussion: The project, like all development, would be responsible for an incremental increase in the consumption of energy resources during site grading and construction due to the use of construction equipment onsite during the construction phase. All project construction equipment would be required to comply with the California Air Resources Board (CARB) emissions requirements for construction equipment, which includes measures to reduce fuel-consumption, such as imposing limits on idling and requiring older engines and equipment to be retired, replaced, or repowered. In addition, the project would comply with General Plan policy 8.2.2, which requires all new development to be sited and designed to minimize site disturbance and grading. As a result, impacts associated with the small temporary increase in consumption of fuel during construction are expected to be less than significant.

In addition, the County has strategies to help reduce energy consumption and greenhouse gas (GHG) emissions. These strategies included in the *County of Santa Cruz Climate Action Strategy* (County of Santa Cruz, 2013) are outlined below.

Strategies for the Reduction of Energy Use and GHG Emissions

- Develop a Community Choice Aggregation (CCA) Program, if feasible.²
- Increase energy efficiency in new and existing buildings and facilities.
- Enhance and expand the Green Business Program.
- Increase local renewable energy generation.
- Public education about climate change and impacts of individual actions.
- Continue to improve the Green Building Program by exceeding the minimum standards of the state green building code (Cal Green).
- Form partnerships and cooperative agreements among local governments, educational institutions, nongovernmental organizations, and private businesses as a cost-effective way to facilitate mitigation and adaptation.
- Reduce energy use for water supply through water conservation strategies.

Strategies for the Reduction of Energy Consumption and GHG Emissions from Transportation

- Reduce vehicle miles traveled (VMT) through County and regional long-range planning efforts.

² Monterey Bay Community Power (MBCP) was formed in 2017 to provide carbon-free electricity. All Pacific Gas & Electric Company (PG&E) customers in unincorporated Santa Cruz County were automatically enrolled in the MBCP in 2018.

- Increase bicycle ridership and walking through incentive programs and investment in bicycle and pedestrian infrastructure and safety programs.
- Provide infrastructure to support zero and low emissions vehicles (plug in, hybrid plug-in vehicles).
- Increase employee use of alternative commute modes: bus transit, walking, bicycling, carpooling, etc.
- Increase the number of electric and alternative fuels vehicles in the County fleet.

Therefore, the project will not result in wasteful, inefficient, or unnecessary consumption of energy resources. Impacts are expected to be less than significant.

2. *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

Discussion: AMBAG’s 2040 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) recommends policies that achieve statewide goals established by CARB, the California Transportation Plan 2040, and other transportation-related policies and state senate bills. The SCS element of the MTP targets transportation-related greenhouse gas (GHG) emissions in particular, which can also serve to address energy use by coordinating land use and transportation planning decisions to create a more energy efficient transportation system.

The Santa Cruz County Regional Transportation Commission (SCCRTC) prepares a County-specific regional transportation plan (RTP) in conformance with the latest AMBAG MTP/SCS. The 2040 RTP establishes targets to implement statewide policies at the local level, such as reducing vehicle miles traveled and improving speed consistency to reduce fuel consumption.

In 2013, Santa Cruz County adopted a Climate Action Strategy (CAS) focused on reducing the emission of greenhouse gases, which is dependent on increasing energy efficiency and the use of renewable energy. The strategy intends to reduce energy consumption and greenhouse gas emissions by implementing a number of measures such as reducing vehicle miles traveled through County and regional long-range planning efforts, increasing energy efficiency in new and existing buildings and facilities, increasing local renewable energy generation, improving the Green Building Program by exceeding minimum state standards, reducing energy use for water supply through water conservation strategies, and providing infrastructure to support zero and low emission vehicles that reduce gasoline and diesel consumption, such as plug in electric and hybrid plug in vehicles.

In addition, the Santa Cruz County General Plan has historically placed a priority on “smart growth” by focusing growth in the urban areas through the creation and maintenance of an urban services line. Objective 2.1 (Urban/Rural Distinction) directs most residential development to the urban areas, limits growth, supports compact development, and helps reduce sprawl. The Circulation Element of the General Plan further establishes a more efficient transportation system through goals that promote the wise use of energy resources, reducing vehicle miles traveled, and transit and active transportation options.

Energy efficiency is a major priority throughout the County’s General Plan. Measure C was adopted by the voters of Santa Cruz County in 1990 and explicitly established energy conservation as one of the County’s objectives. The initiative was implemented by Objective 5.17 (Energy Conservation) and includes policies that support energy efficiency, conservation, and encourage the development of renewable energy resources. Goal 6 of the Housing Element also promotes energy efficient building code standards for residential structures constructed in the County.

The project will be consistent with the AMBAG 2040 MTP/SCS and the SCCRTC 2040 RTP. The project would also be required to comply with the Santa Cruz County General Plan and any implemented policies and programs established through the CAS. In addition, the project design would be required to comply with CALGreen, the state of California’s green building code, to meet all mandatory energy efficiency standards. Therefore, the project would not conflict with or obstruct any state or local plan for renewable energy or energy efficiency.

G. GEOLOGY AND SOILS

Would the project:

1. *Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:*

<p>A. <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.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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<p>B. <i>Strong seismic ground shaking?</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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C. *Seismic-related ground failure, including liquefaction?*

D. *Landslides?*

Discussion (A through D): All of Santa Cruz County is subject to some hazard from earthquakes, and there are several faults within the County. While the San Andreas fault is larger and considered more active, each fault is capable of generating moderate to severe ground shaking from a major earthquake. Consequently, large earthquakes can be expected in the future. The October 17, 1989 Loma Prieta earthquake (magnitude 7.1) was the second largest earthquake in central California history.

The project site is located outside of the limits of the State Alquist-Priolo Special Studies Zone or any County-mapped fault zone (County of Santa Cruz GIS Mapping, California Division of Mines and Geology, 2001). The project site is located approximately seven miles southwest of the San Andreas fault zone, and approximately four miles southwest of the Zayante fault zone. A geotechnical investigation for the project was performed by Butano Geotechnical Engineering dated February 9, 2018 (Attachment 4). The report concluded that the project site is suitable for the proposed development from a geotechnical standpoint. Environmental Planning staff has reviewed and accepted the Geotechnical Report (Attachment 5). Implementation of the requirements contained in the report will ensure that impacts associated with geologic hazards will be less than significant.

2. *Result in substantial soil erosion or the loss of topsoil?*

Discussion: Some potential for erosion exists during the construction phase of the project, however, this potential is minimal because the project site is relatively flat in topography and standard erosion controls are a required condition of the project. Prior to approval of a grading or building permit, the project must have an approved stormwater pollution control plan (SCCC Section 7.79.100), which would specify detailed erosion and sedimentation control measures. The plan would include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion. Impacts from soil erosion or loss of topsoil would be considered less than significant.

3. *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?

Discussion: The geotechnical report cited above (see discussion under G-1) did not identify a significant potential for damage caused by any of these hazards.

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|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4. <i>Be located on expansive soil, as defined in section 1803.5.3 of the California Building Code (2016), creating substantial direct or indirect risks to life or property?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The geotechnical report for the project did not identify any elevated direct or indirect risks associated with expansive soils. Therefore, no impact is anticipated.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 5. <i>Have soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative waste water disposal systems where sewers are not available for the disposal of waste water?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: No septic systems are proposed. The project would connect to the Santa Cruz County Sanitation District, and the applicant would be required to pay standard sewer connection and service fees that fund sanitation improvements within the district as a Condition of Approval for the project.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 6. <i>Directly or indirectly destroy a unique paleontological resource or site of unique geologic feature?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: No unique paleontological resources or sites or unique geologic features are known to occur in the vicinity of the project. A query was conducted of the mapping of identified geologic/paleontological resources maintained by the County of Santa Cruz Planning Department, and there are no records of paleontological or geological resources in the vicinity of the project parcel. No direct or indirect impacts are anticipated.

H. GREENHOUSE GAS EMISSIONS

Would the project:

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project, like all development, would be responsible for an incremental increase in greenhouse gas (GHG) emissions by usage of fossil fuels during the site grading and construction. In 2013, Santa Cruz County adopted a Climate Action Strategy (CAS) intended to establish specific emission reduction goals and necessary actions to reduce greenhouse gas levels to pre-1990 levels as required under Assembly Bill (AB) 32 legislation.

The strategy intends to reduce GHG emissions and energy consumption by implementing measures such as reducing vehicle miles traveled through the County and regional long-range planning efforts and increasing energy efficiency in new and existing buildings and facilities. Implementing the CAS, the MBCP was formed in 2017 to provide carbon-free electricity. All PG&E customers in unincorporated Santa Cruz County were automatically enrolled in the MBCP in 2018. All project construction equipment would be required to comply with the CARB emissions requirements for construction equipment. Further, all new buildings are required to meet the State's CalGreen building code. As a result, impacts associated with the temporary increase in GHG emissions are expected to be less than significant.

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|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: See the discussion under H-1 above. No significant impacts are anticipated.

I. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would not create a significant hazard to the public or the environment. No routine transport or disposal of hazardous materials is proposed. However, during construction, fuel would be used at the project site. In addition, fueling may occur within the limits of the staging area. Best management practices would be used to ensure that no impacts would occur. Impacts are expected to be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: See discussion under I-1 above. Project impacts would be considered less than significant.

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|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. <i>Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

proposed school?

Discussion: The Santa Cruz Montessori is located 6230 Soquel Drive, approximately 1/2 mile to the east of the project site. Although fueling of equipment is likely to occur within the staging area, BMPs to contain spills would be implemented. No impacts are anticipated.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4. <i>Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project site is not included on the December 3, 2018 list of hazardous sites in Santa Cruz County compiled pursuant to Government Code section 65962.5. No impacts are anticipated from project implementation.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 5. <i>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 or excessive noise for people residing or working in the project area?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is not located within two miles of a public airport or public use airport. No impact is anticipated.

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|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 6. <i>Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project would not conflict with implementation of the County of Santa Cruz Local Hazard Mitigation Plan 2015-2020 (County of Santa Cruz, 2020). Therefore, no impacts to an adopted emergency response plan or evacuation plan would occur from project implementation.

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 7. <i>Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: See discussion under Wildfire Question T-2. Impacts would be less than significant.

J. HYDROLOGY, WATER SUPPLY, AND WATER QUALITY

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would not discharge runoff either directly or indirectly into a public or private water supply. However, runoff from this project may contain small amounts of chemicals and other household contaminants, such as pathogens, pesticides, trash, and nutrients. No commercial or industrial activities are proposed that would contribute contaminants. Potential siltation from the project would be addressed through implementation of erosion control BMPs. No water quality standards or waste discharge requirements would be violated and surface or ground water quality would not otherwise be substantially degraded. Impacts would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would obtain water from Soquel Creek Water District and would not rely on private well water. Although the project would incrementally increase water demand, Soquel Creek has indicated that adequate supplies are available to serve the project (Attachment 1). The project is not located in a mapped groundwater recharge area or water supply watershed and will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Impacts would be less than significant.

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|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 3. <i>Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| A. <i>result in substantial erosion or siltation on- or off-site;</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| B. <i>substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

offsite;

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| C. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or; | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| D. impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Discussion: The County Department of Public Works Stormwater Management staff has reviewed the project and determined that existing storm water facilities are adequate to handle the increase in drainage associated with the project.

Drainage calculations prepared by RI Engineering, Inc, dated June 25, 2018, (Attachment 3) have been reviewed for potential drainage impacts and accepted by the County Department of Public Works Stormwater Management Section staff. The runoff rate from the property would be controlled by on-site design measures which include: two 3' diameter closed detention systems with orifice restrictions, two bioretention facilities, porous paver parking areas and numerous landscape areas. Staff have determined that existing storm water facilities are adequate to handle the increase in drainage associated with the project. Impacts would be considered less than significant.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion:

Flood Hazards:

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated September 29, 2017, no portion of the project site lies within a flood hazard zone, and there would be no impact.

Tsunami and Seiche Zones:

There are two primary types of tsunami vulnerability in Santa Cruz County. The first is a teletsunami or distant source tsunami from elsewhere in the Pacific Ocean. This type of tsunami is capable of causing significant destruction in Santa Cruz County. However, this type of tsunami would usually allow time for the Tsunami Warning System for the Pacific Ocean to warn threatened coastal areas in time for evacuation (County of Santa Cruz 2010).

A greater risk to the County of Santa Cruz is a tsunami generated as the result of an

earthquake along one of the many earthquake faults in the region. Even a moderate earthquake could cause a local source tsunami from submarine landsliding in Monterey Bay. A local source tsunami generated by an earthquake on any of the faults affecting Santa Cruz County would arrive just minutes after the initial shock. The lack of warning time from such a nearby event would result in higher casualties than if it were a distant tsunami (County of Santa Cruz 2010).

Seiches are recurrent waves oscillating back and forth in an enclosed or semi-enclosed body of water. They are typically caused by strong winds, storm fronts, or earthquakes.

The project site is located approximately 3/4 mile inland, approximately 1/2 to 3/4 mile beyond the effects of a tsunami. The project site is located approximately 1/2 mile from Tannery Gulch and would not be affected by a seiche. Therefore, there would be no impact.

5. *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Discussion: All County water agencies are experiencing a lack of sustainable water supply due to groundwater overdraft and diminished availability of streamflow. Because of this, coordinated water resource management has been of primary concern to the County and to the various water agencies. As required by state law, each of the County's water agencies serving more than 3,000 connections must update their Urban Water Management Plans (UWMPs) every five years, with the most recent updates completed in 2016.

County staff are working with the water agencies on various integrated regional water management programs to provide for sustainable water supply and protection of the environment. Effective water conservation programs have reduced overall water demand in the past 15 years, despite continuing growth. In August 2014, the Board of Supervisors and other agencies adopted the Santa Cruz Integrated Regional Water Management (IRWM) Plan Update 2014, which identifies various strategies and projects to address the current water resource challenges of the region. Other efforts underway or under consideration are stormwater management, groundwater recharge enhancement, increased wastewater reuse, and transfer of water among agencies to provide for more efficient and reliable use.

The County is also working closely with water agencies to implement the Sustainable Groundwater Management Act (SGMA) of 2014. By January 2020, Groundwater Sustainability Plans will be developed for two basins in Santa Cruz County that are designated as critically overdrafted, Santa Cruz Mid-County and Corralitos - Pajaro Valley. These plans will require management actions by all users of each basin to reduce pumping, develop supplemental supplies, and take management actions to achieve groundwater

sustainability by 2040. A management plan for the Santa Margarita Basin will be completed by 2022, with sustainability to be achieved by 2042.

The project is located in the Santa Cruz Mid-County groundwater basin. In 2016, Soquel Creek Water District (SqCWD), Central Water District (CWD), County, and City of Santa Cruz adopted a Joint Powers Agreement to form the Santa Cruz Mid-County Groundwater Agency for management of the Mid-County Basin under SGMA. SqCWD developed its own Community Water Plan and has been actively evaluating supplemental supply and demand reduction options.

Since the sustainable groundwater management plan is still being developed, the project will comply with SCCC Chapters 13.13 (Water Conservation – Water Efficient Landscaping), 7.69 (Water Conservation) and 7.70 (Water Wells), as well as Chapter 7.71 (Water Systems) section 7.71.130 (Water use measurement and reporting), to ensure that it will not conflict with or obstruct implementation of current water quality control plans or sustainable groundwater management plans such as the Santa Cruz IRWMP and UWMP for Soquel Creek Water District.

K. LAND USE AND PLANNING

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. <i>Physically divide an established community?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project does not include any element that would physically divide an established community. No impact would occur.

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. <i>Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project proposes to remove six oak trees and one cedar tree. Santa Cruz County Code Section 13.11.075 (Landscaping) requires trees over six inches in diameter be retained/incorporated into the site and landscape design. Circumstances for removal include conflicts with prime building sites (or critical site improvements) resulting in superior design or the trees have been evaluated and determined to be unhealthy or pose a safety risk. In a report prepared by Robert B. Hoffmann, Consulting Arborist dated May 18, 2018 (Attachment 7), the condition of the existing trees was evaluated. It was concluded that several of the trees were in poor health. Additionally, the location of existing trees conflicts with the location of the proposed dwellings and required drainage facilities. The project

proposes to augment the loss of the existing trees though the installation of a comprehensive landscape plan for the project site including the planting of approximately twenty new trees. Therefore, the project would comply with County landscape design criteria and would not cause a significant environmental impact due to a conflict with any land use plan, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. No impacts are anticipated.

L. MINERAL RESOURCES

Would the project:

1. 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?

Discussion: The site does not contain any known mineral resources that would be of value to the region and the residents of the state. Therefore, no impact is anticipated from project implementation.

2. 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?

Discussion: The project site is zoned RM-4 and RM-6 which are not considered to be an Extractive Use Zone (M-3) nor does it have a land use designation with a Quarry Designation Overlay (Q) (County of Santa Cruz 1994). Therefore, no potentially significant loss of availability of a known mineral resource of locally important mineral resource recovery (extraction) site delineated on a local general plan, specific plan or other land use plan would occur as a result of this project.

M. NOISE

Would the project result in:

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

Discussion:

County of Santa Cruz General Plan

The County of Santa Cruz has not adopted noise thresholds for construction noise. The following applicable noise related policy is found in the Public Safety and Noise Element of

the Santa Cruz County General Plan (Santa Cruz County 1994).

- Policy 6.9.7 Construction Noise. Require mitigation of construction noise as a condition of future project approvals.

The General Plan also contains the following table, which specifies the maximum allowable noise exposure for stationary noise sources (operational or permanent noise sources) (Table 2).

	Daytime ⁵ (7:00 am to 10:00 pm)	Nighttime ^{2, 5} (10:00 pm to 7:00 am)
Hourly Leq average hourly noise level, dB ³	50	45
Maximum Level, dB ³	70	65
Maximum Level, dB – Impulsive Noise ⁴	65	60

Notes:

- 1 As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied to the receptor side of noise barriers or other property line noise mitigation measures.
- 2 Applies only where the receiving land use operates or is occupied during nighttime hours
- 3 Sound level measurements shall be made with "slow" meter response.
- 4 Sound level measurements shall be made with "fast" meter response
- 5 Allowable levels shall be raised to the ambient noise levels where the ambient levels exceed the allowable levels. Allowable levels shall be reduced to 5 dB if the ambient hourly Leq is at least 10 dB lower than the allowable level.

Source: County of Santa Cruz 1994

County of Santa Cruz Code

There are no County of Santa Cruz ordinances that specifically regulate construction or operational noise levels. However, Section 8.30.010 (Curfew—Offensive noise) of the SCCC contains the following language regarding noise impacts:

(A) No person shall make, cause, suffer, or permit to be made any offensive noise.

(B) "Offensive noise" means any noise which is loud, boisterous, irritating, penetrating, or unusual, or that is unreasonably distracting in any other manner such that it is likely to disturb people of ordinary sensitivities in the vicinity of such noise, and includes, but is not limited to, noise made by an individual alone or by a group of people engaged in any business, activity, meeting, gathering, game, dance, or amusement, or by any appliance, contrivance, device, tool, structure, construction, vehicle, ride, machine, implement, or instrument.

(C) The following factors shall be considered when determining whether a violation of the provisions of this section exists:

(1) Loudness (Intensity) of the Sound.

(a) Day and Evening Hours. For purposes of this factor, a noise shall be automatically considered offensive if it occurs between the hours of 8:00 a.m. and 10:00 p.m. and it is:

(i) Clearly discernible at a distance of 150 feet from the property line of the property from which it is broadcast; or

(ii) In excess of 75 decibels at the edge of the property line of the property from which the sound is broadcast, as registered on a sound measuring instrument meeting the American National Standard Institute's Standard S1.4-1971 (or more recent revision thereof) for Type 1 or Type 2 sound level meters, or an instrument which provides equivalent data.

A noise not reaching this intensity of volume may still be found to be offensive depending on consideration of the other factors outlined below.

(b) Night Hours. For purposes of this factor, a noise shall be automatically considered offensive if it occurs between the hours of 10:00 p.m. and 8:00 a.m. and it is:

(i) Clearly discernible at a distance of 100 feet from the property line of the property from which it is broadcast; or

(ii) In excess of 60 decibels at the edge of the property line of the property from which the sound is broadcast, as registered on a sound measuring instrument meeting the American National Standard Institute's Standard S1.4-1971 (or more recent revision thereof) for Type 1 or Type 2 sound level meters, or an instrument which provides equivalent data.

A noise not reaching this intensity of volume may still be found to be offensive depending on consideration of the other factors outlined below.

- (2) Pitch (frequency) of the sound, e.g., very low bass or high screech;
- (3) Duration of the sound;
- (4) Time of day or night;
- (5) Necessity of the noise, e.g., garbage collecting, street repair, permitted construction activities;
- (6) The level of customary background noise, e.g., residential neighborhood, commercial zoning district, etc.; and
- (7) The proximity to any building regularly used for sleeping purposes. [Ord. 5205 § 1, 2015; Ord. 4001 § 1, 1989]

Table 3: Typical Noise Levels for Common Construction Equipment (at 50 feet)

Equipment	L _{max} (dBA)
Air Compressor	80
Backhoe	80
Chain Saw	85
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Saw	90
Crane	83
Dozer	85
Dump Truck	84
Excavator	85
Flat Bed Truck	84
Fork Lift	75
Generator	82
Grader	85
Hoe-ram	90
Jack Hammer	88
Loader	80
Paver	85
Pick-up Truck	55
Pneumatic Tool	85
Roller	85
Tree Chipper	87
Truck	84

Source: Federal Transit Authority, 2006, 2018.

Sensitive Receptors

Some land uses are generally regarded as being more sensitive to noise than others due to the type of population groups or activities involved. Sensitive population groups generally include children and the elderly. Noise sensitive land uses typically include all residential uses (single- and multi-family, mobile homes, dormitories, and similar uses), hospitals, nursing homes, schools, and parks.

The nearest sensitive receptors are residents and patrons of nearby commercial establishments, located approximately 30 feet to the west, north and east of the project area.

Impacts

Potential Temporary Construction Noise Impacts

The use of construction equipment to accomplish the project would result in noise in the project area, i.e., construction zone. Table 3 shows typical noise levels for common construction equipment. The sources of noise that are normally measured at 50 feet, are used to determine the noise levels at nearby sensitive receptors by attenuating 6 dB for each doubling of distance for point sources of noise such as operating construction equipment. Noise levels at the nearest sensitive receptors for each site were analyzed on a worst-case basis, using the equipment with the highest noise level expected to be used.

Although construction activities would likely occur during daytime hours, noise may be audible to nearby residents. However, periods of noise exposure would be temporary. Noise from construction activity may vary substantially on a day-to-day basis.

Construction activity would be expected to use equipment listed in Table 3. Based on the

activities proposed for the project, the equipment with the loudest operating noise level that would be used often during activity would be an excavator or cement mixer, which would produce noise levels of 85 dBA at a distance of 50 feet. The nearest sensitive receptor is located approximately 30 feet from the construction site. At that distance, the decibel level will not be reduced. However, these impacts would be temporary (24 weeks) and short in duration due to time restrictions on building and grading permits issued by the County of Santa Cruz. All construction activities would be restricted to the hours of 8am to 5pm Monday through Friday.

Noise generated during project construction would increase the ambient noise levels in adjacent areas. Construction would be temporary, and construction hours would be limited as a condition of approval. Given the limited duration of construction and the limited hours of construction activity, this impact is considered to be less than significant.

2. *Generation of excessive groundborne vibration or groundborne noise levels?*

Discussion: The use of construction and grading equipment would potentially generate periodic vibration in the project area. This impact would be temporary and periodic and is not expected to cause damage; therefore, impacts are not expected to be significant.

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

Discussion: The project is not in the vicinity of a private airstrip or within two miles of a public airport. Therefore, the project would not expose people residing or working in the project area. No impact is anticipated.

N. POPULATION AND HOUSING

Would the project:

1. *Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

Discussion: The project would not induce substantial population growth in an area

because the project does not propose any physical or regulatory change that would remove a restriction to or encourage population growth in an area including, but limited to the following: new or extended infrastructure or public facilities; new commercial or industrial facilities; large-scale residential development; accelerated conversion of homes to commercial or multi-family use; or regulatory changes including General Plan amendments, specific plan amendments, zone reclassifications, sewer or water annexations; or LAFCO annexation actions.

The project is designed at the density and intensity of development allowed by the General Plan and zoning designations for the parcel. Additionally, the project does not involve extensions of utilities (e.g., water, sewer, or new road systems) into areas previously not served. Consequently, it is not expected to have a significant growth-inducing effect. Impacts would be less than significant.

2. *Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

Discussion: Although the project includes the demolition of one housing unit, the project's purpose is to construct 13 new for sale units, retention of two existing housing units. Two of the proposed units would be deed restricted affordable units. The project would not displace a substantial number of people, and impacts would be less than significant.

O. PUBLIC SERVICES

Would the project:

1. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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:*

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. <i>Fire protection?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. <i>Police protection?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. <i>Schools?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. <i>Parks?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e. <i>Other public facilities; including the</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

maintenance of roads?

Discussion (a through e): While the project represents an incremental contribution to the need for services, the increase would be minimal. Moreover, the project meets all of the standards and requirements identified by the local fire agency or California Department of Forestry, as applicable, and school, park, and transportation fees to be paid by the applicant would be used to offset the incremental increase in demand for school and recreational facilities and public roads. Impacts would be considered less than significant.

P. RECREATION

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>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?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would not substantially increase the use of existing neighborhood and regional parks or other recreational facilities. Impacts would be considered less than significant.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 2. <i>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?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project does not propose the expansion or require the construction of additional recreational facilities. No impact would occur.

Q. TRANSPORTATION

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. <i>Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project would create a small incremental increase in traffic on nearby roads and intersections of 132 daily trips. The increase would not cause the LOS at any nearby intersection to drop below LOS D, consistent with General Plan Policy 3.12.1.

The project proposes to construct a new driveway access to project site from Soquel Drive. Restriping of the west bound left turn lane at the intersection of Soquel Drive and Monterey Avenue is proposed, installation of a new ADA crosswalk ramp and install

Rectangular Rapid Flash Beacons (RRFB) for the crosswalk on Soquel Drive are intended to increase pedestrian safety. Turning movements in and out of the proposed development will be restricted to right turn only.

The project design would comply with current road requirements, including the regulations under section 13.11.074 of the County Code, "Access, circulation and parking" to prevent potential hazards to motorists, bicyclists, and/or pedestrians, as well as the County of Santa Cruz Department of Public Works design criteria. Therefore, impacts would be less than significant.

2. *Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1) (Vehicle Miles Traveled)?*
-

Discussion: In response to the passage of Senate Bill 743 in 2013 and other climate change strategies, the Governor’s Office of Planning and Research (OPR) amended the CEQA Guidelines to replace LOS with vehicle miles traveled (VMT) as the measurement for traffic impacts. The “Technical Advisory on Evaluating Transportation Impacts in CEQA,” prepared by OPR (2018) provides recommended thresholds and methodologies for assessing impacts of new developments on VMT. Tying significance thresholds to the State’s GHG reduction goals, the guidance recommends a threshold reduction of 15% under current average VMT levels for residential projects (per capita) and office projects (per employee), and a tour-based reduction from current trips for retail projects. Based on the latest estimates compiled from the Highway Performance Monitoring System, the average daily VMT in Santa Cruz County is 18.3 miles per capita (Department of Finance [DOF] 2018; Caltrans 2018). The guidelines also recommend a screening threshold for residential and office projects—trip generation under 110 trips per day is generally considered a less-than-significant impact.

The project consists of construction of a 15-unit townhouse infill development. The project would retain two single family homes and construct 13 new townhomes and is in close proximity to existing and planned frequent transit service. Metro currently provides frequent service in this area at a bus stop located 150 feet south west of the project.

Planned improvements near the project include, construction of a new ADA compliant crosswalk ramp, realignment of an existing crosswalk and installation of Rectangular Rapid Flash Beacons (RRFB), construction of buffered bike lanes, and planned bus on shoulder project. The bicycle and pedestrian facilities will provide improved first/last mile access to transit. Because of the infill nature of the project, proximity to existing frequent transit service and planned transit and active transportation improvements in the vicinity of the

project, the per capita VMT generated by the project is expected to be less than the County per capita average. Therefore, the project impact to VMT would be less than significant.

In addition, per General Plan Objective 3.1 Vehicle Miles, it is the County of Santa Cruz's objective to "limit the increase in Vehicle Miles Traveled (VMT) to achieve as a minimum, compliance with the current Air Quality Management Plan." The project would help limit the increase in VMT due to its proximity to existing transit stop. Impacts from project implementation would be less than significant.

3. *Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Discussion: The proposed development would result in 14 additional parcels and the construction of 15 townhomes in a residential neighborhood. The project would take access from Soquel Drive, which meets all County standards. No impacts would occur with project implementation. See discussion under Q-1 above.

4. *Result in inadequate emergency access?*

Discussion: The project's road access meets County standards and has been approved by the local fire agency or Cal Fire Department of Forestry, as appropriate.

A temporary lane closure may be required for short periods of time during project construction. A traffic control plan would be prepared. However, the project would not restrict emergency access for police, fire, or other emergency vehicles. Impacts would be less than significant from project implementation.

R. TRIBAL CULTURAL RESOURCES

1. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*

- A. *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources Code section 5020.1(k), or*
- B. *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to*

be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Discussion: The project proposes to establish a 15 unit townhouse development. Section 21080.3.1(b) of the California Public Resources Code (AB 52) requires a lead agency formally notify a California Native American tribe that is traditionally and culturally affiliated within the geographic area of the discretionary project when formally requested. As of this writing, no California Native American tribes traditionally and culturally affiliated with the Santa Cruz County region have formally requested a consultation with the County of Santa Cruz (as Lead Agency under CEQA) regarding Tribal Cultural Resources. However, no Tribal Cultural Resources are known to occur, based on County mapping of known resources in or near the project area. Therefore, no impact to the significance of a Tribal Cultural Resource is anticipated from project implementation.

S. UTILITIES AND SERVICE SYSTEMS

Would the project:

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| <p>1. <i>Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?</i></p> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion:

Water

The project would connect to an existing municipal water supply. Soquel Creek Water District has determined that adequate supplies are available to serve the project (Attachment 1), and no new facilities are required to serve the project. No impact would occur from project implementation.

Wastewater

Municipal wastewater treatment facilities are available and have capacity to serve the project. No new wastewater facilities are required to serve the project. No impact would occur from project implementation.

Stormwater

The drainage analysis for the project Dwellings at Soquel, prepared by RI Engineering, Inc, dated June 25, 2018 concluded that the project will meet Public Works Design Criteria through installation of detention systems, biofiltration and porous parking areas. (Attachment 3). The County Department of Public Works Stormwater Management staff have reviewed the drainage information and have determined that downstream storm facilities are adequate to handle the increase in drainage associated with the project. Therefore, no additional drainage facilities would be required for the project. No impacts are expected to occur from the project.

Electric Power

Pacific Gas and Electric Company (PG&E) provides power to existing and new developments in the Santa Cruz County area. As of 2018, residents and businesses in the County were automatically enrolled in MBCP’s community choice energy program, which provides locally controlled, carbon-free electricity delivered on PGE’s existing lines.

The proposed site is already served by electric power, but additional improvements are necessary to serve the site. However, no substantial environmental impacts will result from the additional improvements; impacts will be less than significant.

Natural Gas

PG&E serves the urbanized portions of Santa Cruz County with natural gas.

The proposed site is already served by natural gas, but additional improvements are necessary to serve the site. However, no environmental impacts will result from the additional improvements; impacts will be less than significant.

Telecommunications

Telecommunications, including telephone, wireless telephone, internet, and cable, are provided by a variety of organizations. AT&T is the major telephone provider, and its subsidiary, DirectTV provides television and internet services. Cable television services in Santa Cruz County are provided by Charter Communications in Watsonville and Comcast in other areas of the county. Wireless services are also provided by AT&T, as well as other service providers, such as Verizon.

The following improvements related to telecommunications are required: Extension of telecommunications throughout the proposed subdivision. However, no substantial environmental impacts from this work are anticipated, and impacts will be less than significant.

2. *Have sufficient water supplies available to serve the project and reasonably*

foreseeable future development during normal, dry and multiple dry years?

Discussion: All the main aquifers in this County, the primary sources of the County’s potable water, are in some degree of overdraft. Overdraft is manifested in several ways including 1) declining groundwater levels, 2) degradation of water quality, 3) diminished stream base flow, and/or 4) seawater intrusion. Surface water supplies, which are the primary source of supply for the northern third of the County, are inadequate during drought periods and will be further diminished as a result of the need to increase stream baseflows to restore habitat for endangered salmonid populations. In addition to overdraft, the use of water resources is further constrained by various water quality issues.

The Soquel Creek Water District has indicated that adequate water supplies are available to serve the project and has issued a will-serve letter for the project, subject to the payment of fees and charges in effect at the time of service (Attachment 1). The development would also be subject to the water conservation requirements in Chapter 7.69 (Water Conservation) and 13.13 (Water Conservation—Water Efficient Landscaping) of the County Code and the policies of section 7.18c (Water Conservation) of the General Plan. Therefore, existing water supplies would be sufficient to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Impacts would be less than significant.

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 3. <i>Result in 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?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The County of Santa Cruz Sanitation District has indicated that adequate capacity in the sewer collection system is available to serve the project and has issued a sewer service availability letter for the project, subject to the payment of fees and charges in effect at the time of service (Attachment 2). Therefore, existing wastewater collection/treatment capacity would be sufficient to serve the project. No impact would occur from project implementation.

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|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4. <i>Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: Due to the small incremental increase in solid waste generation by the project during construction and operations, the impact would be less than significant.

Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 5. <i>Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project would comply with all federal, state, and local statutes and regulations related to solid waste disposal. No impact would occur.

T. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| 1. <i>Substantially impair an adopted emergency response plan or emergency evacuation plan?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|

Discussion: The project is not located in a State Responsibility Area, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area and will not conflict with emergency response or evacuation plans. Therefore, no impact would occur.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. <i>Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project is not located in a State Responsibility Areas, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area. However, the project design incorporates all applicable fire safety code requirements and includes fire protection devices as required by the local fire agency and is unlikely to exacerbate wildfire risks. Impacts would be less than significant.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 3. <i>Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project is not located in a State Responsibility Areas, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area. Improvements associated with the project are unlikely to exacerbate wildfire risks. Impacts would be less than significant.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The project is not located within a State Responsibility Areas, a Very High Fire Hazard Severity Zone, or a County-mapped Critical Fire Hazard Area. Downslope and downstream impacts associated with wildfires are unlikely to result from the project. Regardless, the project design incorporates all applicable fire safety code requirements and includes fire protection devices as required by the local fire agency. Impacts would be less than significant.

U. MANDATORY FINDINGS OF SIGNIFICANCE

- | | | | | |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 1. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal community or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|-------------------------------------|--------------------------|

Discussion: The potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory were considered in the response to each question in Section III (A through T) of this Initial Study. As a result of this evaluation, there is no substantial evidence that significant effects associated with this project would result. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

- | | | | | |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| 2. 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 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Discussion: In addition to project specific impacts, this evaluation considered the project's potential for incremental effects that are cumulatively considerable. As a result of this evaluation, there were determined to be no potentially significant cumulative effects associated with this project. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

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

Discussion: In the evaluation of environmental impacts in this Initial Study, the potential for adverse direct or indirect impacts to human beings were considered in the response to specific questions in Section III (A through T). As a result of this evaluation, no potentially adverse effects to human beings associated with this project were identified. Therefore, this project has been determined not to meet this Mandatory Finding of Significance.

IV. REFERENCES USED IN THE COMPLETION OF THIS INITIAL STUDY

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Farmland Mapping and Monitoring Program Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance Santa Cruz County U.S. Department of Agriculture, Natural Resources Conservation Service, soil surveys for Santa Cruz County, California, August 1980.

California Department of Fish and Wildlife, 2019

California Natural Diversity Database SOQUEL USGS 7.5 minute quadrangle; queried September 17, 2019

CalFIRE, 2010

Santa Cruz County-San Mateo County Community Wildfire Protection Plan. May 2010.

Caltrans, 2018

California Public Road Data 2017: Statistical Information Derived from the Highway Performance Monitoring System. Released by the State of California Department of Transportation November 2018.

County of Santa Cruz, 1994

1994 General Plan and Local Coastal Program for the County of Santa Cruz, California. Adopted by the Board of Supervisors on May 24, 1994, and certified by the California Coastal Commission on December 15, 1994.

County of Santa Cruz, 2013

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DOF, 2018

E-5 Population and Housing Estimates for Cities, Counties and the State—January 1, 2011-2018. Released by the State of California Department of Finance May 2018.

Federal Transit Administration, 2006

Transit Noise and Vibration Impact Assessment Manual.

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Transit Noise and Vibration Impact Assessment Manual. September 2018.

FEMA, 2017

Flood Insurance Rate Map 0352 Federal Emergency Management Agency. Effective on September 29, 2017.

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Monterey Bay Unified Air Pollution Control District (MBUAPCD), CEQA Air Quality Guidelines. Prepared by the MBUAPCD, Adopted October 1995, Revised: February 1997, August 1998, December 1999, September 2000, September 2002, June 2004 and February 2008.

MBUAPCD, 2013a

Monterey Bay Unified Air Pollution Control District, NCCAB (NCCAB) Area Designations and Attainment Status – January 2013. Available online at http://www.mbuapcd.org/mbuapcd/pdf/Planning/Attainment_Status_January_2013_2.pdf

MBUAPCD, 2013b

Triennial Plan Revision 2009-2011. Monterey Bay Unified Air Pollution Control District. Adopted April 17, 2013.

OPR, 2018

“Technical Advisory on Evaluating Transportation Impacts in CEQA.” Available online at http://www.opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.



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Attachment 1

Conditional Will Serve Letter
Soquel Creek Water District



Board of Directors
Dr. Thomas R. LaHue, President
Dr. Bruce Daniels, Vice-President
Dr. Bruce Jaffe
Carla Christensen
Rachel Lather

Ron Duncan, *General Manager*

February 12, 2019

Workbench
129 Bulkhead St.
Santa Cruz, CA 95060

SUBJECT: Conditional Water Service Application for 13 Townhomes at 5701 Soquel Drive, Soquel, APN: 037-113-26

Dear Tim Gordin and Jamileh Cannon:

In response to the subject application, the Board of Directors of the Soquel Creek Water District (SqCWD) at their regular meeting of February 6, 2019 voted to grant you a Conditional Will Serve Letter for the proposed 13 townhomes to be located at 5701 Soquel Drive, Soquel, so that you may proceed through the appropriate land use planning entity.

This letter is specifically granted for the project as proposed in regard to uses and densities. Changes to the project that result in a change in use or an increase in water demand will require an application for a modification of this Will Serve Letter. Changes in ownership will also require modification of the Will Serve Letter. This conditional approval of water service for your project is valid for two years from the date of this Letter. A 1-year extension of the Conditional Will Serve may be requested using the attached 1-Year Extension Request Form. To be considered for a Conditional Will Serve Extension you must demonstrate that your development permit application with the appropriate land use planning agency is valid. Complete details of the terms and conditions of the Conditional Will Serve can be found in the "Water Demand Offset (WDO) Program Applicant Agreement" that you signed during your application process.

After you have received a tentative map or building permit from the land use planning agency, you will be required to meet all applicable SqCWD requirements defined in the attached Requirements Checklist before your application can be considered for final Board approval. If you meet all the applicable requirements (*including possible future requirements that arise prior to development approval of your project*), and final Board approval is granted, you will be issued an Unconditional Will Serve Letter, which would secure your water service. This present indication to serve is intended to acknowledge that, under existing conditions, water service would be available on the condition that the developer agrees to meet all of the requirements without cost to the District.

The Board of Directors of the SqCWD reserves the right to adopt additional policies to mitigate the impact of new development on the local groundwater basins, which are currently the District's only source of supply. The subject project would be subject to any applicable conditions of service that the District may adopt prior to granting water service.

As new policies and/or requirements are developed, the information will be made available by the SqCWD.

Sincerely,

SOQUEL CREEK WATER DISTRICT



Taj A. Dufour, P.E.

Engineering Manager/Chief Engineer

Attachment: Requirements Checklist for APN **037-113-26**

Enclosures:

1. Overview of the SqCWD Water Use Efficiency Requirements for Tier II Single Family Residential, Multi-Family Residential, Commercial, Industrial & Public Development
2. Indoor Water Use Efficiency Checklist
3. Landscape Project Application Submittal Requirements Package
4. 1-Year Extension Request Form

Attachment 2

Sewer Availability Letter
County of Santa Cruz Sanitation District

(INSERT LETTERHEAD)

Tim Gordon
Workbench
129 Bulkhead St.
Santa Cruz, CA 95060

SUBJECT: SEWER AVAILABILITY AND DISTRICT'S CONDITIONS OF SERVICE FOR THE FOLLOWING PROPOSED DEVELOPMENT

APN: 037-113-26

APPLICATION NO.: n/a

PARCEL ADDRESS: 5701 and 5705 Soquel Dr.

PROJECT DESCRIPTION: Add 14 townhomes to 2 existing residences, resulting in 16 dwelling units.

Dear Mr. Gordon,

We've received your inquiry regarding sewer service availability for the subject parcel(s). Sewer service is available in Soquel Drive for the subject development.

No downstream capacity problem or other issue is known at this time. However, downstream sewer requirements will again be studied at time of Planning Permit review, at which time the District reserves the right to add or modify downstream sewer requirements.

This notice is valid for one year from the date of this letter. If, after this time frame, this project has not yet received approval from the Planning Department, then this determination of availability will be considered to have expired and will no longer be valid.

Also, for your reference, we have attached a list of common items required during the review of sanitation projects.

Thank you for your inquiry. If you have any questions, please call Robert Hambeton at (831) 454-2160.

Yours truly,

Matt Machado
Assistant CAO, Director of DPW

By:

Ashleigh Trujillo
Sanitation Engineer

^/rlh

draft

Common Items Required During the Review of Sanitation Projects

What to show on the drawings: When you begin the design process, please show:

On the plot/site/utility plan:

1. location of any **existing** on-site sewer lateral(s), clean-out(s), and connection(s) to existing public sewer on the site (plot) plan.
2. location of any **proposed** on-site sewer lateral(s), clean-out(s), and connection(s) to existing public sewer on the site (plot) plan.

Place a note, "*Existing*" or "*(E)*", on each existing item that is to be removed.

Place a note, "*To be removed*", on each existing item that is to be removed.

Place a note, "*New*" or "*(N)*", on each item that is to be new.

On a floor plan:

1. all plumbing fixtures both existing and new (label "*(E)*" or "*(N)*") on a floor plan of the entire building. Completely describe all plumbing fixtures according to table T-702.1 of the California Plumbing Code.

(Sanitation District Code sections 7.04.040 and 7.04.430)

Design and Construction Standards

The project sewer design and connection of the project to the Santa Cruz County Sanitation District system will be required to conform to the County of Santa Cruz Design Criteria (CDC) Part 4, Sanitary Sewer Design, February 2017 edition.

Reference for County Design Criteria:

<http://www.dpw.co.santa-cruz.ca.us/Portals/19/pdfs/DESIGNCRITERIA.pdf>

Demolition and sewer abandonment

If the proposed plans will involve some demolition, the existing sewer lateral(s) must be properly abandoned (including inspection by District) prior to issuance of demolition permit or relocation or disconnection of structure. An abandonment permit (either temporary or permanent) for disconnection work must be obtained from the District. This process is often overlooked until the last minute and can result in unnecessary delays, and you are encouraged to plan for the relatively short time and small expense to fulfill this requirement. There is no charge for either permit or inspection.

(Sanitation District Code section 7.04.410)

New Connection

If the proposed plans will involve one or more new sewer connections, we must issue a new sewer connection permit for each new connection. The final connection charges can be determined only after the District and, as needed, other Department of Public Works divisions have reviewed and approved the final engineered sewer improvement plans. (Sanitation District Code section 7.04.410)

Increase in the number of plumbing fixtures

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If the proposed plans will involve an increase in the fixture unit count for the existing sewer connection, additional fixture unit fees may be due. The exact amount will be calculated at the time a Sewer Connection Permit is issued. (Sanitation District Code section 7.04.040)

Tentative, parcel, or final map required

When any new *tentative, parcel, or final* map is required, please show the following on the improvement plans:

1. All adjacent or impacted roads and easements,
2. All on- and off-site sewer improvements needed to provide service to each lot or unit proposed. The plans must conform to the County's "Design Criteria."

If a tentative, parcel, or final map is NOT required, please provide to the District written proof of recordation (in the form of copies of the recorded documents) of any and all existing or proposed easement(s).

Non-residential water use

Provide to the District a written estimate the amount of domestic water (average gallons per day) that will be used on this parcel after it is fully developed. You may need to engage an engineer or other knowledgeable person to provide an accurate estimate. This information will be used in the determination of both fees and waste pretreatment requirements. Connection permits can only be issued after these requirements are determined. (Sanitation District Code section 5.04.100)

Multi-unit development with a private collector line

If the development will require a private collector line serving several separate units or parcels, which will be individually and separately owned, prior to any land split or building permit, the applicant must form a homeowners' association with ownership and maintenance responsibilities for all on-site sewers for this project. Please reference this homeowner's association directly on the *tentative map* and *final map*, as well as in the Association's recorded CC&R's. Please record those CC&Rs, and provide a copy of the recorded documents, with proof of recordation, to the District prior to the filing of the final map.

Public sewer (existing) on the property

If a public sewer main is located on the property, any improvements in the easement will need to be removed if the District needs to replace the sewer main. It will be a condition of any development permit that the existing sewer system line and easement shall be surveyed and plotted on the site plan for the development or building permit application. No permanent improvements may be constructed within the easement boundaries. (Sanitation District Code section 7.04.430)

Backflow prevention device

A backflow preventive device may be required. While this determination is often made "in the field" at the time of installation, if you are engaging a surveyor, civil engineer, or knowledgeable contractor, there is nothing to prevent you from making that determination while in the design process. (Sanitation District Code section 7.04.100 and 7.04.375.A.4)

Pre-escrow or Pre-transfer Cleanout and Overflow devices

If approved cleanout and overflow devices have not yet been installed, then prior to close of

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escrow, an approved cleanout and overflow devices must be installed at the owners sole cost, and be inspected by the District Inspector. (Sanitation District Code section 7.04.375.A.4.c)

Continued use of an existing sewer lateral for any existing building: pre-escrow plumber's inspection:

If the development will involve the reuse of an existing sewer lateral for a residential use, if the existing buildings or structures on this parcel that are connected to a sewer main were constructed more than 20 years before the date of sale, and if the private sewer system has not been inspected within the past twenty years, then, before the close of escrow, the property seller shall have the sanitary sewer system inspected and certified by a licensed plumber to be in good working order and free of obstructions and breaks. The testing and any repair shall be the responsibility of the seller, nontransferable to the buyer. Repairs shall be made to any damaged or deteriorated pipe, misalignment of pipe segments, leaking pipes, root intrusion, open joints, cracks or breaks, sags, damaged or defective cleanout, inflow and infiltration of extraneous water, older pipe materials that are known to be inadequate, inadequate lift or pump stations, inadequate alarm systems for overflows, and inadequate maintenance of lift stations. You must obtain a sewer repair permit (no charge) from the District and shall have repairs inspected by the District inspector (no charge) prior to backfilling of pipe or structure.

(Sanitation District Code section 7.04.375.A.3.b. Private Sanitary Sewer System Repair)

Re-use of an existing sewer lateral for any new or remodeled building.

If the development will involve the reuse of an existing sewer lateral for a new or remodeled building, then, prior to the issuance of any building or demolition permit, the applicant shall have the sanitary sewer system inspected and certified by a licensed plumber to be in good working order and free of obstructions and breaks. The testing and any repair shall be the responsibility of the seller. Repairs shall be made to any damaged or deteriorated pipe, misalignment of pipe segments, leaking pipes, root intrusion, open joints, cracks or breaks, sags, damaged or defective cleanout, inflow and infiltration of extraneous water, older pipe materials that are known to be inadequate, inadequate lift or pump stations, inadequate alarm systems for overflows, and inadequate maintenance of lift stations. You must obtain a sewer repair permit (no charge) from the District and shall have repairs inspected by the District inspector (no charge) prior to backfilling of pipe or structure.

(Sanitation District Code section 7.04.375.A.3.d. Private Sanitary Sewer System Repair)

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Attachment 3

Drainage Calculations
RI Engineering, Inc.

RI Engineering, Inc.



DRAINAGE CALCULATIONS

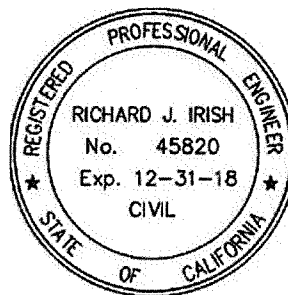
For

**A 16 Lot Townhouse Subdivision at
5701 Soquel Dr.
Soquel, California
APN 037-113-26**

Date: June 25, 2018

**Prepared For:
Tim Gordin**

**Prepared By:
RI Engineering, Inc.
Project Number 18-021-1**



Workbench Inc.
5701 Soquel Drive
Soquel, California
June 2018

Design Criteria

Storm drainage calculations described in this document have been done in conformance with the *Santa Cruz County Design Criteria Feb 2017 Edition Design Criteria*

Project Description

The project consists of removing an existing garage, relocating a residence, constructing 14 new townhomes, constructing an asphalt driveway and constructing two detention/biofiltration systems. The parcel is a 1.10 acre lot in Santa Cruz. The project will create or replace approximately 28,000 square feet of impervious area. This is a 'large' project by County Design Criteria.

Existing Conditions

The project is located on Soquel Avenue near the intersection of Peoples Lane. The site is partially developed with three small structures on it. The roofs of the structures drain directly to the ground. The site is gently sloping to the south towards Soquel Ave at an average slope of 3. The current drainage pattern is not controlled. Runoff from the rear yard area flows towards the structures which are closer to the road. There are two driveway entrances to the site. Most of the runoff flows down these driveways and over the sidewalk to Soquel Avenue. There are two retaining walls on the back side of the sidewalk on Soquel Drive. There are no apparent drainage improvements related to this wall.

Proposed Development:

The proposed improvements are intended to match the existing drainage patterns. The site gently slopes to the front of the property. The stormwater is concentrated, filtered and detained in at two locations on the property. All surface drainage flows to a bioretention facility. The outlets of the bioretention facilities are used as orifice restriction devices and inlets for 3' diameter detention systems. These detention facilities are outlet through the existing sidewalk to Soquel drive through 'under sidewalk drains' per county standards. The outlets have been sized to handle a 235 year storm event.

On-site retention is infeasible for this site due to sub-surface soils having limited infiltration rates. The NRCS Web Soil Survey website maps this area as having soils with percolation rates approximately 0.2 in./hr. The minimum allowable percolation rate for infiltration is 0.5 in./hr per County Design Criteria Standards. The geotechnical engineer has classified the soils at the feasible depth to be "stiff clay", "very stiff clay" and "hard clay". This justifies infeasibility for a percolation based retention system. The County's requirement for 'Minimize Pollutants of Concern' is achieved by using the Biofiltration Treatment System method. Biofiltration systems have been

Workbench Inc.
5701 Soquel Drive
Soquel, California
June 2018

included in the design in two locations throughout the site. Below is a justification for infeasibility of Low Impact Development and Retention Treatment System alternatives.

Retention Feasibility: The project has been subject the requirements of Santa Cruz County Design Criteria Section C.3.b Minimize Stormwater Pollutants of Concern. This is an explanation of feasibility in order of priority.

i. Retention Treatment Systems: The NRCS Web Soil Survey has mapped this area as having a Saturated Hydraulic Conductivity of 0.2 in./hr which is less than half the allowable amount per County Design Criteria. Soil boring logs from the geotechnical engineer align with the assumed rate from NRCS.

ii. Low Impact Development (LID) Treatment Systems: See response to Retention Treatment Systems. On-site retention is infeasible for this site.

iii. Biofiltration Treatment Systems: Treatment of stormwater has been achieved using a standard biofiltration system capable of treating water at a maximum loading rate of 5 inches per hour with a rain event equal to 0.2 in accordance with Section-C.3.b.iii(1)(a) (the 4% rule).

Additional BMPs:

The site includes a design for pervious pavers on all of the parking spaces to provide additional treatment and flow reduction. All of the parallel parking spaces will be surfaced with a porous material. The site also includes a large area of landscaping.

Site Design and Runoff Reduction

i) Limit disturbance to creeks and natural drainage features.

N/A

ii) Minimize compaction of soils.

Soil is not compacted where it is not necessary by the geotechnical engineer.

iii) Limit clearing and grading of native vegetation at the site to minimum area needed to build the project, allow access, and provide fire protection.

There is limited vegetation on site currently.

iv) Minimize impervious surfaces by concentrating improvements on the least-sensitive portions of the site, while leaving the remaining land in a natural undisturbed state.

The site is not large enough to concentrate improvements.

v) Minimize stormwater runoff by implementing the following site design measures as feasible:

(1) Direct roof, driveway, parking lot, sidewalk, walkway, patio and other impervious surface runoff onto vegetated areas safely away from building foundations and footings, consistent with the California building code.

The majority of roof downspouts flow to landscaping. The remaining downspouts are hard piped to Biofiltration systems.

(2) Construct bike lanes, driveways, uncovered parking lots, sidewalks, walkways, patios and other hardscapes with permeable surfaces.

Parallel parking spaces are constructed of porous materials.

(3) Direct roof runoff to cisterns or rain barrels for reuse.

Not incorporated.

Conclusion

The project will result in approximately 28,000 square foot of impervious area being created or replaced. The project is considered a Large project by Public Works Design Criteria and subject to Site Design and Runoff Reduction measures, Minimize stormwater pollutants of concern, and Stormwater discharge rates and volumes.

These requirements are met through on-site design measures which include: two 3' diameter closed detention systems with orifice restrictions, two bioretention facilities, porous paver parking areas and numerous landscape areas.

Workbench Inc.
5701 Soquel Drive
Soquel, California
June 2018

Attachments:

- Table 1 - Drainage Area Calculations
- Table 2 – Hydrology Calculation Pre and Post ‘C’ values and areas
- Table 3 – Drainage Management Area (DMA) Summary
- Table 4 – BASIN 1 Detention System Orifice Sizing
- Table 5 – BASIN 1 Detention Storage Volume Sizing
- Table 6 – BASIN 1 25 Year Storm Event Overflow Sizing
- Table 7 – BASIN 2 Detention System Orifice Sizing
- Table 8 – BASIN 2 Detention Storage Volume Sizing
- Table 9 – BASIN 2 25 Year Storm Event Overflow Sizing
- Table 10 – Pipe Capacity Analysis (Thru Curb Drains)
- SWM 17 Detention Sizing BASIN 1
- SWM 17 Detention Sizing BASIN 2
- P60 Isopleths
- NRCS Web Soil Survey Saturated Hydraulic Conductivity
- Watershed Map

Workbench Inc
 5701 Soquel Drive
 Santa Cruz, California
 APN 037-113-26



DRAINAGE AREA CALCULATIONS

Existing Impervious Areas	Area (sf)
Existing Buildings	3433
Existing AC Driveway	3212
Existing Concrete	4103
Total Area of Impervious	10748
Existing Pervious Area	37299

Proposed Impervious Areas	Basin 1	Basin 2	Total
	Area (sf)	Area (sf)	Area (sf)
Existing Building (to remain)	1410	0	1,410
Proposed & Relocated Buildings	9472	4425	13,897
AC Driveway/Parking	4044	9191	13,235
Concrete/Other	265	414	679
Total Area of Impervious	15191	14030	29,221
Proposed Semi-Pervious Areas	1005	1556	2561
Proposed Landscape Area	13689	2576	16,265
Total Site	29885	18162	48047

Table 1



Workbench Inc
 5701 Soquel Drive
 Santa Cruz, California
 APN 037-113-26

HYDROLOGY

Pre and Post Development 'C' values for use in the County Standard SWM spreadsheets

Determine PRE Development (Existing) 'C' value

Feature	Area (sf)	Area (acres)	C	AxC
Pervious	37,299	0.86	0.30	0.26
Impervious	10,748	0.25	0.90	0.22
Totals:	48,047	1.10		0.48

**** No credit is given to existing impervious for large projects
 pervious area shown is the total development area**

Pre Development $C_{AVERAGE} = 0.43$

$$Q = (C_a) * C * (I_a) * I * A$$

Determine BASIN 1 POST Development 'C' Value

Feature	Area (sf)	Area (acres)	C	AxC
Pervious	13,689	0.31	0.30	0.09
Semi-Pervious	1,005	0.02	0.50	0.01
Impervious	15,191	0.35	0.90	0.31
Total	29,885	0.69		0.42

Post Development $C_{AVERAGE} = 0.61$ For use in County Standard SWM17 spreadsheet

Determine BASIN 2 POST Development 'C' Value

Feature	Area (sf)	Area (acres)	C	AxC
Pervious	2,576	0.06	0.30	0.02
Semi-Pervious	1,556	0.04	0.50	0.02
Impervious	14,030	0.32	0.90	0.29
Total	18,162	0.42		0.33

Post Development $C_{AVERAGE} = 0.78$ For use in County Standard SWM17 spreadsheet

Table 2

Workbench Inc
 5701 Soquel Drive
 Santa Cruz, California
 APN 037-113-26



Drainage Management Area (DMA) Summary

DMA Designation	Area (sf)	Description	Drains to	Summary
1a	5719	Roof	TCM 1	
1b	5314	AC/Conc./Pavers	TCM 1	
1c	3753	Roof	TCM 1	
1d	1410	Roof	TCM 1	16196 SF Drains to TCM 1
2a	3469	Roof	TCM 2	
2b	10247	AC/Conc./Pavers	TCM 2	
2c	956	Roof	TCM 2	14672 SF Drains to TCM 2

USE THE 4% RULE TO SIZE THE TREATMENT CONTROL MEASURES

TCM 1

Tributary Area = 16196 SF

Apply 4% Rule = **647.84 SF Required for Bioretention**

TCM 2

Tributary Area = 14672 SF

Apply 4% Rule = **586.88 SF Required for Bioretention**

Table 3

BASIN 1 DETENTION SYSTEM ORIFICE SIZING

The orifice has been sized to meter runoff from the detention system at the pre-development rate

Design Orifice to Discharge Pre Development Q

Q Allowable release: 0.37 cfs From SWM-17

Orifice Equation: $Q = C_d \cdot A_o \cdot (2 \cdot g \cdot h)^{.5}$

Where: $C_d =$ 0.62
 head $h =$ 3

Design Orifice

Orifice Diameter (in)	Area (A _o) (sf)	Q (cfs)
2.75	0.041	0.36

Use 2 3/4" diameter orifice.

Table 4

Workbench Inc
5701 Soquel Drive
Santa Cruz, California
APN 037-113-26



Basin 1 Check Detention Storage Volumes for 10-year storm

Total Pipe Storage for the 100-year Storm

Diameter Pipe (ft)	3.0
r (ft)	1.50
Area (sf)	7.07
Length (ft)	65
Total Pipe Volume (cf)	459.5
Additional Storage Volume from Catch Basins (cf)	0.0
Total Detention System Storage	459.5

Summary

Volume of pipe available for 10-year storm	459 CF
Required 10-year storage=	443 CF (SWM-17)

Table 5

Workbench Inc
5701 Soquel Drive
Santa Cruz, California
APN 037-113-26

Basin 1 25 year storm event overflow analysis

EXISTING CONDITIONS

BASIN 1

Developed Area: 29,885.00 SF 0.69 AC

Time of Concentration: Use Santa Cruz County Figure SWM-4.

Tc = 10 minutes

Determine Existing Q for a 10 year storm.

Ca = 1.10
C= 0.69 Table 2
P60 = 1.50
Time of Concentration = 15 Min
25 Yr. Return Factor = 1.20
I = 1.80 Fig SMW-3

Q_{25 Proposed} = 1.12 cfs

Available Capacity in 4" thru Curb Drain

Q_{CAPACITY} = 0.380 cfs (Table 10)

Quantity of Thru Curb Drains =	$\frac{Q_{25 \text{ Proposed}}}{Q_{\text{CAPACITY}}}$	=	2.95
			USE 3

Table 6

BASIN 2 DETENTION SYSTEM ORIFICE SIZING

The orifice has been sized to meter runoff from the detention system at the pre-development rate

Design Orifice to Discharge Pre Development Q

Q Allowable release: 0.22 cfs

Orifice Equation: $Q = C_d \cdot A_o \cdot (2 \cdot g \cdot h)^{.5}$

Where: $C_d =$ 0.62
 head $h =$ 3

Design Orifice

Orifice Diameter (in)	Area (A _o) (sf)	Q (cfs)
2.00	0.022	0.19

Use 2" diameter orifice.

Table 7

Workbench Inc
5701 Soquel Drive
Santa Cruz, California
APN 037-113-26



Basin 2
Check Detention Storage Volumes for 10-year storm

Total Pipe Storage for the 100-year Storm

Diameter Pipe (ft)	3.0
r (ft)	1.50
Area (sf)	7.07
Length (ft)	70
Total Pipe Volume (cf)	494.8
Additional Storage Volume from Catch Basins (cf)	0.0
Total Detention System Storage	494.8

Summary

Volume of pipe available for 10-year storm	495 CF
Required 10-year storage=	479 CF (SWM-17)

Table 8

Workbench Inc
5701 Soquel Drive
Santa Cruz, California
APN 037-113-26

Basin 2 25 year storm event overflow analysis

EXISTING CONDITIONS

BASIN 2

Developed Area: 18,162.00 SF 0.42 AC

Time of Concentration: Use Santa Cruz County Figure SWM-4.

Tc = 10 minutes

Determine Existing Q for a 10 year storm.

Ca = 1.10
C= 0.78 Table 2
P60 = 1.50
Time of Concentration = 15 Min
25 Yr. Return Factor = 1.20
I = 1.80 Fig SMW-3

Q_{25 Proposed} = 0.77 cfs

Available Capacity in 4" thru Curb Drain

Q_{CAPACITY} = 0.380 cfs (Table 10)

Quantity of Thru Curb Drains =	$\frac{Q_{25 Proposed}}{Q_{CAPACITY}}$	=	2.04
			USE 3

Table 9

PIPE CAPACITY ANALYSIS



By Mannings Equation

$Q=VA$

$V=1.49(R^{2/3}/n)*S^{0.5}$

$R = A/P$

CAPACITY FOR 4" THRU CURN DRAINS

	4" Plastic Pipe	
D	0.33	Ft
Area =	0.09	SF
Hydraulic Radius =	0.0825	(assumes full pipe flow)
n (mannings coef)	0.009	(Plastic/Smooth)
Slope	2%	Ft./Ft
V=	4.437	Ft./Second
Q =	0.380	CFS

Table 10

RUNOFF DETENTION BY THE MODIFIED RATIONAL METHOD

Data Entry: PRESS TAB & ENTER DESIGN VALUES SS Ver: 1.0

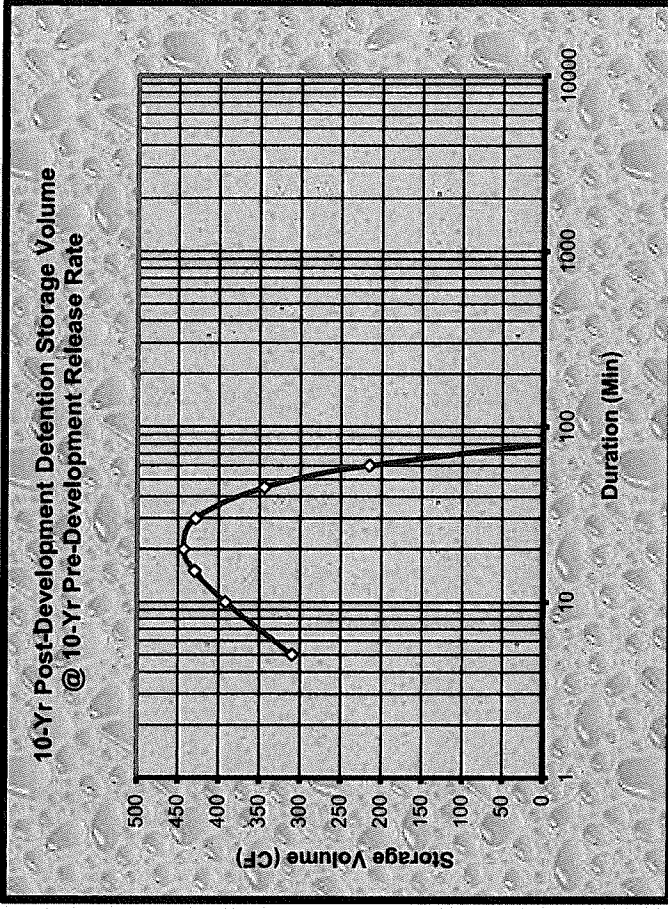
Site Location P60 Isoleth:	1.50	Fig. SWM-2 in County Design Criteria
Rational Coefficients Cpre:	0.30	See note # 2
Cpost:	0.61	See note # 2
Impervious Area:	29885	ft ² See note # 2 and # 4

STRUCTURE DIMENSIONS FOR DETENTION

443	ft ³ storage volume calculated		
40	% void space assumed		
1107	ft ³ excavated volume needed		
Structure Ratios	Length	Width*	Depth*
	23.00	3.00	2.00
Dimen. (ft)	46.05	6.01	4.00

*For pipe, use the square root of the sectional area

10 - YEAR DESIGN STORM				DETENTION @ 15 MIN.		
Storm Duration (min)	10 - Yr. Release		10 - Year Qpost		Detention Rate To Storage (cfs)	Specified Storage Volume (cf)
	Intensity (in/hr)	Qpre (cfs)	Qpre (cfs)	Qpost (cfs)		
1440	0.26	0.053	0.108		-0.261	-28163
1200	0.28	0.058	0.117		-0.252	-22685
960	0.31	0.063	0.129		-0.240	-17311
720	0.34	0.072	0.145		-0.224	-12081
480	0.41	0.085	0.173		-0.196	-7072
360	0.46	0.096	0.195		-0.174	-4699
240	0.55	0.114	0.232		-0.137	-2474
180	0.62	0.129	0.262		-0.107	-1450
120	0.74	0.153	0.311		-0.058	-525
90	0.83	0.173	0.351		-0.018	-121
60	0.99	0.205	0.417		0.048	216
45	1.12	0.232	0.471		0.102	344
30	1.33	0.275	0.560		0.190	428
20	1.57	0.327	0.665		0.295	443
15	1.78	0.369	0.751		0.382	429
10	2.11	0.438	0.891		0.522	392
5	2.83	0.588	1.106		0.827	310



Notes & Limitations on Use:

- 1) The modified rational method, and therefore the standard calculations are applicable in watersheds up to 20 acres in size.
- 2) Required detention volume determinations shall be based on all net new impervious area: both on and off-site, resulting from the proposed project. Pervious areas shall not be included in detention volume sizing; an exception may be made for incidental pervious areas less than 10% of the total area.
- 3) Gravel packed detention chambers shall specify on the plans, aggregate that is washed, angular, and uniformly graded (of single size), assuring void space not less than 35%.
- 4) A map showing boundaries of both regulated impervious areas and actual drainage areas routed to the hydraulic control structure of the detention facility is to be provided, clearly distinguishing between the two areas, and noting the square footage.
- 5) The EPA defines a class V injection well as any bored, drilled, or driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system. Such storm water drainage wells are "authorized by rule". For more information on these rules, contact the EPA. A web site link is provided from the County DPW Stormwater Management web page.

6) Refer to the County of Santa Cruz Decision Criteria for complete method criteria.

RUNOFF DETENTION BY THE MODIFIED RATIONAL METHOD

Data Entry: PRESS TAB & ENTER DESIGN VALUES SS Ver. 1.0

Site Location P60 Isoleth: 1.50 Fig. SWM-2 in County Design Criteria
 Rational Coefficients Cpre: 0.30 See note # 2
 Cpost: 0.78 See note # 2
 Impervious Area: 18162 ft² See note # 2 and # 4

STRUCTURE DIMENSIONS FOR DETENTION

479 ft³ storage volume calculated

40 % void space assumed

1196 ft³ excavated volume needed

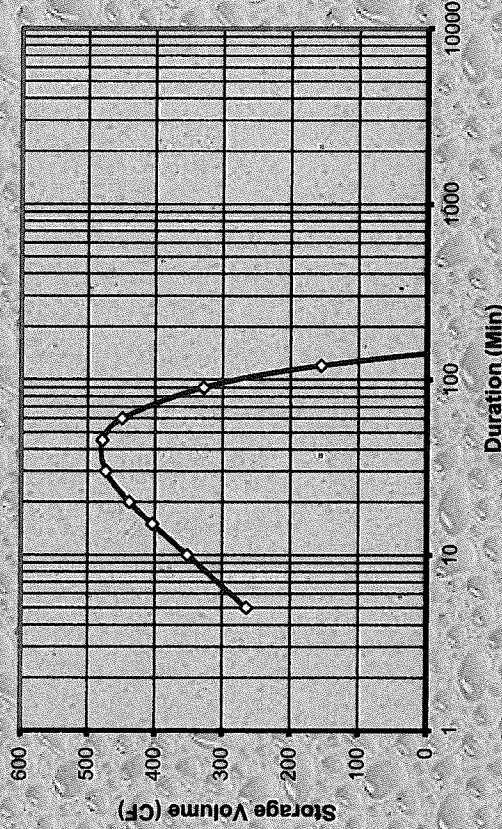
Structure Ratios	Length	Width*	Depth*
	23.00	3.00	2.00
Dimen. (ft)	47.25	6.16	4.11

*For pipe, use the square root of the sectional area

10 - YEAR DESIGN STORM

Storm Duration (min)	10 - Yr. Release			DETENTION @ 15 MIN.	
	10 - Year Intensity (in/hr)	10 - Yr. Qpre (cfs)	10 - Year Qpost (cfs)	Detention Rate To Storage (cfs)	Specified Storage Volume (cf)
1440	0.26	0.032	0.084	-0.140	-15132
1200	0.28	0.035	0.091	-0.133	-12001
960	0.31	0.038	0.100	-0.124	-8950
720	0.34	0.043	0.113	-0.111	-6012
480	0.41	0.052	0.134	-0.090	-3245
360	0.46	0.058	0.152	-0.073	-1963
240	0.55	0.069	0.180	-0.044	-797
180	0.62	0.078	0.203	-0.021	-282
120	0.74	0.093	0.242	0.017	155
90	0.83	0.105	0.273	0.049	328
60	0.99	0.125	0.324	0.100	449
45	1.12	0.141	0.366	0.142	479
30	1.33	0.167	0.435	0.210	474
20	1.57	0.199	0.516	0.292	438
15	1.78	0.224	0.583	0.359	404
10	2.11	0.266	0.693	0.468	351
5	2.83	0.357	0.929	0.705	264

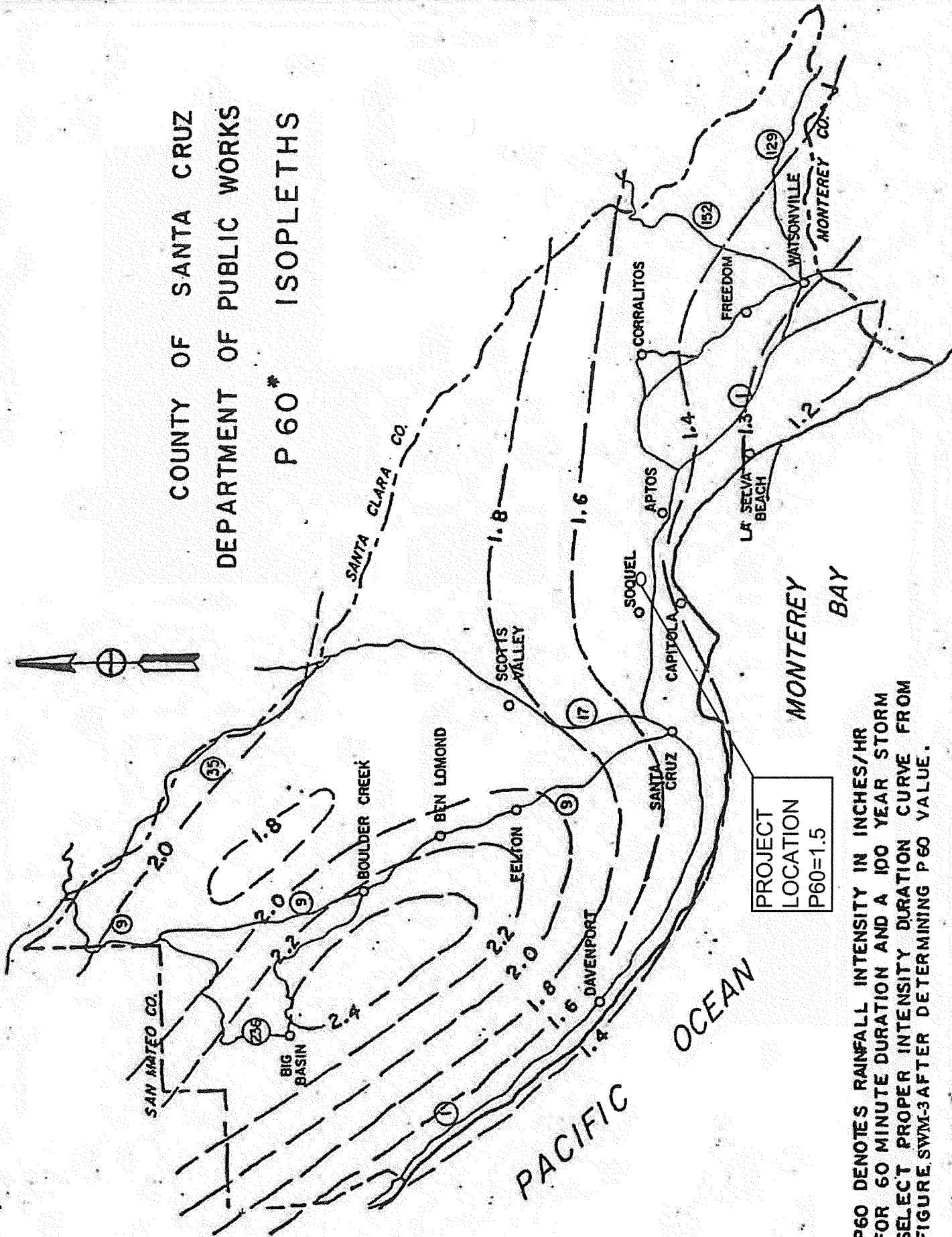
10-Yr Post-Development Detention Storage Volume @ 10-Yr Pre-Development Release Rate



Notes & Limitations on Use:

- 1) The modified rational method, and therefore the standard calculations are applicable in watersheds up to 20 acres in size.
- 2) Required detention volume determinations shall be based on all net new impervious area both on and off-site, resulting from the proposed project. Pervious areas shall not be included in detention volume sizing; an exception may be made for incidental pervious areas less than 10% of the total area.
- 3) Gravel packed detention chambers shall specify on the plans, aggregate that is washed, angular, and uniformly graded (of single size), assuring void space not less than 35%.
- 4) A map showing boundaries of both regulated impervious areas and actual drainage areas routed to the hydraulic control structure of the detention facility is to be provided, clearly distinguishing between the two areas, and noting the square footage.
- 5) The EPA defines a class V injection well as any bored, drilled, or driven shaft, or dug hole that is deeper than its widest surface dimension, or an improved sinkhole, or a subsurface fluid distribution system. Such storm water drainage wells are "authorized by rule". For more information on these rules, contact the EPA. A web site link is provided from the County DPW Stormwater Management web page.
- 6) Refer to the County of Santa Cruz Design Criteria for complete method criteria.

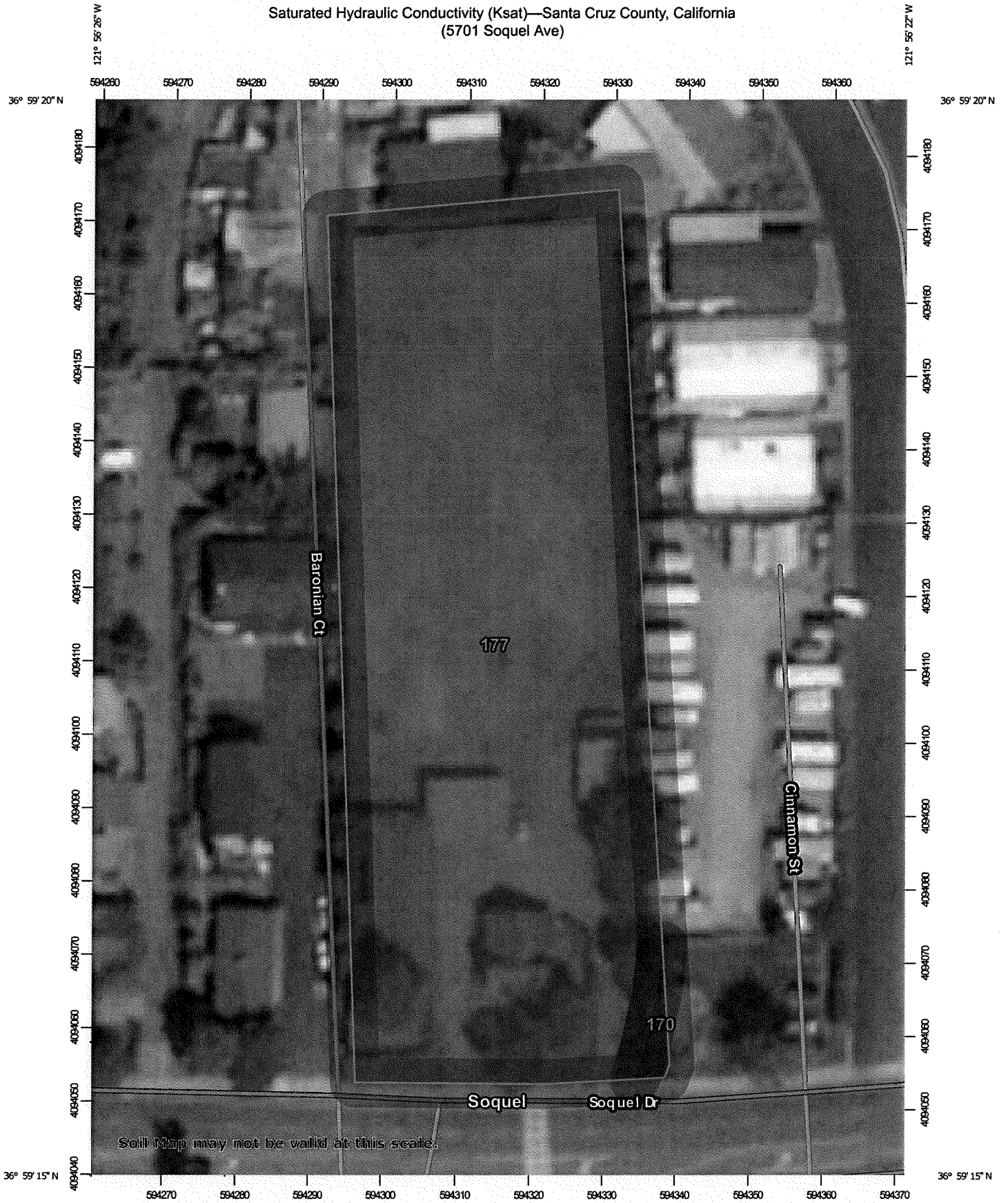
COUNTY OF SANTA CRUZ
 DEPARTMENT OF PUBLIC WORKS
 P 60* ISOPLETHS



PROJECT
 LOCATION
 P60=1.5

*P60 DENOTES RAINFALL INTENSITY IN INCHES/HR FOR 60 MINUTE DURATION AND A 100 YEAR STORM. SELECT PROPER INTENSITY DURATION CURVE FROM FIGURE SWM-3 AFTER DETERMINING P60 VALUE.

Saturated Hydraulic Conductivity (Ksat)—Santa Cruz County, California
(5701 Soquel Ave)



Soil Map may not be valid at this scale.

Map Scale: 1:715 if printed on A portrait (8.5" x 11") sheet.


















0 10 20 40 60 Meters

0 30 60 120 180 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



MAP LEGEND

- Area of Interest (AOI)**
 Area of Interest (AOI)
- Soils**
Soil Rating Polygons
 <= 0.8294
 > 0.8294 and <= 2.7000
 Not rated or not available
- Soil Rating Lines**
 <= 0.8294
 > 0.8294 and <= 2.7000
 Not rated or not available
- Soil Rating Points**
 <= 0.8294
 > 0.8294 and <= 2.7000
 Not rated or not available
- Water Features**
 Streams and Canals
- Transportation**
 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads
- Background**
 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Cruz County, California
Survey Area Data: Version 11, Sep 13, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
170	Soquel loam, 0 to 2 percent slopes	2.7000	0.0	0.7%
177	Watsonville loam, 2 to 15 percent slopes	0.8294 =.11 in./hr	1.2	99.3%
Totals for Area of Interest			1.2	100.0%

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 36

Bottom Depth: 72

Units of Measure: Inches

Attachment 4

Geotechnical Investigation
Butano Geotechnical Engineering

**GEOTECHNICAL INVESTIGATION
DESIGN PHASE**

FOR
PROPOSED RESIDENTIAL CONSTRUCTION
5701 SOQUEL DRIVE
SANTA CRUZ COUNTY, CALIFORNIA 93905
APN 037-113-26

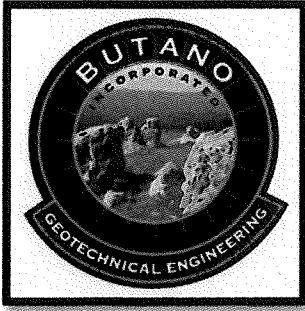
PREPARED FOR
WORKBENCH, INC.

PROJECT NO. 18-104-SC



PREPARED BY

BUTANO GEOTECHNICAL ENGINEERING, INC.
FEBRUARY 2018



BUTANO GEOTECHNICAL ENGINEERING, INC.

231 GREEN VALLEY ROAD, SUITE E, FREEDOM, CALIFORNIA 95019

PHONE: 831.724.2612

WWW.BUTANOGEOTECH.COM

February 9, 2018
Project No. 18-104-SC

Workbench
129 Bulkhead Street
Santa Cruz, CA 95060

ATTENTION: Jonathan Gordin

SUBJECT: **GEOTECHNICAL INVESTIGATION - DESIGN PHASE**
Proposed Residential Construction
5701 Soquel Drive
Soquel, Santa Cruz County, California
APN 037-113-26

Dear Mr. Gordin:

In accordance with your authorization, we have completed a geotechnical investigation for the subject project. This report summarizes the findings, conclusions, and recommendations from our field exploration, laboratory testing, and engineering analysis. It is a pleasure being associated with you on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office.

Sincerely,

BUTANO GEOTECHNICAL ENGINEERING, INC.

Greg Bloom, PE, GE
Principal Engineer
R.C.E. 58819

Philip Edwards
Senior Engineer
R.C.E. 86451

Appendices: 1. Appendix A Figures and Standard Details
2. Appendix B Field Exploration Program
3. Appendix C Laboratory Testing Program

Distribution: (4) Addressee

1.0 INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed residential project.

Anticipated construction consists of building multiple residential units on the parcel. At the time of our investigation the layout was conceptual. Preliminary design showed multiple proposed units on the northern two-thirds of the parcel and leaving the two existing residences on the southern third of the parcel.

The purpose of our investigation is to provide preliminary geotechnical design parameters and recommendations for the construction of the proposed residential construction. Conclusions and recommendations related to site grading, drainage, retaining walls, and foundations are presented herein. Our investigation covers construction throughout the entire parcel.

This work included site reconnaissance, subsurface exploration, soil sampling, laboratory testing, engineering analyses, and preparation of this report. The scope of services for this investigation is outlined in our agreement dated December 18, 2017.

The following documents were provided to us for use during our site investigation and for preparation of the report:

Preliminary Layout Plan – Dated: September 25, 2017

Topographic Survey Map by: Edmundson & Associates Land Surveying, Titled: Topographic Survey Map of Assessor's Parcel No. 037-113-26, Dated: January 17, 2017, Job # 17193

The recommendations contained in this report are subject to the limitations presented in Section 8.0 of this report. The Association of Engineering Firms Practicing the Geosciences has produced a pamphlet for your information titled *Important Information About Your Geotechnical Report*. This pamphlet has been included with the copies of your report.

2.0 FIELD EXPLORATION AND LABORATORY TESTING PROGRAMS

Our field exploration program included drilling, logging, and interval sampling of six borings on January 16, 2018 with 6-inch solid stem augers on a truck mounted drill rig. The borings were advanced to depths ranging from 11 ½ to 21 ½ feet below existing grade. Details of the field exploration program, including the Boring Logs, and the Key to the Logs are presented in Appendix B, Figures B-3 through B-9.

Representative samples obtained during the field investigation were taken to the laboratory for testing. Laboratory tests were used to determine physical and engineering properties of the in-situ soils. Details of the laboratory testing program are presented in Appendix C. Test results are presented on the Boring Logs and in Appendix C.

3.0 SITE DESCRIPTION

3.1 Location

The site is located North of Highway 1 in unincorporated Soquel, Santa Cruz County, California. The site address is 5701 Soquel Drive and has an assessor's parcel number of 037-113-26. The site location is shown on the Site Location Plan, Appendix B, Figure B-1.

3.2 Surface Conditions

The site is a relatively level fenced in parcel with an approximate area of 46,925 square feet. Gradients on the parcel slope gently to the south towards Soquel Drive. There is a six to eight foot step on the southern boundary of the parcel adjacent to Soquel Drive. Portions of the step are retained by a small block wall.

There are two existing residences on the southern portion of the parcel with detached garages and associated hardscape and landscape features. Two driveways provide access to the residences and the parcel from Soquel Drive.

Vegetation on the parcel is sparse with only a few trees. North of the existing residences the site is vegetated with grass.

3.3 Subsurface Conditions

A total of six borings were advanced for the project in the area of the proposed improvements.

The site is geologically mapped as the lowest emergent coastal terrace deposit (Qcl).

The native earth materials generally encountered at the site consisted of stiff to hard sandy lean clay overlying dense to very dense Purisima Formation sandstone bedrock (Tp). Bedrock was encountered at depths of 17 ½ and 10 ½ feet in borings B1 and B6 respectively.

A one to two foot layer of very soft and wet sandy lean clay was encountered north of the residences in the grassy field. The area where the very soft soil was found is mapped on the boring site plan, Appendix B, Figure B-2. This soil may be non-engineered fill.

Groundwater was not encountered in any of the borings. Groundwater levels will vary seasonally.

Complete soil profiles are presented on the Boring Logs, Appendix B, Figures B-4 through B-9. The boring locations are shown on the Boring Site Plan, Appendix B, Figure B-2.

4.0 PROJECT DESCRIPTION

Based on our discussions with the client it is our understanding that the site will be improved with multiple residential units. Small retaining walls may be included as part of the project.

5.0 GEOTECHNICAL HAZARDS

5.1 General

In our opinion the geotechnical hazards that could potentially affect the proposed project are:

- Intense seismic shaking
- Collateral seismic hazards

5.1.1 Intense Seismic Shaking

The hazard of intense seismic shaking is present throughout central California. Intense seismic shaking may occur at the site during the design lifetime of the proposed structure from an earthquake along one of the regions many faults. Generally, the intensity of shaking will increase the closer the site is to the epicenter of an earthquake, however, seismic shaking is a complex phenomenon and may be modified by local topography and soil conditions. The transmission of earthquake vibrations from the ground into the structure may cause structural damage.

The County of Santa Cruz has adopted the seismic provisions set forth in the 2016 California Building Code to address seismic shaking. The seismic provisions in the 2016 CBC are minimum load requirements for the seismic design for the proposed structure. The provisions set forth in

the 2016 CBC will not prevent structural and nonstructural damage from direct fault ground surface rupture, coseismic ground cracking, liquefaction and lateral spreading, seismically induced differential compaction, seismically induced landsliding, or seismically induced inundation.

Table 1 has been constructed based on the 2016 CBC requirements for the seismic design of the proposed structure. The Site Class has been determined based on our field investigation and laboratory testing.

Table 1. Seismic Design Parameters

S _s	S ₁	Site Class	F _a	F _v	S _{DS}	S _{D1}	F _{PGA}	PGAM	Occupancy Category	Seismic Design Category
1.500	0.600	C	1.0	1.3	1.000	0.520	1.000	0.558	II	D

Latitude: 36.988150 Longitude: -121.940252

5.1.2 Collateral Seismic Hazards

In addition to intense seismic shaking and fault surface rupture, other seismic hazards that may have an adverse effect to the site and/or the structure are: coseismic ground cracking, seismically induced liquefaction, (and associated hazards), seismically induced landsliding, and seismically induced inundation (tsunami and seiche). It is our opinion that the potential for collateral seismic hazards to affect the site and to damage the proposed structure is low.

6.0 DISCUSSIONS AND CONCLUSIONS

One expansion index test was conducted at the site and yielded an EI = 54. This indicates that the potential for the soil to have expansive properties is medium. One one-dimensional swell test was conducted and yielded a swell pressure of 170 psf. The swell test indicates that the weight of the structure will be greater than the swell pressure of the soil mitigating the potential for the structure to heave.

Very soft soil was encountered in the upper one to two feet on the northern portion of the property. This material may be non-engineered fill.

7.0 RECOMMENDATIONS

7.1 General

Based on the results of our field investigation, laboratory testing, and engineering analysis it is our opinion that from the geotechnical standpoint, the subject site will be suitable for the proposed improvements.

7.2 Site Grading

7.2.1 Site Clearing

The site should be cleared of non-engineered fill, very soft and loose soil, organics, and debris within the project limits. This should include the removal of any pre-existing foundation elements and previously poured concrete.

The very soft soil and possible non-engineered fill on the northern portion of the property should be over-excavated and may be re-used as engineered fill according to section 7.2.2.

Any soil disturbed by site clearing should be recompacted according to section 7.2.2.

7.2.2 Preparation of On-Site Soils

Areas to receive fill (subgrade) should be scarified, moisture conditioned and compacted to a minimum of 90 percent relative compaction. Scarification and compaction should extend a minimum of 2 feet laterally of any proposed improvements.

Site Grading-General

The on-site soil may be re-used as engineered fill after any deleterious material is removed and it is moisture conditioned. Soil may need to be moisture conditioned to achieve compaction. Engineered fill should be compacted to a minimum of 90 percent relative compaction.

Imported fill material should be approved by a representative of Butano Geotechnical Engineering, Inc. prior to importing. On-site and imported fill should be primarily granular with **no material greater than 2½ inches in diameter** and no more than 20 percent of the material passing the #200 sieve. The fines fraction of fill should not consist of expansive material.

The Geotechnical Engineer should be notified not less than 5 working days in advance of placing any fill or base course material proposed for import. Each proposed source of import material should be sampled, tested, and approved by the Geotechnical Engineer prior to delivery of any soils imported for use on the site.

Any surface or subsurface obstruction, or questionable material encountered during grading, should be brought immediately to the attention of the Geotechnical Engineer for proper processing as required.

Paved Areas

The upper 6 inches of subgrade and all aggregate baserock in paved areas should be compacted to a minimum of **95 percent** relative compaction. This should extend a minimum of 2 feet laterally of all paved areas.

7.2.3 Cut and Fill Slopes

No significant cuts or fills are anticipated for this project.

7.2.4 Excavating Conditions

The on-site soil may be excavated with standard earthwork equipment.

7.2.5 Surface Drainage

Positive drainage should be maintained away from the structures at a minimum gradient of 2 percent for 5 feet. If this is not possible due to property boundaries the surface drainage should be collected in a swale and routed away from foundation elements. Collected drainage should be released at approved locations.

7.2.6 Utility Trenches

Utility trenches should be backfilled based on the County of Santa Cruz standard details. At a minimum this should consist of 4 inches of bedding sand below the utility and 8 inches of bedding sand above the utility.

Backfill of all exterior and interior trenches should be placed in thin lifts not to exceed 8 inches and mechanically compacted to achieve a relative compaction of not less than 95 percent in paved areas and 90 percent in

other areas per ASTM D1557. Care should be taken not to damage utility lines.

The on-site native soils may be utilized for trench backfill above the bedding sand. If sand or granular material is used for trench backfill, a 3 foot concrete plug should be placed in each trench where it passes under the exterior footings.

Utility trenches that are parallel to the sides of a building should be placed so that they do not extend below a line sloping down and away at an inclination of 2:1 H:V from the bottom outside edge of all footings.

Trenches should be capped with 1 1/2 feet of relatively impermeable material. Import material must be approved by the Geotechnical Engineer prior to its use.

Trenches must be shored as required by the local regulatory agency, the State of California Division of Industrial Safety Construction Safety Orders, and Federal OSHA requirements.

7.3 Foundations

7.3.1 Conventional Shallow Foundations

General

Conventional shallow foundations may be used bearing on firm relatively unyielding in-situ soil, or engineered fill per section 7.2.2.

New foundation elements must be checked by the Geotechnical Engineer before steel is placed and concrete is poured.

Footing Dimensions

Footing widths should be based on the allowable bearing value. The minimum recommended depth of embedment is 12 inches. Embedment depths should not be allowed to be affected adversely, such as through erosion, softening, digging, etc. Should local building codes require deeper embedment of the footings or wider footings, the local codes must apply.

Bearing Capacity

The allowable bearing capacity used should not exceed 2,000 psf for footings bearing on in-situ soil or engineered fill. The allowable bearing capacity may be increased by one-third in the case of short duration loads, such as those induced by wind or seismic forces. In the event that footings are founded in structural fill consisting of imported materials, the allowable bearing capacities will depend on the type of these materials and should be re-evaluated.

Lateral Resistance

Friction coefficient - 0.35, between the in-situ soil or engineered fill and rough concrete. A passive resistance of 350 pcf may be assumed below a depth of 12 inches for in-situ soil or engineered fill. Where both friction and the passive resistance are utilized for sliding resistance, either of the values indicated should be reduced by one-third.

7.3.2 Concrete Slabs-on-Grade

General

We recommend that concrete slab-on-grades be founded on in-situ soil, or engineered fill per section 7.2.2.

The subgrade should be proof-rolled just prior to construction to provide a firm, relatively unyielding surface, especially if the surface has been loosened by the passage of construction traffic.

Capillary Break and Vapor Barrier

The following paragraph outlines the minimum capillary break and vapor barrier that shall be utilized for interior slab-on-grades, or slab-on-grades where moisture sensitive floor coverings are anticipated.

The vapor barrier shall consist of a waterproof membrane (Stegowrap 15 Mil or equivalent) placed directly below the floor slab and in direct contact with the concrete. Sheet overlap for the vapor barrier shall be a minimum of 6 inches. A 4-inch minimum layer of $\frac{3}{4}$ inch drainrock shall be placed below the waterproof membrane to act as a capillary break. Care must be taken to not rip the vapor barrier. A 6-inch layer of compacted Class II Baserock may be employed to prevent rips or tears in the vapor barrier if

desired, and to keep the subgrade from becoming saturated prior to pouring concrete.

If the manufacturer's recommendations or the project requirements for the capillary break and vapor barrier are more stringent than the minimums outlined above, the designer should follow those recommendations and requirements. Recommendations by the manufacturer may include but is not limited to specifications for; concrete mix design, puncture resistance of vapor barrier, permeance of vapor barrier, soil flatness, capillary break section, structural section, and testing recommendations.

7.4 Retaining Structures

7.4.1 Cantilevered Retaining Walls

Retaining walls may be founded on a conventional shallow foundation bearing on firm in-situ soil or engineered fill per sections 7.2.2 and 7.3.1.

Footing excavations must be checked by the Geotechnical Engineer before steel is placed and concrete is poured.

7.4.2 Lateral Earth Pressures

The lateral earth pressures presented in Table 2 are recommended for the design of retaining structures with a gravel blanket and backfill soil consisting of the on-site soil placed as engineered fill. Should the slope behind the retaining walls be other than level, supplemental design criteria will be provided for the active earth or at-rest pressures for the particular slope angle.

Table 2. Lateral Earth Pressures

Type	Soil Pressure (psf/ft)	
	Level	2:01
Active Pressure	45	60

If desired, an earthquake load (ultimate) may be considered for critical walls. A seismic load of $10H^2$ and $15H^2$ may be applied at a height of $0.6H$ from the base of the wall for unrestrained and restrained walls, respectively. A factor of safety of 1.1 is considered appropriate with respect to earthquake loading.

Pressure due to any surcharge loads from adjacent footings, traffic, etc., should be analyzed separately. Pressures due to these loading can be supplied upon receipt of the appropriate plans and loads. Refer to Appendix A, Figure A-1.

7.4.3 Backfill

Backfill should be placed under engineering control. Backfill should be compacted per Subsection 7.2.2, however, precautions should be taken to ensure that heavy compaction equipment is not used immediately adjacent to walls, so as to prevent undue pressures against, and movement of, the walls.

The granular backfill should be capped with at least 12 inches of relatively impermeable material.

7.4.4 Backfill Drainage

Backdrains should consist of 4 inch diameter Schedule 40, PVC pipe or equivalent, embedded in 3/8 inch to 3/4 inch, clean crushed gravel, enveloped in **Mirafi 180N** or approved equivalent. The drain should be a minimum of 18 inches in thickness and should extend to within 12 inches from the surface. The pipe should be 4± inches above the trench bottom; a gradient of 2± percent being provided to the pipe and trench bottom; discharging into suitably protected outlets. See Appendix A, Figure A-4 for the standard detail for the backdrain.

Perforations in backdrains are recommended as follows: 3/8 inch diameter, in 2 rows at the ends of a 120 degree arc, at 3 inch centers in each row, staggered between rows, placed downward.

Backdrains should be approved by the Geotechnical Engineer after placement of bedding and pipe and prior to the placement of clean crushed gravel.

An unobstructed outlet should be provided at the lower end of each segment of backdrain. The outlet should consist of an unperforated pipe of the same diameter, connected to the perforated pipe and extended to a protected outlet at a lower elevation on a continuous gradient of at least 1

7.4 Settlements

Total and differential settlements beneath the new foundation elements are expected to be within tolerable limits under static conditions. Vertical movements are not expected to exceed 1 inch. Differential movements are expected to be within the normal range ($\frac{1}{2}$ inch) for the anticipated loads.

7.5 Plan Review

The recommendations presented in this report are based on preliminary design information for the proposed project and on the findings of our geotechnical investigation. When completed, the Grading Plans, Foundation Plans and design loads should be reviewed by Butano Geotechnical Engineering, Inc. prior to submitting the plans and contract bidding. Additional field exploration and laboratory testing may be required upon review of the final project design plans.

7.6 Observation and Testing

Field observation and testing should be provided by a representative of Butano Geotechnical Engineering, Inc. to enable them to form an opinion regarding the adequacy of the site preparation, the adequacy of fill materials, and the extent to which the earthwork is performed in accordance with the geotechnical conditions present, the requirements of the regulating agencies, the project specifications, and the recommendations presented in this report.

Butano Geotechnical Engineering, Inc. should be notified **at least 5 working days** prior to any site clearing or other earthwork operations on the subject project in order to observe the stripping and disposal of unsuitable materials and to ensure coordination with the grading contractor. During this period, a preconstruction meeting should be held on the site to discuss project specifications, observation and testing requirements and responsibilities, and scheduling.

8.0 LIMITATIONS

The recommendations contained in this report are based on our field explorations, laboratory testing, and our understanding of the proposed construction. The subsurface data used in the preparation of this report was obtained from the borings drilled during our field investigation. Variation in soil, geologic, and groundwater conditions can vary significantly between sample locations. As in most projects, conditions revealed during construction excavation may be at variance with the findings of this investigation. If this occurs, the changed conditions must be evaluated by the Project Geotechnical

Engineer, and revised recommendations be provided as required. In addition, if the scope of the proposed construction changes from the described in this report, our firm should also be notified.

Our investigation was performed in accordance with the usual and current standards of the profession, as they relate to this and similar localities. No other warranty, expressed or implied, is provided as to the conclusions and professional advice presented in this report.

This report is issued with the understanding that it is the responsibility of the Owner, or of his Representative, to ensure that the information and recommendations contained herein are brought to the attention of the Engineer for the project and incorporated into the plans, and that it is ensured that the Contractor and Subcontractors implement such recommendations in the field. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

This firm does not practice or consult in the field of safety engineering. We do not direct the Contractor's operations, and we are not responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the Contractor. The Contractor should notify the Owner if he considers any of the recommendations presented herein or the actions required to carry out these recommendations to be unsafe.

The findings of this report are considered valid as of the present date. However, changes in the conditions of a site can occur with the passage of time, whether they are due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

The scope of our services mutually agreed upon did not include any environmental assessment or study for the presence of hazardous to toxic materials in the soil, surface water, or air, on or below or around the site. Butano Geotechnical Engineering, Inc. is not a mold prevention consultant; none of our services performed in connection with the proposed project are for the purpose of mold prevention. Proper implementation of the recommendations conveyed in our reports will not itself be sufficient to prevent mold from growing in or on the structures involved.

REFERENCES

ASTM International (2016). *Annual Book of ASTM Standards, Section Four, Construction*. Volume 4.08, Soil and Rock (I): D 430 - D 5611.

ASTM International (2016). *Annual Book of ASTM Standards, Section Four, Construction*. Volume 4.09, Soil and Rock (II): D 5714 - Latest.

Brabb, E.E., 1997, Geologic map of Santa Cruz County, California: a digital database: U.S. Geological Survey, Open-File Report OF-97-489, scale 1:62,500

California Building Code (2016).

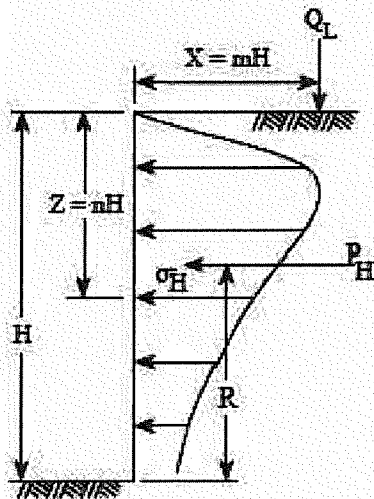
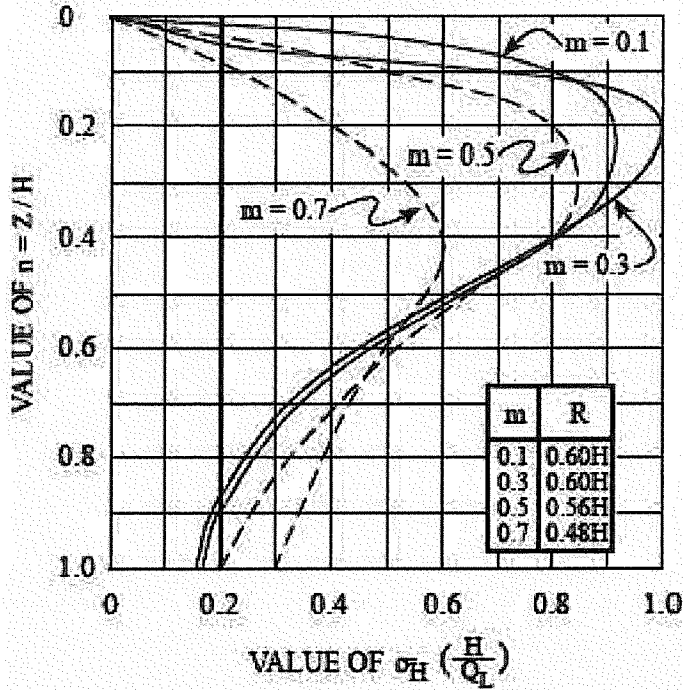
APPENDIX A

FIGURES AND STANDARD DETAILS

Surcharge Pressure Diagram

Figure A-1

LINE LOAD



FOR $m \leq 0.4$:

$$\sigma_H \left(\frac{H}{Q_L} \right) = \frac{0.20 n}{(0.16 + n^2)^2}$$

$$P_H = 0.55 Q_L$$

FOR $m > 0.4$:

$$\sigma_H \left(\frac{H}{Q_L} \right) = \frac{1.28 m^3 n}{(m^2 + n^2)^2}$$

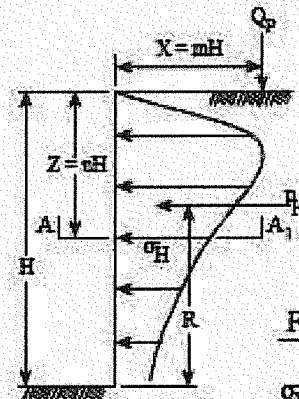
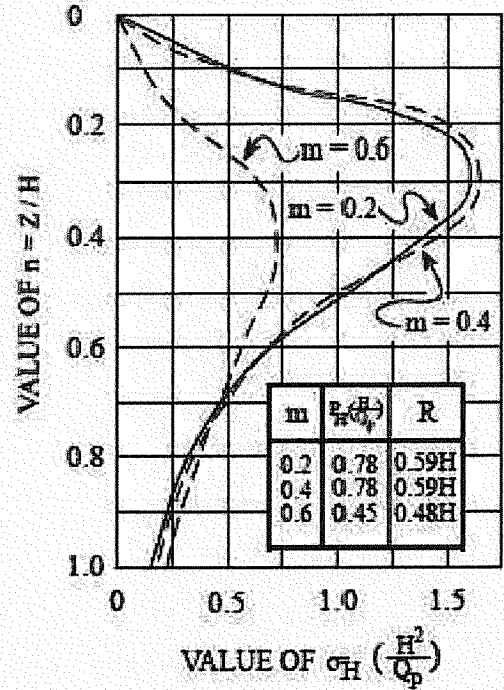
$$\text{RESULTANT } P_H = \frac{0.64 Q_L}{(m^2 + 1)}$$

PRESSURES FROM LINE LOAD Q_L

(BOISSINESQ EQUATION MODIFIED BY EXPERIMENT)

REFERENCE: Design Manual
NAVFAC DM-7.02
Figure 11
Page 7.2-74

POINT LOAD



FOR $m \leq 0.4$:

$$\sigma_H \left(\frac{H^2}{Q_p} \right) = \frac{0.28 n^2}{(0.16 + n^2)^2}$$

FOR $m > 0.4$:

$$\sigma_H \left(\frac{H^2}{Q_p} \right) = \frac{1.77 m^3 n^2}{(m^2 + n^2)^2}$$

$$\sigma_H^i = \sigma_H \cos^2(1.1 \theta)$$

SECTION A-A₁

PRESSURES FROM POINT LOAD Q_p

(BOISSINESQ EQUATION MODIFIED BY EXPERIMENT)

APPENDIX B

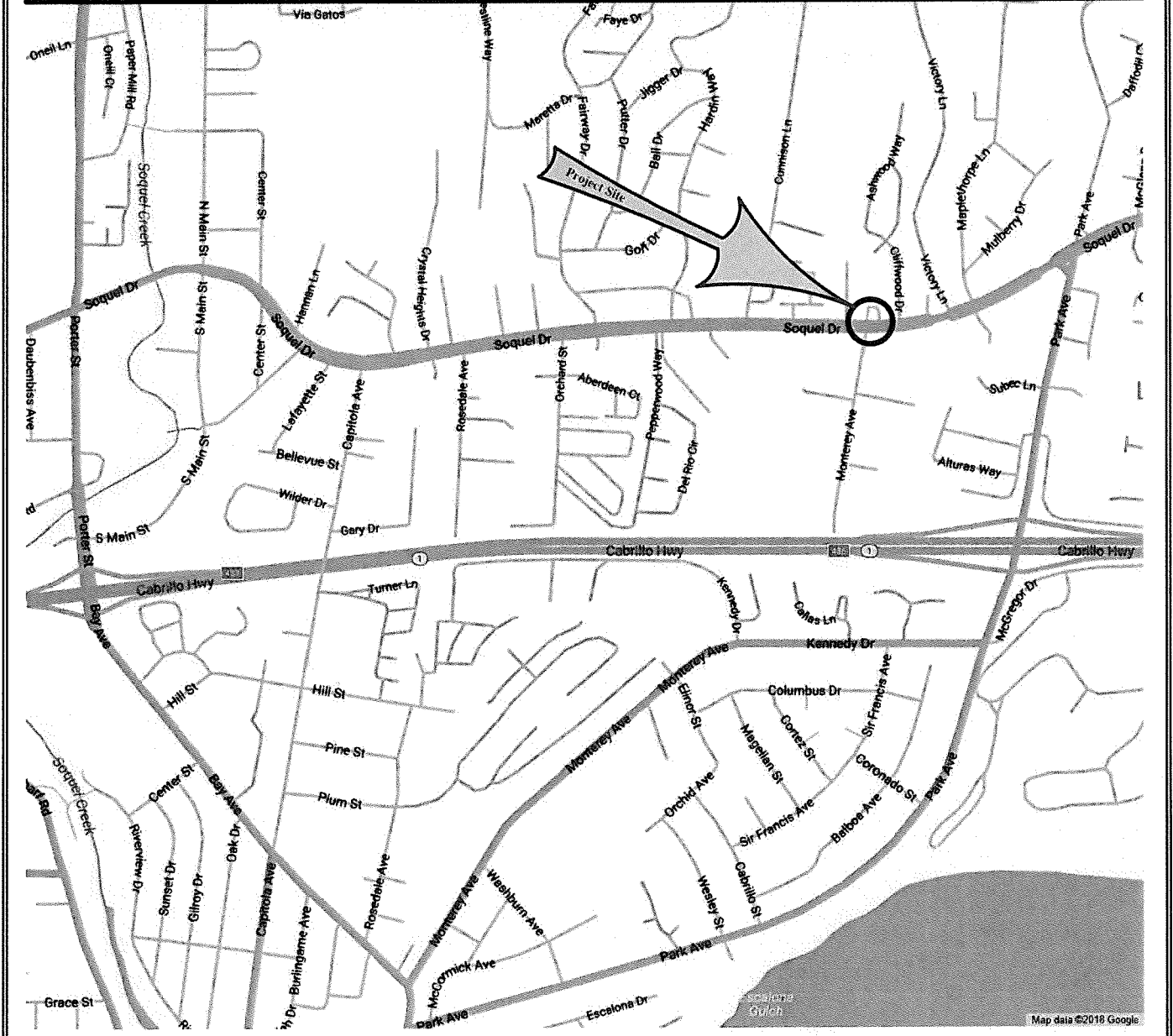
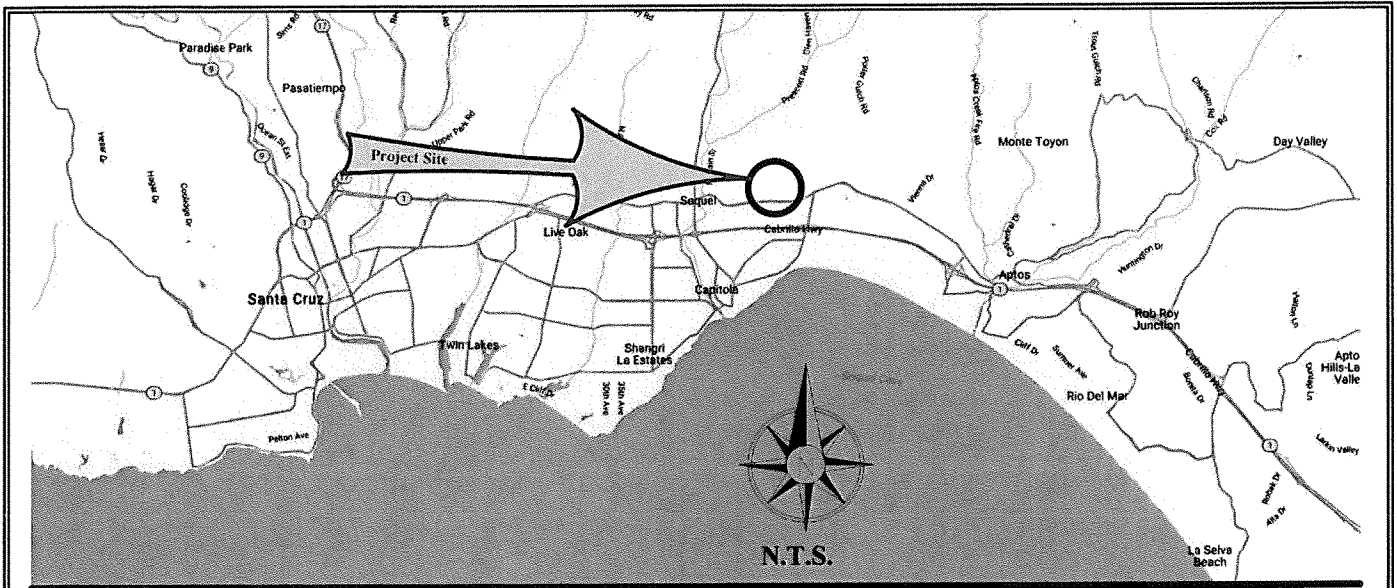
FIELD EXPLORATION PROGRAM

Field Exploration Procedures	Page B-1
Site Location Plan	Figure B-1
Boring Site Plan	Figure B-2
Key to the Logs	Figure B-3
Logs of the Borings	Figures B-4 through B-9

FIELD EXPLORATION PROCEDURES

Subsurface conditions were explored by advancing 6 borings below existing grade with a 6 inch solid stem auger on a truck mounted drill rig. The Key to The Logs and the Logs of the Borings are included in Appendix B, Figures B-3 through B-9. The approximate locations of the borings are shown on the Boring Site Plan Figure B-2. The borings were located in the field by tape measurements from known landmarks. Their locations as shown are therefore within the accuracy of such measurement.

The soils encountered in the borings were continuously logged in the field by a representative of Butano Geotechnical Engineering, Inc. Bulk and relatively undisturbed soil samples for identification and laboratory testing were obtained in the field. These soils were classified based on field observations and laboratory tests. The classifications are accordance with the Unified Soil Classification System (USCS: Figure B-3).



<p style="text-align: center;">BUTANO</p> <p style="text-align: center;">GEOTECHNICAL ENGINEERING, INC.</p>	<p style="text-align: center;">SITE LOCATION PLAN</p> <p style="text-align: center;">5701 Soquel Drive</p>	<p style="text-align: center;">FIGURE</p> <p style="text-align: center;">B-1</p>
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KEY TO LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS More than half of the material is larger than the No. 200 sieve	GRAVELS More than half of the coarse fraction is larger than the No. 4 sieve	CLEAN GRAVELS (Less than 5% fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines
	SANDS More than half of the coarse fraction is smaller than the No. 4 sieve	CLEAN SANDS (Less than 5% fines)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands, gravelly sands, little or no fines
		SAND WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines
			SC	Clayey sands, sand-clay mixtures, plastic fines
FINE GRAINED SOILS More than half of the material is smaller than the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50		ML	Inorganic silts and very fine sands, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils

GRAIN SIZE LIMITS

SILT AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
	No. 200	No. 40	No. 10	No. 4	3/4 in.	3 in.	12 in.
	US STANDARD SIEVE SIZE						

RELATIVE DENSITY	
SAND AND GRAVEL	BLOWS/FT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

CONSISTENCY	
SILT AND CLAY	BLOWS/FT*
VERY SOFT	0 - 2
SOFT	2 - 4
FIRM	4 - 8
STIFF	8 - 16
VERY STIFF	16 - 32
HARD	OVER 32

MOISTURE CONDITION	
C	DRY
L	MOIST
A	very moist
Y	
S	DRY
A	DAMP
N	WET
D	very moist

* Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 inch I.D.) split spoon (ASTM D-1586).

LOG OF EXPLORATORY BORING

Project No.: 18-104-SC	Boring: B1
Project: 5701 Soquel Drive	Location:
Date: January 16, 2018	Elevation:
Logged By: PE	Method of Drilling: 6-inch solid stem auger on a truck mounted drill rig

Depth (ft.)	Soil Type	Undisturbed	Bulk	<div style="display: flex; justify-content: space-around; font-size: small;"> <input checked="" type="checkbox"/> 2" Ring Sample <input type="checkbox"/> 2.5" Ring Sample <input checked="" type="checkbox"/> Bulk Sample </div> <div style="display: flex; justify-content: space-around; font-size: small;"> <input type="checkbox"/> Terzaghi Split Spoon Sample <input type="checkbox"/> Static Water Table </div>	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Fines Content (%)	Unconfined - q _u (psf)	Other Tests	
												Swell (psf)	
Description													
	CL			Dark brown Sandy Lean CLAY, very soft, very moist, (FILL?)									
	(FILL)			Light brown Sandy Lean CLAY, very stiff, moist.	38	19	109.5	16.3					170
	CL			Hard.	38	34		13.5	54				
5				Very stiff.	28	24		19.6					
10	GM			Light brown Sandy Gravel, dense, damp.	33	30		17.6					
15				Brown Sandy Lean CLAY, very stiff, moist.	32	29		15.7					
20	BR			Tan SANDSTONE, dense, damp, (Tp - Purisima Formation).	46	42		5.9					
25				Boring terminated at a depth of 21 1/2 feet.									
				No groundwater encountered during drilling.									
30													
35													

LOG OF EXPLORATORY BORING

Project No.: 18-104-SC	Boring: B2
Project: 5701 Soquel Drive	Location:
Date: January 16, 2018	Elevation:
Logged By: PE	Method of Drilling: 6-inch solid stem auger on a truck mounted drill rig

Depth (ft.)	Soil Type	Undisturbed	Bulk	<input checked="" type="checkbox"/> 2" Ring Sample <input type="checkbox"/> 2.5" Ring Sample <input checked="" type="checkbox"/> Bulk Sample <input type="checkbox"/> Terzaghi Split Spoon Sample <input type="checkbox"/> Static Water Table			Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Fines Content (%)	Unconfined - q _u (psf)	Other Tests	
				Swell (psf)											
Description															
5	CL (FILL) CL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dark brown Sandy Lean CLAY, very soft, very moist, (FILL?)			50-6"			22.2		52.4			
				Tan Sandy Lean CLAY, hard, moist. Very stiff.			35	32	111.3	10.5			18200		
				Hard.			50-6"			10.4					
				Hard.			48	44		12.5					
10				Hard.			48	44		15.4					
15				Boring terminated at a depth of 11 1/2 feet.											
20				No groundwater encountered during drilling.											
25															
30															
35															

LOG OF EXPLORATORY BORING

Project No.: 18-104-SC	Boring: B3
Project: 5701 Soquel Drive	Location:
Date: January 16, 2018	Elevation:
Logged By: PE	Method of Drilling: 6-inch solid stem auger on a truck mounted drill rig

Depth (ft.)	Soil Type	Undisturbed	Bulk	<input checked="" type="checkbox"/> 2" Ring Sample <input type="checkbox"/> 2.5" Ring Sample <input checked="" type="checkbox"/> Bulk Sample <input type="checkbox"/> Terzaghi Split Spoon Sample <input type="checkbox"/> Static Water Table	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Fines Content (%)	Unconfined - q _u (psf)	Other Tests	
												Swell (psf)	
Description													
	CL			Dark brown Sandy Lean CLAY, very soft, very moist, (FILL?)									
	(FILL)			Tan Sandy Lean CLAY, stiff, moist.	24	13	112.7	15.4			2737		
5	CL			Very stiff.	32	29		11.0					
				Very stiff.	51	24		13.4			1368		
10				Brown, very stiff.	22	18		19.7					
15				Boring terminated at a depth of 11 1/2 feet.									
				No groundwater encountered during drilling.									
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.: 18-104-SC	Boring: B4
Project: 5701 Soquel Drive	Location:
Date: January 16, 2018	Elevation:
Logged By: PE	Method of Drilling: 6-inch solid stem auger on a truck mounted drill rig

Depth (ft.)	Soil Type	Undisturbed	Bulk	<input checked="" type="checkbox"/> 2" Ring Sample <input type="checkbox"/> 2.5" Ring Sample <input checked="" type="checkbox"/> Bulk Sample <input type="checkbox"/> Terzaghi Split Spoon Sample <input type="checkbox"/> Static Water Table			Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Fines Content (%)	Unconfined - q _u (psf)	Other Tests	
				Swell (psf)											
Description															
	CL			Dark brown Sandy Lean CLAY, very soft, very moist, (FILL?)											
	(FILL)			Tan Sandy Lean CLAY, firm, moist.			12	7	108.7	14.6					
	CL			Firm.			9	7		14.2		50.6			
5	SM			Tan Silty SAND lens.											
	CL			Tan Sandy Lean CLAY, very stiff, moist.			23	19		13.1					
10				Very stiff.			32	29		14.4		67.3			
15				Boring terminated at a depth of 11 1/2 feet.											
				No groundwater encountered during drilling.											
20															
25															
30															
35															

LOG OF EXPLORATORY BORING

Project No.: 18-104-SC	Boring: B5
Project: 5701 Soquel Drive	Location:
Date: January 16, 2018	Elevation:
Logged By: PE	Method of Drilling: 6-inch solid stem auger on a truck mounted drill rig

Depth (ft.)	Soil Type	Undisturbed	Bulk	<input type="checkbox"/> 2" Ring Sample <input type="checkbox"/> 2.5" Ring Sample <input checked="" type="checkbox"/> Bulk Sample <input type="checkbox"/> Terzaghi Split Spoon Sample <input type="checkbox"/> Static Water Table	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Fines Content (%)	Unconfined - q _u (psf)	Other Tests	
												Swell (psf)	
Description													
5	CL			Tan Sandy Lean CLAY, very stiff, moist.	49	23	112.1	10.1					
				Hard	47	43		11.3					
				Hard.	39	35		15.1					
10				Hard.	38	34		17.9					
15				Boring terminated at a depth of 11 1/2 feet.									
				No groundwater encountered during drilling.									
20													
25													
30													
35													

LOG OF EXPLORATORY BORING

Project No.: 18-104-SC	Boring: B6
Project: 5701 Soquel Drive	Location:
Date: January 16, 2018	Elevation:
Logged By: PE	Method of Drilling: 6-inch solid stem auger on a truck mounted drill rig

Depth (ft.)	Soil Type	Undisturbed	Bulk	<input checked="" type="checkbox"/> 2" Ring Sample <input type="checkbox"/> 2.5" Ring Sample <input checked="" type="checkbox"/> Bulk Sample <input type="checkbox"/> Terzaghi Split Spoon Sample <input type="checkbox"/> Static Water Table	Blows / Foot	N ₆₀	Dry Density (pcf)	Moisture Content (%)	Expansion Index	Fines Content (%)	Unconfined - q _u (psf)	Other Tests	
												Swell (psf)	
Description													
5	CL	<input type="checkbox"/>	<input type="checkbox"/>	1-3/4" Asphaltic Concrete over no Base Rock. Tan to orange Sandy Lean CLAY, hard, moist.	48	44		12.5		51.5			
10		<input type="checkbox"/>	<input type="checkbox"/>	Hard	31	28		14.4					
11	BR	<input type="checkbox"/>	<input type="checkbox"/>	Hard.				11.7					
11.5		<input type="checkbox"/>	<input type="checkbox"/>	Tan SANDSTONE, very dense, damp (Tp-Purisima Formation)	67	61		7.1					
15		<input type="checkbox"/>	<input type="checkbox"/>	Boring terminated at a depth of 11 1/2 feet. No groundwater encountered during drilling.									

APPENDIX C

LABORATORY TESTING PROGRAM

Laboratory Testing Procedures

Page C-1

Particle Size Analysis

Figures C-1 through C-4

Swell Test

Figure C-5

LABORATORY TESTING PROCEDURES

Classification

Soils were classified according to the Unified Soil Classification System in accordance with ASTM D 2487 and D 2488. Moisture content and density determinations were made for representative samples in accordance with ASTM D 2216. Results of moisture density determinations, together with classifications, are shown on the Boring Logs, Figures B-4 through B-6.

Unconfined Compression

Three unconfined compression test were performed in accordance with ASTM D 2166. The results are shown on the boring logs.

Expansion Index

One expansion index test was performed on a representative bulk sample of the foundation zone soil in accordance with ASTM D 4829-03. The result is shown on the Boring Logs, Figure B-4.

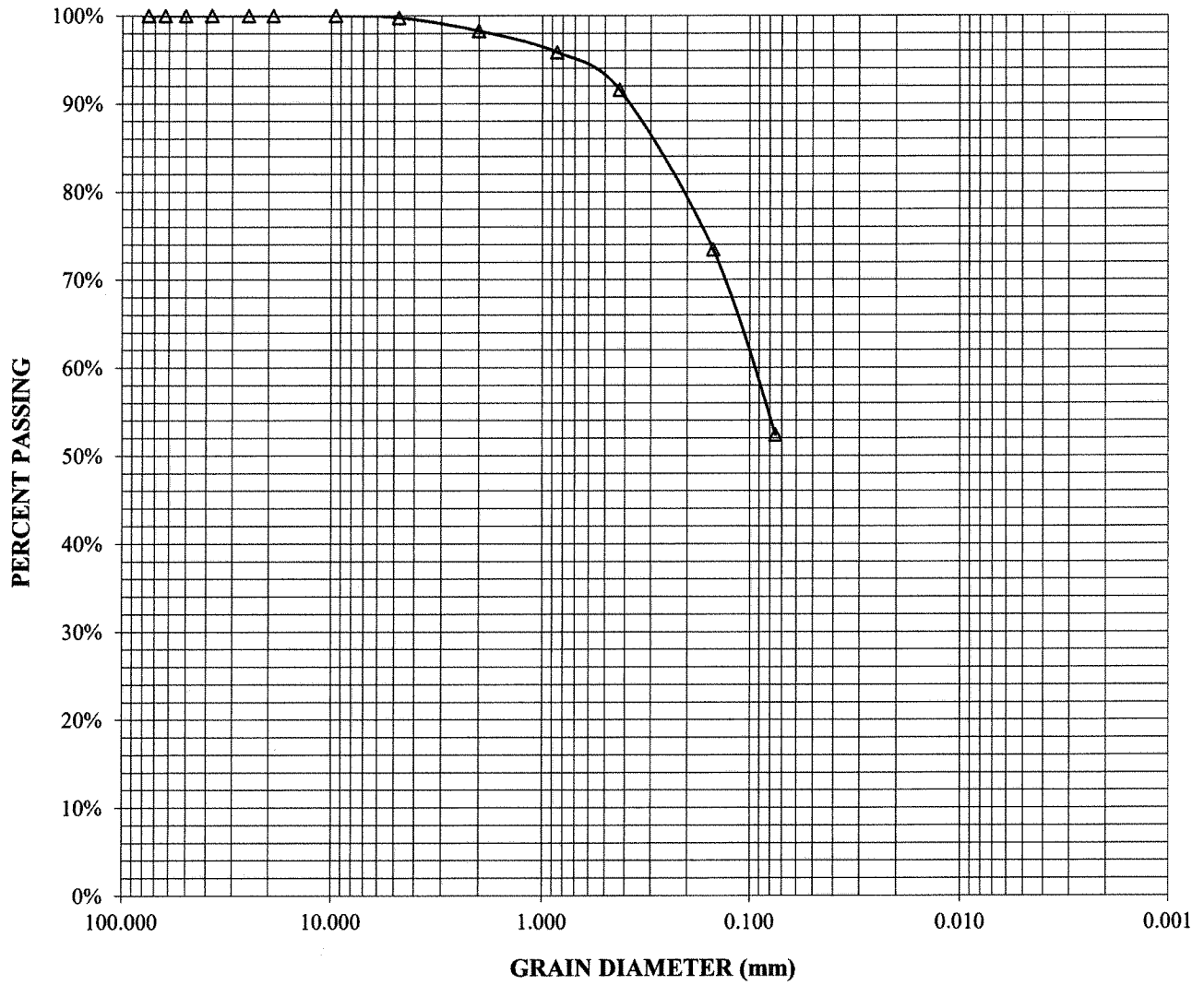
Particle Size Analysis

Four sieves were performed on representative samples in accordance with ASTM D 422. The grain size distributions from the results of the particle size analysis are shown in Figures C-1 through C-4.

Swell Test

One one-dimensional swell test was performed on a representative relatively undisturbed sample in accordance with ASTM D-4546. The result is presented in Figures C-1 and shown on the boring logs Figure B-4.

BORING:	B1 Bulk	PERCENT	PERCENT
DEPTH (ft):	1/2	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	CL-Sandy Lean CLAY	99.8%	52.4%

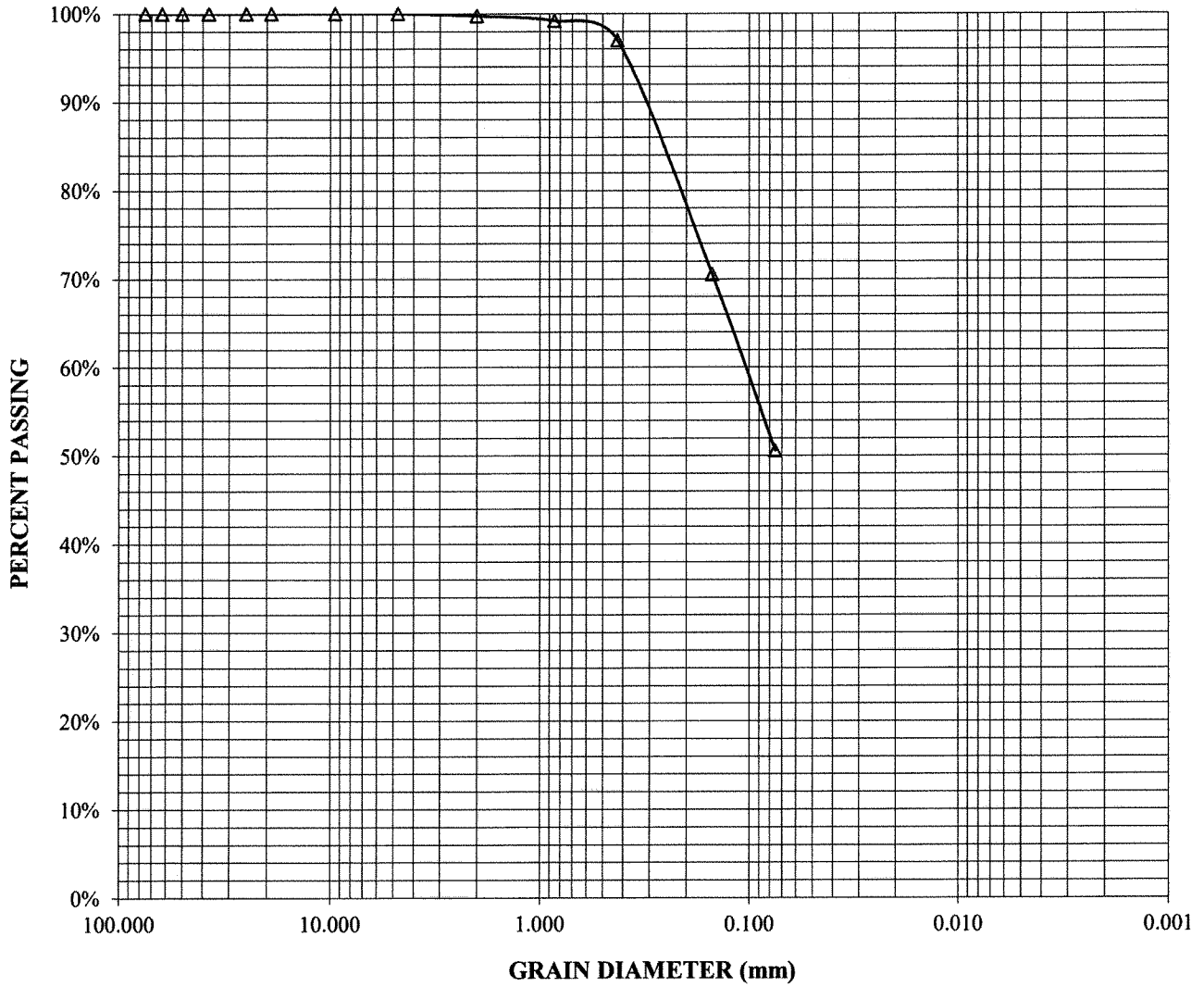


BUTANO
 GEOTECHNICAL ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION
 5701 Soquel Drive

FIGURE
 C-1

BORING:	B1-9	PERCENT	PERCENT
DEPTH (ft):	2 1/2	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	CL-Sandy Lean CLAY	100.0%	50.6%

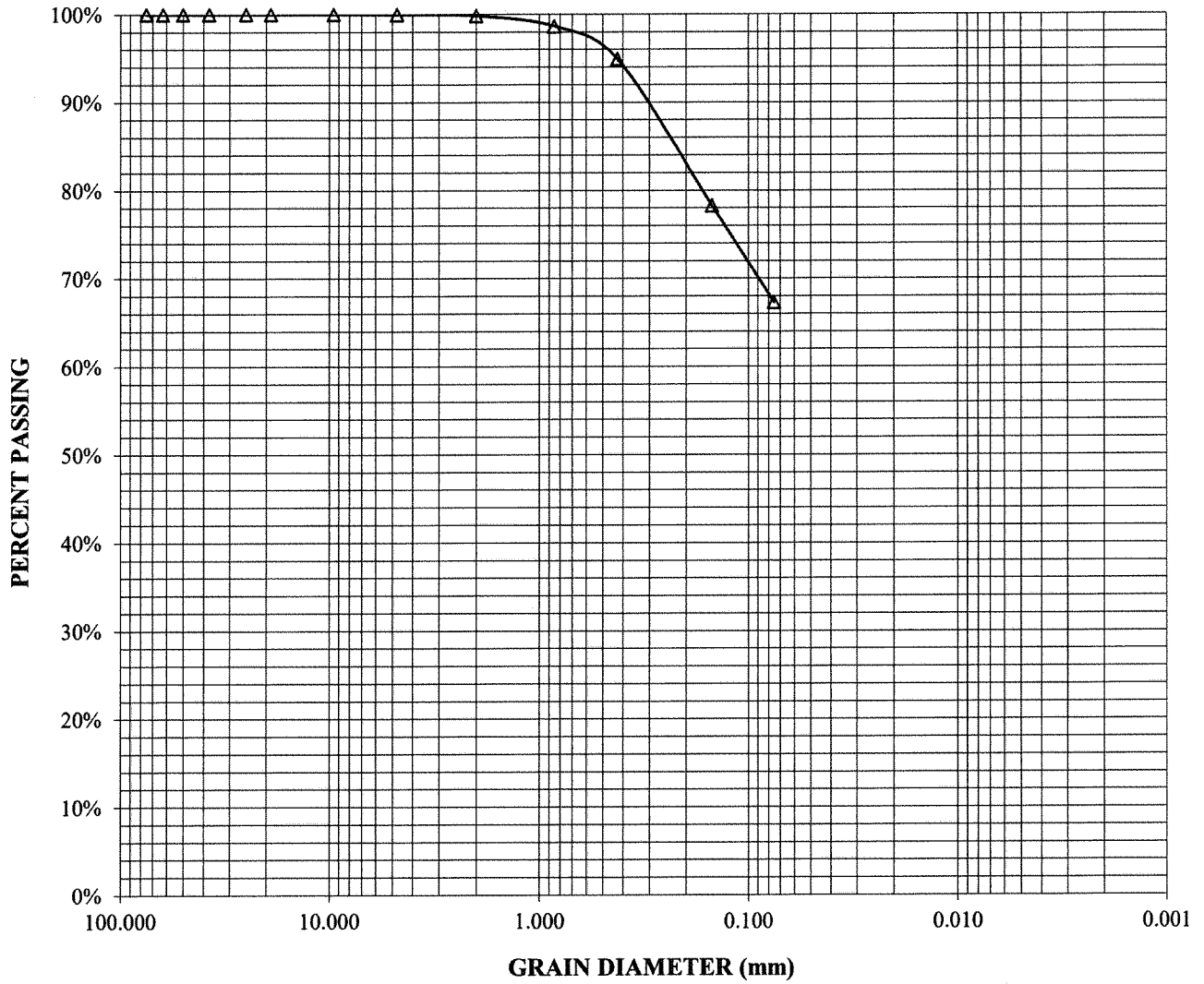


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GRAIN SIZE DISTRIBUTION
 5701 Soquel Drive

FIGURE
 C-2

BORING:	B4-4	PERCENT	PERCENT
DEPTH (ft):	10.0	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	CL-Sandy Lean CLAY	100.0%	67.3%

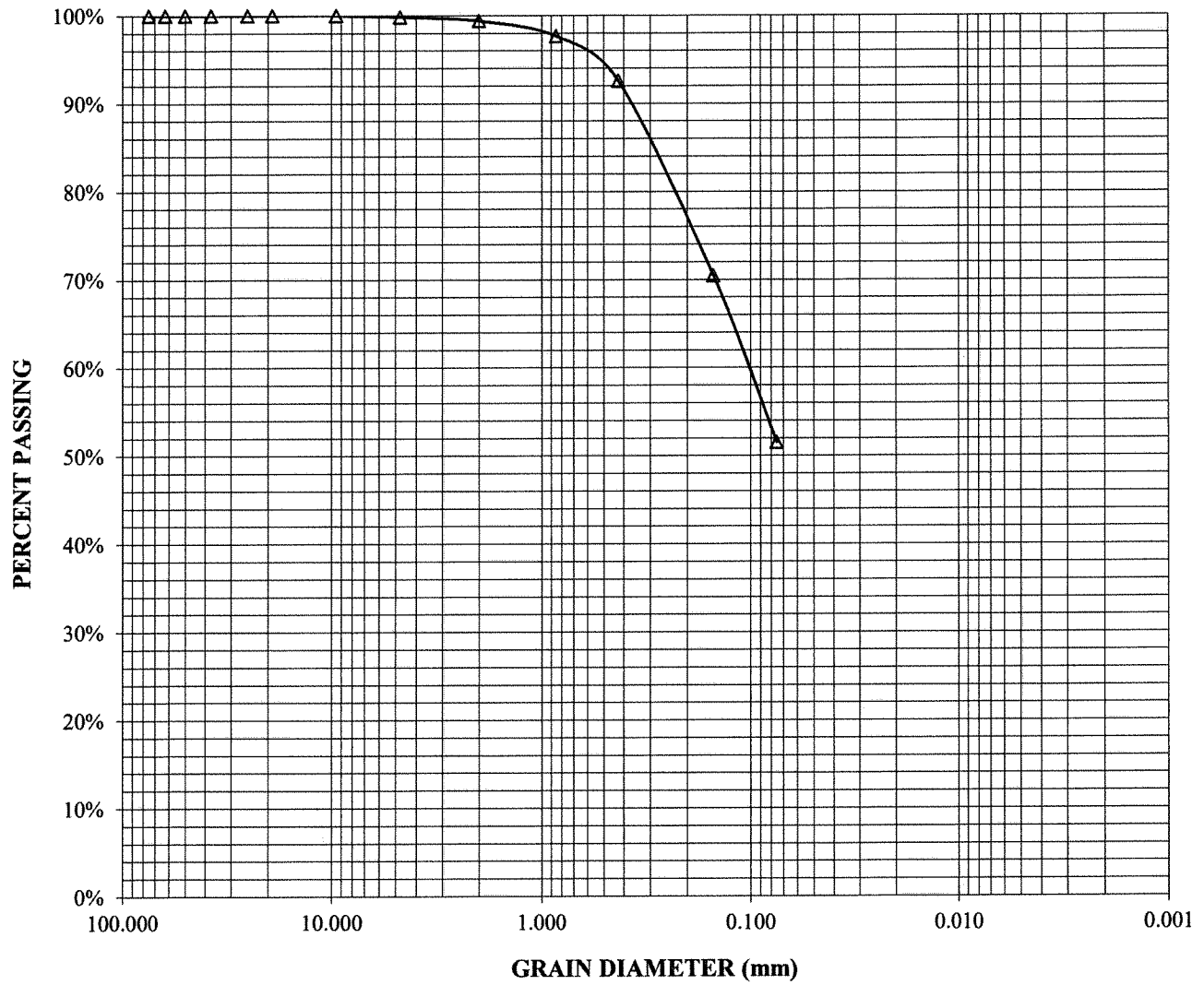


BUTANO
 GEOTECHNICAL ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION
 5701 Soquel Drive

FIGURE
 C-3

BORING:	B6-1	PERCENT	PERCENT
DEPTH (ft):	1	PASSING No. 4	PASSING No. 200
SOIL TYPE (USCS):	CL-Sandy Lean CLAY	99.8%	51.5%

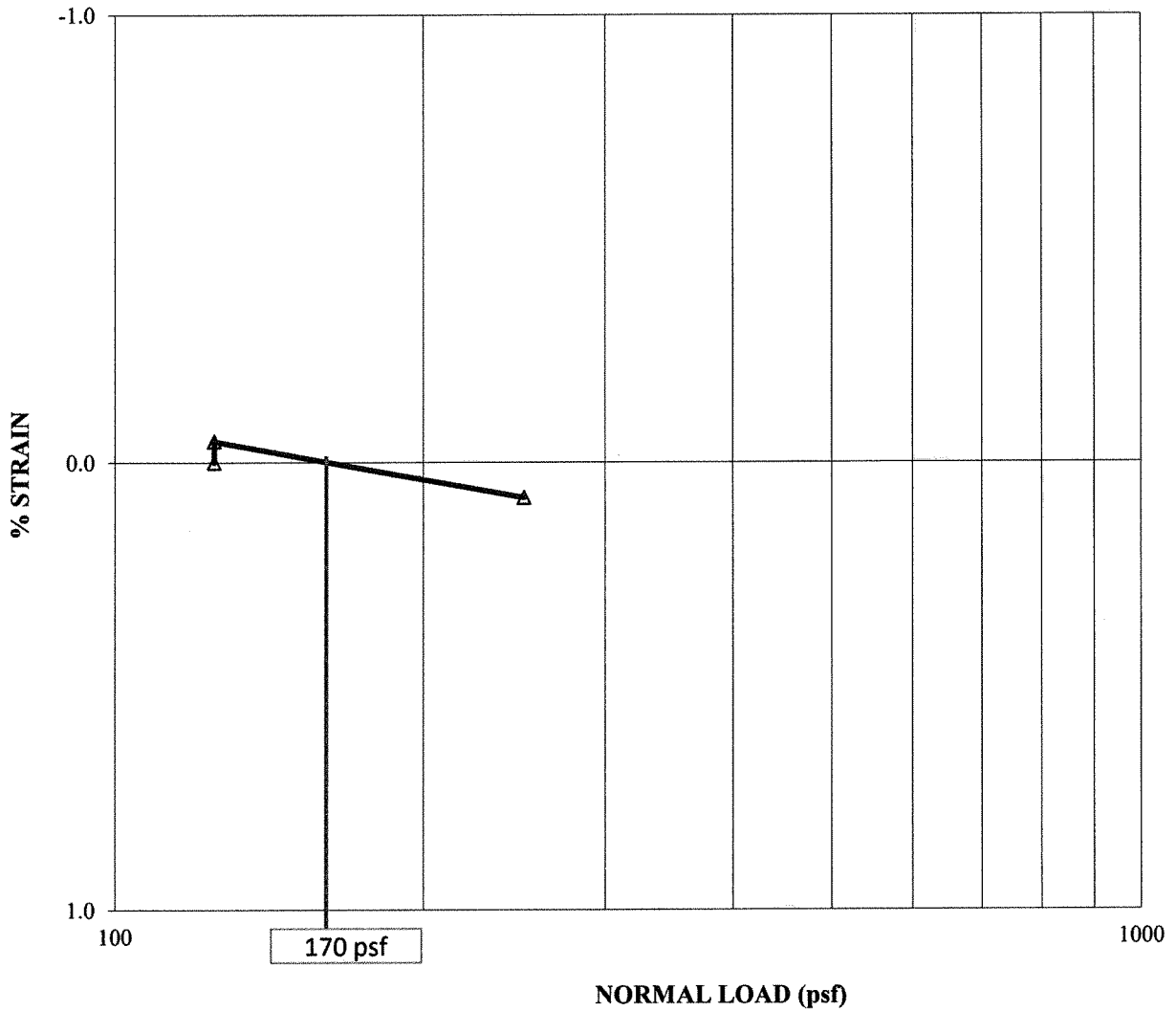


BUTANO
 GEOTECHNICAL ENGINEERING, INC.

GRAIN SIZE DISTRIBUTION
 5701 Soquel Drive

FIGURE
 C-4

BORING:	B1-1		
DEPTH (ft):	1.0		
SOIL TYPE (USCS):	CL	FIELD MOISTURE:	16.4%
		FINAL MOISTURE:	19.7%



BUTANO
 GEOTECHNICAL ENGINEERING, INC.

SWELL TEST RESULTS
 5701 Soquel Drive

FIGURE
 C-5

Attachment 5

Geotechnical Report Review Letter
September 12, 2018



COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT

701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
KATHLEEN MOLLOY, PLANNING DIRECTOR

12 September 2018

Tim Grodin/Workbench
129 Bulkhead Street
Santa Cruz, CA 95060

Subject: Review of the Geotechnical Investigation - Design Phase for the Proposed Residential Construction at 5701 Soquel Drive dated 9 February 2018 by Butano Geotechnical Engineering - Project No. 18-104-SC

Project Site: 5701 Soquel Drive
APN 037-113-26
Application No. REV181119

Dear Applicant:

The purpose of this letter is to inform you that the Planning Department has accepted the subject report. The following items shall be required:

1. All project design and construction shall comply with the recommendations of the report.
2. After plans are prepared that are acceptable to all reviewing agencies, please submit a completed Soils (Geotechnical) Engineer Plan Review Form to Environmental Planning. The author of the soils report shall sign and stamp the completed form. Please note that the plan review form must reference the final plan set by last revision date.

Electronic copies of all forms required to be completed by the Geotechnical Engineer may be found on our website: www.sccoplanning.com, under "Environmental", "Geology & Soils", and "Assistance & Forms".

After building permit issuance the soils engineer *must remain involved with the project* during construction. Please review the Notice to Permits Holders (attached).

Our acceptance of the report is limited to its technical content. Other project issues such as zoning, fire safety, septic or sewer approval, etc. may require resolution by other agencies.

Please note that this determination may be appealed within 14 calendar days of the date of service. Additional information regarding the appeals process may be found online at: http://www.sccoplanning.com/html/devrev/plnappeal_bldg.htm

Review of the Geotechnical Investigation - Design Phase for the Proposed Residential Construction at 5701 Soquel Drive dated 9 February 2018 by Butano Geotechnical Engineering - Project No. 18-104-SC

APN 037-113-26

12 September 2018

Page 2 of 3

Please contact the undersigned at (831) 454-3168 or rick.parks@santacruzcounty.us if we can be of any further assistance.

Sincerely,

Rick Parks, GE 2603
Civil Engineer – Environmental Planning

Cc: Environmental Planning, Attn: Robert Loveland
Butano Geotechnical Engineering, Inc, Attn: Philip Edwards, PE

Attachments: Notice to Permit Holders

**NOTICE TO PERMIT HOLDERS WHEN A SOILS REPORT HAS BEEN PREPARED,
REVIEWED AND ACCEPTED FOR THE PROJECT**

After issuance of the building permit, the County requires your soils engineer to be involved during construction. Several letters or reports are required to be submitted to the County at various times during construction. They are as follows:

1. **When a project has engineered fills and / or grading**, a letter from your soils engineer must be submitted to the Environmental Planning section of the Planning Department prior to foundations being excavated. This letter must state that the grading has been completed in conformance with the recommendations of the soils report. Compaction reports or a summary thereof must be submitted.
2. **Prior to placing concrete for foundations**, a letter from the soils engineer must be submitted to the building inspector and to Environmental Planning stating that the soils engineer has observed the foundation excavation and that it meets the recommendations of the soils report.
3. **At the completion of construction**, a *Soils (Geotechnical) Engineer Final Inspection Form* from your soils engineer is required to be submitted to Environmental Planning that includes copies of all observations and the tests the soils engineer has made during construction and is stamped and signed, certifying that the project was constructed in conformance with the recommendations of the soils report.

If the *Final Inspection Form* identifies any portions of the project that were not observed by the soils engineer, you may be required to perform destructive testing in order for your permit to obtain a final inspection. The soils engineer then must complete and initial an *Exceptions Addendum Form* that certifies that the features not observed will not pose a life safety risk to occupants.

Attachment 6

Trip Generation Estimates
Keith Higgins Traffic Engineer

Keith Higgins

Traffic Engineer

September 28, 2018

Tim Gordin
Workbench
129 Bulkhead Street
Santa Cruz, CA, 95060

Re: 5701 Soquel Drive Residential Development, Santa Cruz County, CA

Dear Tim:

As you requested, I have provided traffic engineering services for your proposed redevelopment of 5710 Soquel Drive, opposite Monterey Avenue, in Soquel, Santa Cruz County, California. You are proposing to construct 16 townhomes on the site.

Santa Cruz County requires a formal traffic impact analysis if the project would generate 20 or more AM or PM peak hour vehicle trips. As the project would generate fewer trips, a formal traffic impact analysis is not required for this project. Therefore, this letter focuses on the estimation of the project's net vehicle trips and a review of project access.

Exhibit 1 depicts the location of the study project. **Exhibit 2** contains the proposed project site plan.

A. PROJECT TRIP GENERATION

The project is a 16-unit townhome development. There are currently two existing residences on the site. The two existing residences will be retained and refurbished, and 14 new residences will be constructed.

Exhibit 3 summarizes the project trip generation, which was developed using trip rates from the publication *Trip Generation Manual*, 10th Edition, published by the Institute of Transportation Engineers in 2017. Credits for the existing site uses are also included in the trip generation estimate.

Tim Gordin
September 28, 2018

The project would generate an estimated net 132 daily trips, with 11 trips during the AM peak hour (3 in, 8 out) and 14 trips during the PM peak hour (9 in, 5 out).

B. ASSESSMENT OF PROJECT IMPACTS

The traffic from the project would be spread out over the street system in the area, specifically Soquel Drive and other adjacent streets. The project would generate a relatively small amount of traffic that would not be concentrated in any one area. This would effectively minimize the effect of these trips on the surrounding roadway network. Hence, the project would not significantly impact the surrounding street network, including the Monterey Avenue / Soquel Drive intersection.

The project would be subject to Santa Cruz County's Transportation Improvement Area (TIA) fee, the payment of which would address potential cumulative (or long-term) impacts from the project to roadways and intersections in the county.

C. PROJECT ACCESS REVIEW

The project site currently has two driveways onto Soquel Drive – one directly opposite the Monterey Avenue / Soquel Drive intersection ("West"), and one approximately 70 feet east of the intersection ("East"). These driveways are located at approximately the western and eastern edges of the property. The project site plan shown on **Exhibit 2** proposes to close the West driveway and provide site access only via a reconstructed East driveway.

Use of either existing driveway location for the project access would have both benefits and disadvantages that are discussed in the following paragraphs.

1. West Driveway:

The West driveway is located opposite the Monterey Avenue / Soquel Drive intersection. In this location, the driveway effectively serves at a fourth approach to the intersection.

A benefit of the West driveway is the ability to use the lane configurations and traffic control of the Monterey / Soquel intersection, specifically an existing eastbound Soquel left turn lane into the site and full access to and from all of the other approaches of the intersection. This situation would facilitate full access in and out of the West driveway from Soquel Drive and Monterey Avenue.

The primary disadvantage of the West driveway is the narrowness of the Monterey / Soquel intersection. The current striping for the eastbound and westbound Soquel Drive left turn lanes extend into the intersection to nearly the curb lines of Monterey Avenue. The paths of the opposing eastbound and westbound Soquel left turn movements would overlap, creating a potential hazard for vehicles making these movements simultaneously.

A secondary disadvantage of the West driveway is a potential vehicle queueing issue when leaving the project site. The site plan only allows for approximately one vehicle to queue up at Soquel Drive without temporarily blocking access to the Unit 1 parking area. Potential for a second vehicle in driveway queue would be most acute during the AM peak hour, especially if the lead car of the queue is attempting to turn left onto Soquel Drive. The driveway as proposed is too narrow for exiting vehicles to simultaneously queue for left and right turns adjacent to each other while still leaving room for inbound traffic, further encouraging the formation of multi-vehicle queues.

2. East Driveway:

The primary benefit of the East driveway is that it would not experience the same overlapping left turn movement paths as the West driveway, as left turns from Soquel Drive at the East driveway would only occur in the eastbound direction, not both directions.

However, the East driveway's close proximity to the Monterey / Soquel intersection would create a major disadvantage. Due to their proximity, the existing westbound Soquel Drive left turn lane at Monterey Avenue extends across the East driveway. Vehicles attempting to turn left from eastbound Soquel Drive into the project would need to cross both the westbound Soquel through lane and left turn lane, the latter of which could have a vehicle queue that may fully block access to the East driveway. As there is no exclusive eastbound Soquel turn lane at the East driveway, left turns into the project must queue in the adjacent eastbound through lane prior to making their turns. This situation would potentially create a hazard for eastbound Soquel through traffic, which would not be expecting to encounter a downstream stopped vehicle at that location. Adding an exclusive eastbound Soquel left turn lane at the East driveway likely cannot be accomplished without removal of the existing westbound left turn lane at Monterey Avenue.

Tim Gordin
September 28, 2018

In addition, if full access is retained at the East driveway, it could also experience the same on-site queuing issues previously discussed for the West driveway.

Due to the issues at both driveway locations, it is recommended that the proposed project access be at the location of the East driveway and that it be restricted to right turns in and out only. Access to and from eastbound Soquel Drive would require U-turns from the existing left turn lanes at the Soquel Drive intersections with Cliffwood Drive and Monterey Avenue. This would also lessen the vehicle queuing demand at the project access, as the only possible outbound movement would be a right turn onto Soquel Drive, a simpler and quicker movement than a left turn.

A potential alternative to restricting access at the project driveway would be to restripe the median of Soquel Drive between Monterey Avenue and Cliffwood Drive as a two-way left turn lane. This change would legally allow left turns in and out at Monterey Avenue, Cliffwood Drive, and all driveways on Soquel Drive between them, including the project site. The two-way left turn lane would also provide a potential refuge area for outbound vehicles from the project site, allowing these vehicles to perform a two-stage left-turn movement – exiting traffic could enter the median during gaps in westbound Soquel Drive traffic while waiting for similar gaps in eastbound traffic, rather than waiting for simultaneous gaps in both directions of traffic on Soquel Drive. However, adding a two-way left turn lane at this location would compress a number of potentially overlapping traffic movements into a relatively small space, which could increase the potential for vehicle collisions in the restriped area. Santa Cruz County should carefully consider all operational aspects of this alternative improvement prior to selecting this alternative for implementation.

D. CONCLUSION

In summary, the project would generate a net 132 daily trips, with 11 trips during the AM peak hour (3 in, 8 out) and 14 trips during the PM peak hour (9 in, 5 out). The project would not significantly impact the surrounding street network.

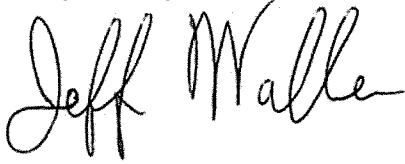
Due to access issues at the proposed project driveway to Soquel Drive, it is recommended that this driveway be restricted to right turns in and out only. This would require traffic to and from eastbound Soquel Drive to make U-turns from the existing left turn lanes at the Soquel Drive intersections with Cliffwood Drive and Monterey Avenue. An alternative to restricting project driveway access would be to restripe the median of Soquel Drive

Tim Gordin
September 28, 2018

between Monterey Avenue and Cliffwood Drive as a two-way left turn lane. However, Santa Cruz County should carefully consider all operational aspects of this alternative improvement prior to selecting it for implementation.

If you have any questions regarding this letter or need additional information, please do not hesitate to contact me at your convenience. Thank you for the opportunity to assist you with this project.

Respectfully submitted,

A handwritten signature in black ink that reads "Jeff Waller". The signature is written in a cursive style with a large, prominent "J" and "W".

Jeff Waller, TE

for Keith B. Higgins, PE, TE

enclosures

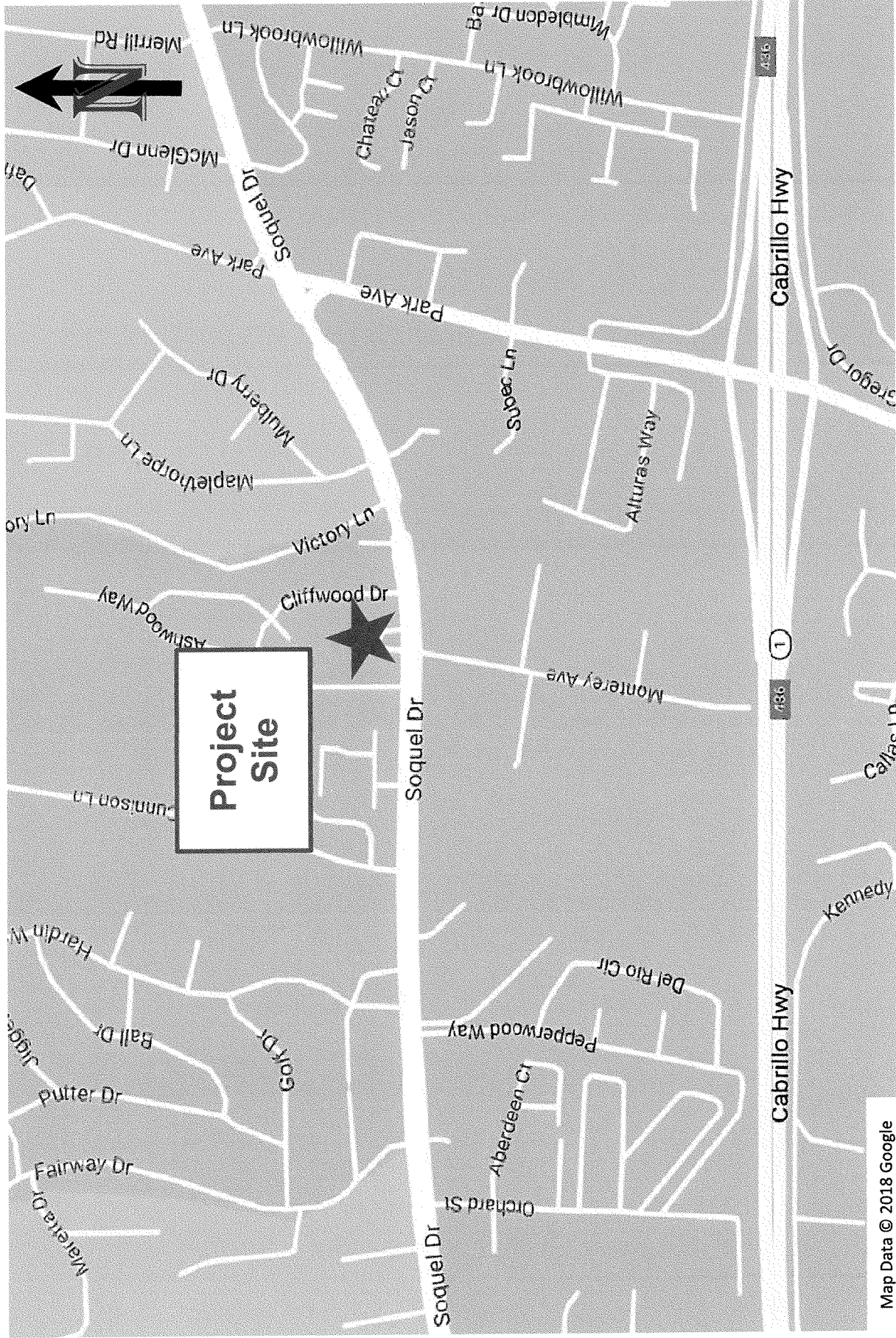
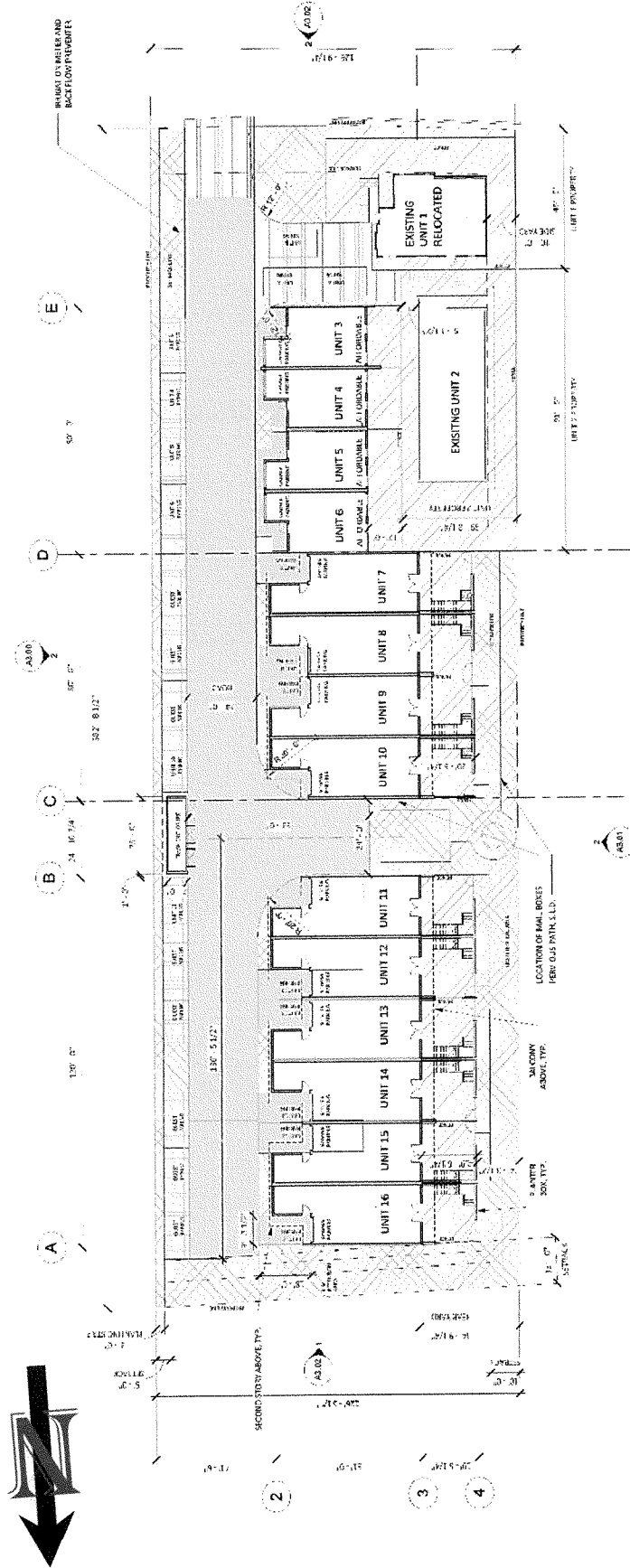


Exhibit 1
Project Location
Map

Keith Higgins
Traffic Engineer



Source: Workbench, July 2018.

**Exhibit 2
Project
Site Plan**

**Keith Higgins
Traffic Engineer**

TRIP GENERATION RATES	ITE LAND USE CODE	AM PEAK HOUR				PM PEAK HOUR			
		DAILY TRIP RATE	PEAK HOUR RATE	PEAK % OF ADT	% IN OUT	PEAK HOUR RATE	PEAK % OF ADT	% IN OUT	
Single-Family Detached Housing (per unit)	210	9.44	0.74	8%	25%	0.99	10%	63%	37%

PROPOSED USE	PROJECT SIZE	AM PEAK HOUR				PM PEAK HOUR				
		DAILY TRIPS	PEAK HOUR TRIPS	PEAK % OF ADT	% IN OUT	DAILY TRIPS	PEAK HOUR TRIPS	PEAK % OF ADT	% IN OUT	
Townhomes	16 units	151	12	8%	3	9	16	11%	10	6
Credit for Existing Site Uses ³	2 units	-19	-1	5%	0	-1	-2	11%	-1	-1
Total:		132	11		3	8	14		9	5

Notes:

1. Trip generation rates published by Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.
2. sq. ft. = square feet

Keith Higgins
Traffic Engineer

Exhibit 3
Project Trip Generation

Attachment 7

Arborist Report
Robert B. Hoffmann MS

Robert B. Hoffmann MS

Consulting Arborist

**A health/hazard review of one “Incense Cedar” and
Six “California Live Oaks”**

Property Address of the Tree:

5701 Soquel Drive, Soquel, Ca. 95073

Apn: 037-113-26

Prepared at the request of:

Jonathan Gordin, Workbench, Concept to Completion

Site Visit: 5-18-2018

Robert B. Hoffmann MS
Consulting Arborist
Established in 1987

40 Carter Rd., Santa Cruz, Ca. 95060
(831) 234-2080 Cell

(831) 425-0347 Office
email: robertbhoffmann@yahoo.com

May 18, 2018

A health/hazard review of one “Incense Cedar” at 5701A Soquel Drive and six “California Live Oaks” located at 5701 Soquel Dr., Soquel, Ca. 95073

Assignment:

At the request of Jonathan Gordin of Workbench, a field visit was performed at 5701 Soquel Dr. The investigation was done to review the health hazard status of seven trees on the property. The six “Live Oaks and one “Incense Cedar” are the trees of status on 5701 Soquel Drive. *This report does not include any specific tree protection planning as it is difficult to implement effective protection measures without having any parameters. General guidelines are listed in the recommendations section. (Please review Exhibit One and Exhibits Two for tree locations)*

Limits of the Assignment:

- The scope of this report is limited to a health/hazard evaluation of the seven trees listed above.
- The project is limited to the opinion of one arborist.
- The opinion of the project arborist will be displayed in a report.

Purpose & Use of the Report:

- The purpose of this report is to explain, clearly and explicitly, the condition of the subject trees and to look at their relationship to a projected 17 house construction project on that site.
- This report is to be used to decide future actions involving the trees which are the subject of this report and in no other way.

Observations:

1. All observations were made at ground level and from different vantage points on the property.
2. Four of the six “Live Oaks” under review are not of protected size which is 18” DBH.
3. The “Live Oaks” trees #2 and #3 on the table are protected because of their diameters. (Please see the table below)
4. The “Incense Cedar” is clearly larger than the minimum protected tree DBH of 18.”

- The subject “Cedar” is extremely codominant, a condition indigenous to this tree type. It is most easily described as a growth habit typified by the lateral branches of the tree turning upward and competing for apical dominance with central leader of the tree.
 - This growth habit always results in tight angled or V crotches which are weakly attached to the trunk of the tree.
 - “Incense Cedars” are rarely planted in the present day because of this issue.
5. The six “Live Oaks” on the 5701 Soquel Drive property are trees #2 thru #7 on the table below.
6. The trees under review have the following dimensions. **Under condition 1 is poor and 10 is excellent:**

<u>Tree number</u>	<u>Tree type</u>	<u>Circ.</u>	<u>Tree height</u>	<u>Canopy width</u>	<u>Condition</u>
1.	Incense Cedar	78”	32’	30’	4
2.	Ca. Live Oak	Multi 57”/ 42”	26’	21’	2
3.	Ca. Live Oak	57”	22’	24’	2
4.	Ca. Live Oak	30”	16’	15’	2
5.	Ca. Live Oak	36”	19’	12’	2
6.	Ca. Live Oak	25”	16’	14’	3
7.	Ca. Live Oak	Multi 24”/30”	24’	21’	3

7. The “Incense Cedar” (Tree #1) (Please review Exhibit Three):
- Has been recently pruned for building clearance.
 - Does not have tip blight, which is typical for this tree type in a coastal climate.
 - Is approximately 25’ from an existing structure which has an address of 5701A.
 - Unlike the other trees in this report it is contained within a fenced yard.
 - Is not surrounded by a high water demand landscape.
8. “Live Oak” (Tree #2) (Right side rear by shed) (Please review Exhibit Four)
- Tree #2 has a poor rating conditionally because of insect damage.
 - It is under attack by Tussock Moths, a voracious foliage consumer. Mature tussock moths are alive and on the fence adjacent to the tree.
 - Oak worms are also operational in tree #2 as well. They are also extremely damaging to Live Oaks and are increasing their activities as drought conditions extend themselves.
 - The insect attacks have created large dead areas in the canopy of the tree that do not refoliate.
 - Tree #2 has a large lateral branch which originates close to its base and has a large calloused are on it upper side which has contained a large dead spot that developed because of root damage. Whereas the wound has been compartmentalized, the decayed wood is still existent and extends downward into to the trees root system.
 - The damage was likely created by the installation of the driveway which is in front of the tree.
9. “Live Oak” (Tree #3) (Right side of drive across from the gray residence) (Please review Exhibit Five)
- The trees of similar size and age as tree #2.
 - It too is being ravaged by Tussock moths and Oak worms thus its rating of 2.
 - In the distant past the tree being discussed had two large branches removed for driveway clearance.

- On the fence side of Tree #3, the adjoining property had its grade lowered to within three feet of the fence. Depending on when this excavating was done, it could have severely impaired the root system of tree #3, thus affecting the trees stability.
 - The branch cut facing the drive is largely calloused over but the available heartwood within the cut tested decayed when penetrated with a sharp knife.
 - Tree #3 is also falling victim to Tussock Moths and Oak worms. It has large dead areas in it from multiple years of aggressive insect attacks defoliating new growth.
10. “Live Oak” (Tree #4) (West side of drive in lawn area)(Please review Exhibit Six)
- 10” DBH is not a protected tree.
 - Has a large dead spot/cavity at its base on the north side.
 - Is being defoliated by Tussock moths and Oak worms.
11. “Live Oak” (Tree #5) (Left of Tree #4) (Please review Exhibit Six)
- 12’ DBH is not a protected tree.
 - Tree #4 is also being defoliated by Tussock moths and Oak worms
12. “Live Oak” (Tree #6) (Southeast end of front yard) (Please review Exhibit Six)
- 13” DBH. Is not protected.
 - Has one leader removed and has been “topped” as it and tree #7 are in close proximity to the power lines which parallel Soquel Drive.
13. “Live Oak” (Tree #7)(left front by power pole) (Please review Exhibit Six)
- 8” and 10” DBH. Is not protected.
 - The tree is close to the power lines and pole which parallel Soquel Drive, same as tree #6.
 - The tree divides into two stems and has formed a lengthy “V” crotch. A “V” crotch usually includes occluded bark which in time becomes a weakness prone to failure.
 - Tree #7 is also being ravaged by Tussock moths and Oak worms.

Testing & Analysis:

Neither electronic test equipment or laboratory analysis were employed during the fact gathering phase of this report.

Conclusions:

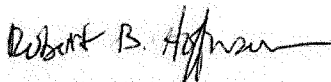
1. The “Incense Cedar”, tree #1 is the healthiest of the seven trees under review primarily because of its resistance to insect attacks.
2. Trees #2 and #3 are the most devastated from insect onslaughts.
3. 5701 Soquel Drive has a large rear area that is treeless.
4. The trees under review are in the front section of the property.
5. The “Incense Cedar” (Front yard of bldg. labeled 5701A) is the only tree of the seven trees under review that was likely planted. The other six trees, it appears were volunteers or in existence before the drive was installed. Tree #3 compels this conclusion being 4’ from the entry drive and in front of a severe enough grade change to affect its future stability. The same for trees #4 thru #7. Planting four “Live Oaks beneath the power lines that parallel the street invites conflict. In time they will have to be severely reduced to maintain power line clearance.

Recommendations:

1. It is recommended that trees #4 thru #7 be removed.
2. Replanting as mitigation for the removal of trees #4 thru #7 should be incorporated into the rear area of the property of 5107 Soquel Dr., because it is treeless and spacious.
3. Replant as mitigation, if deemed necessary, trees that are not susceptible to the Tussock Moth and the Oak worm.
4. If trees #2 and #3 are slated for removal because of a new driveway placement and the width to create sufficient access to the projected homes for such reasons as Santa Cruz County fire and refuse truck access, plant the mitigation replacements away from the drive to prevent vehicle damage and truck clearance problems in the future.
5. Should trees #2 and #3 be retained it is suggested to do the following:
 - Contrary to the recommended practice of not doing any canopy thinning, it is recommended those two trees be lightly thinned as it is important to treat them for control of Tussock Moths and Oak worms. A thinner canopy will allow for a more effective application of BT or whatever else might be used to control the damaging insects.
 - Thin both trees removing deadwood 1' dia. and bigger.
 - Implement plant health care for insect control after pruning.
6. Haul away the brush, wood and debris resulting from any tree work.
7. Thoroughly cleanup the work areas.
8. Water any replacement trees with seven or eight gallons of water every two weeks, more frequently if the trees don't look healthy.
9. General tree protection guidelines:
 - Use temporary bright colored construction fencing to define protection zones, often labeled the TPZ. Use steel pickets to support the fencing installed on 6' centers.
 - Layout the building perimeters and install the necessary fencing before construction starts.
 - Do not store equipment, materials or tool boxes inside of the fencing.
 - Do no washing out of paint equipment, sheet rock, roofing or cement containers within the confines of the fenced areas.
 - If any roots are encountered, cleanly sever them using sharp tools.

Thank you for choosing the services of *Robert B. Hoffmann Consulting Arborist*

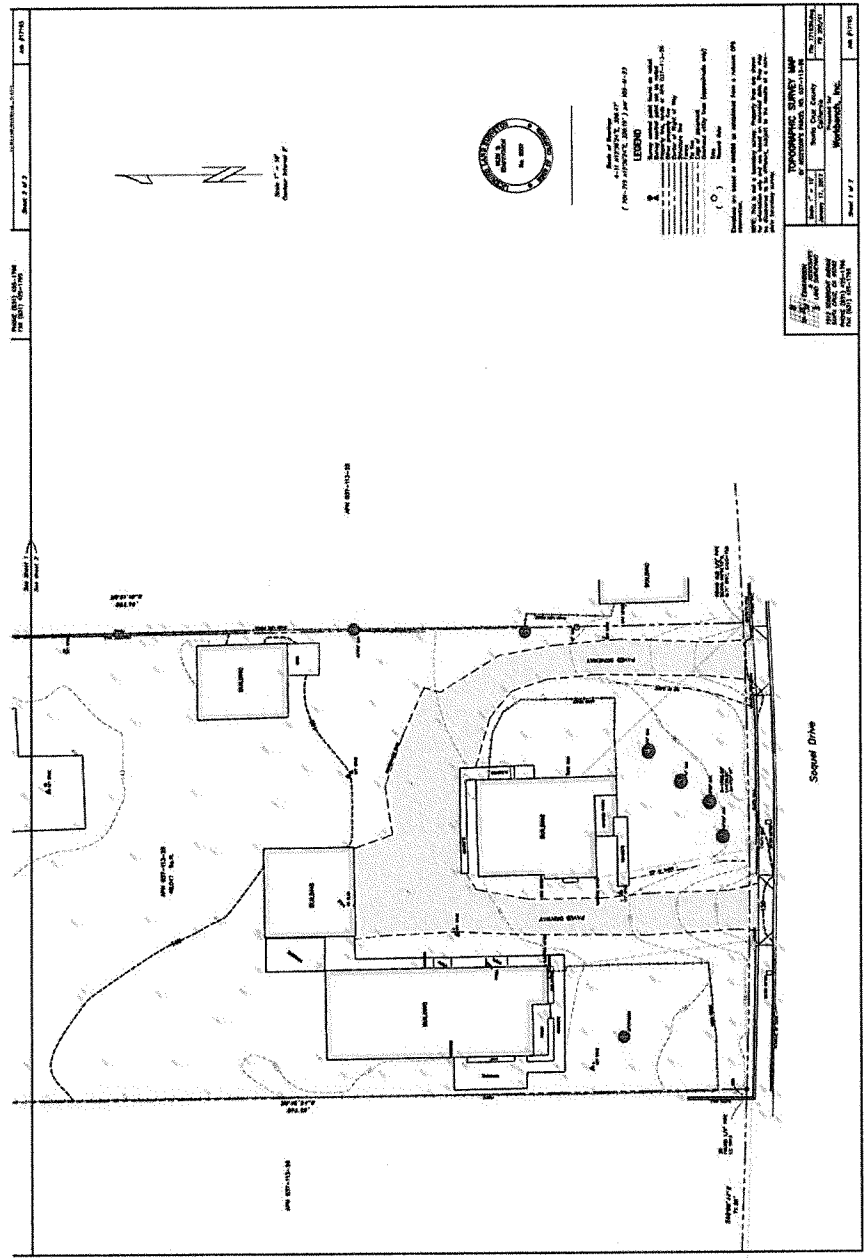
Respectfully submitted,



W.C.I.S.A. Certified Arborist #306

Exhibit One

5701&5701A Soquel Drive, Soquel, Ca. Tree Locations



Scale: 1" = 40' (Horizontal) 1" = 20' (Vertical)
 (For more information, see the Survey Report)
LEGEND
 T-1 through T-50: Tree Locations
 B-1 through B-5: Building Footprints
 P-1 through P-10: Parking Areas
 S-1 through S-5: Survey Points
 D-1 through D-5: Drive/Pathways
 E-1 through E-5: Easements
 F-1 through F-5: Fences
 G-1 through G-5: Gravel Areas
 H-1 through H-5: Hedges
 I-1 through I-5: Irrigation Lines
 J-1 through J-5: Joints
 K-1 through K-5: Kiosks
 L-1 through L-5: Landmarks
 M-1 through M-5: Monuments
 N-1 through N-5: Notes
 O-1 through O-5: Other
 P-1 through P-5: Poles
 Q-1 through Q-5: Quads
 R-1 through R-5: Roads
 S-1 through S-5: Signs
 T-1 through T-5: Trenches
 U-1 through U-5: Utilities
 V-1 through V-5: Valleys
 W-1 through W-5: Walls
 X-1 through X-5: X-roads
 Y-1 through Y-5: Yards
 Z-1 through Z-5: Zones

TOPOMANC SURVEY MAP	
Map No. 1000	Map Date: 01/20/2012
Map Title: 5701 & 5701A Soquel Drive	Map Scale: 1" = 40' (Horizontal) 1" = 20' (Vertical)
Map Author: Topomanc, Inc.	Map Project: 1000
Map Date: 01/20/2012	Map Status: Final

Exhibit Two

5701 Soquel Dr. Tree Locations



5701 Soquel Drive Street View

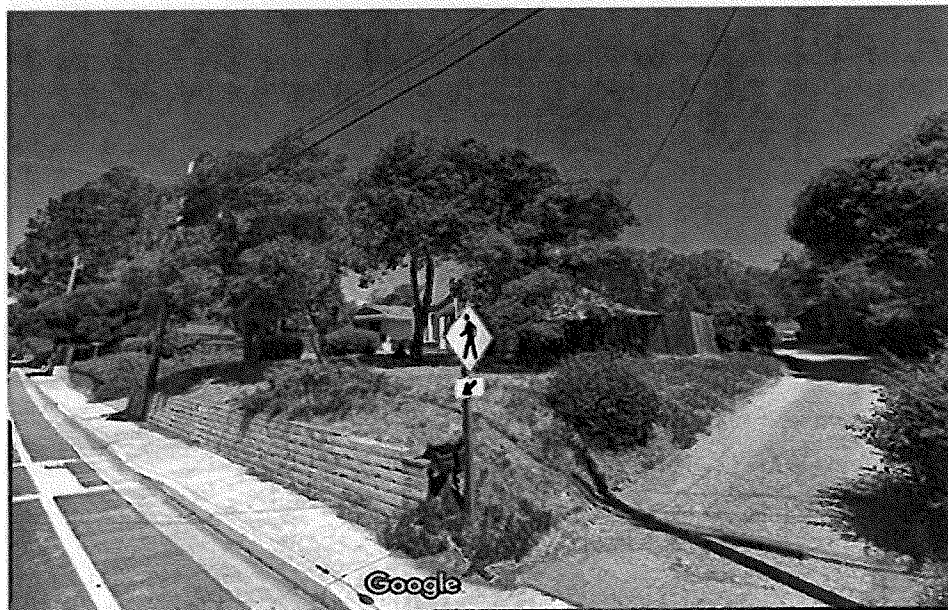


Exhibit Three

Tree #1 Incense Cedar (Front yard 5701A)

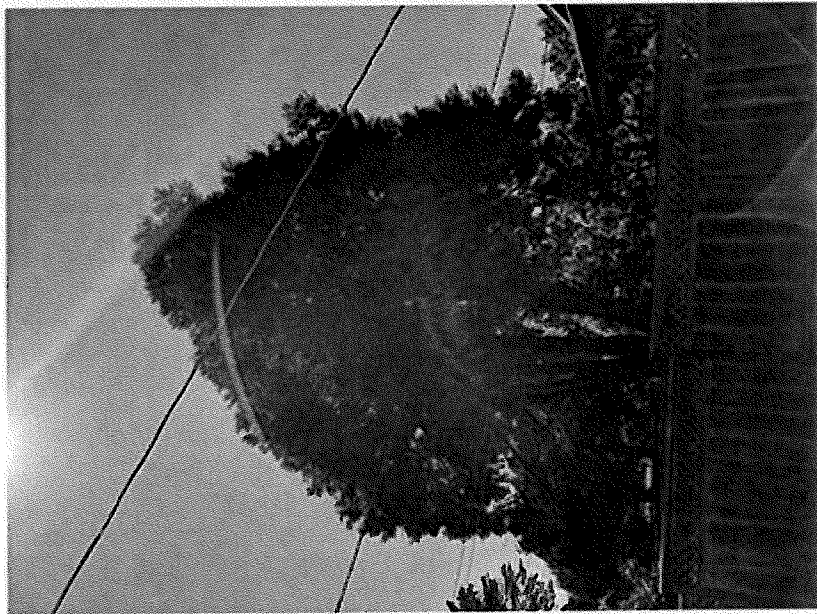
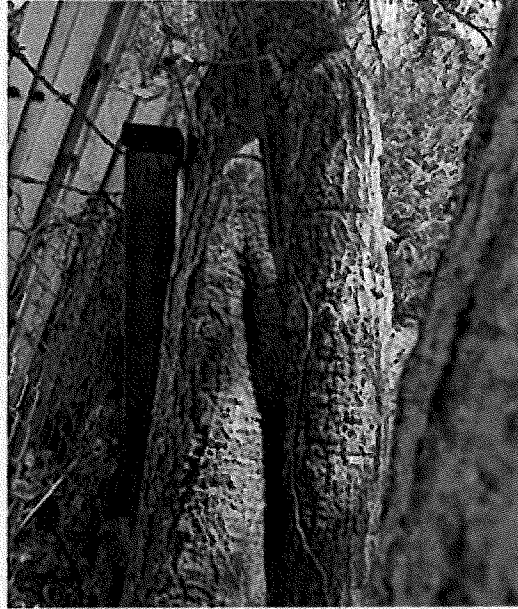
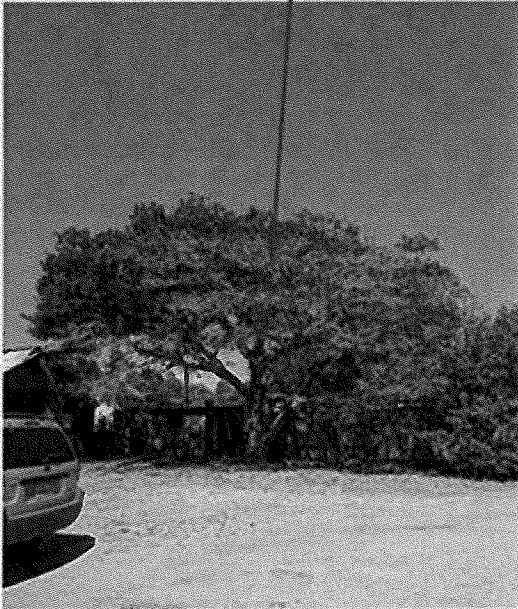


Exhibit Four

Tree #2

Tree #2

Compartmentalized dead spot



Tussock Moth

Defloiated Canopy/ Moth Damage



Exhibit Five

Live Oak Tree #3

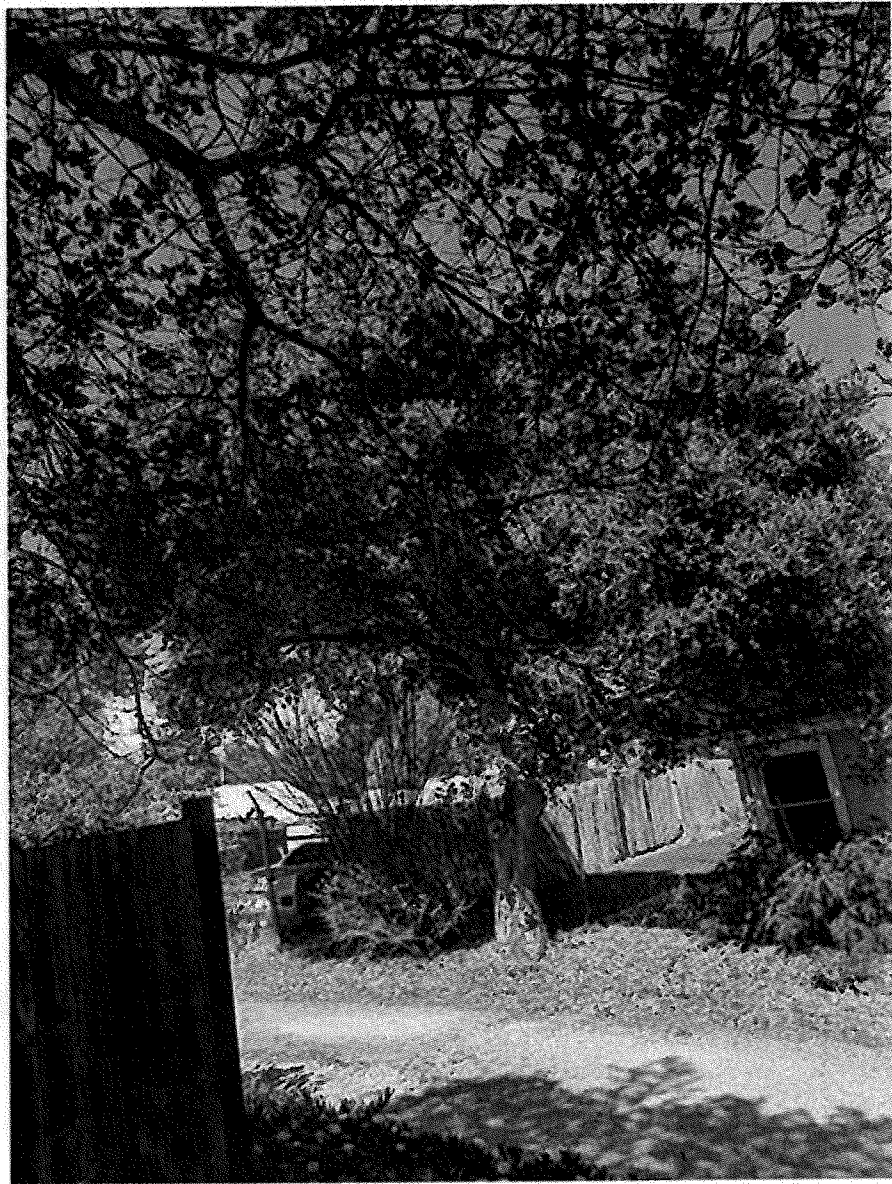
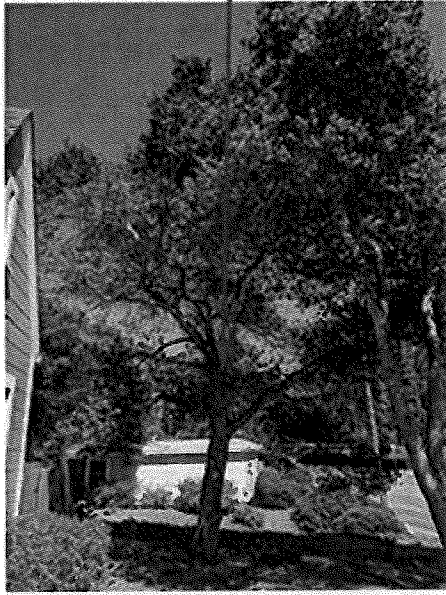
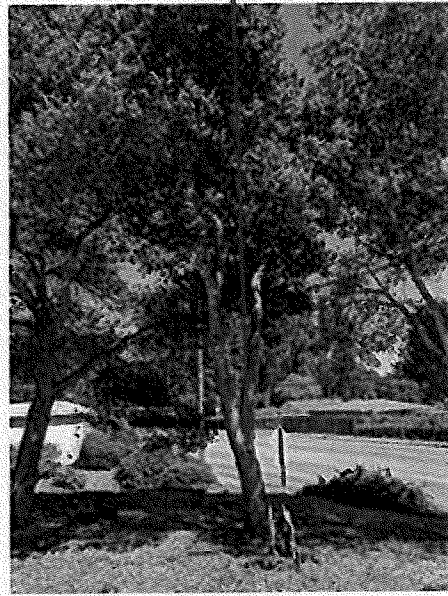


Exhibit Six

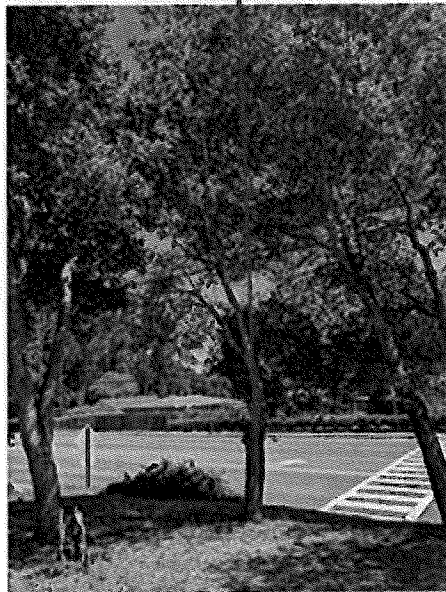
Tree #4



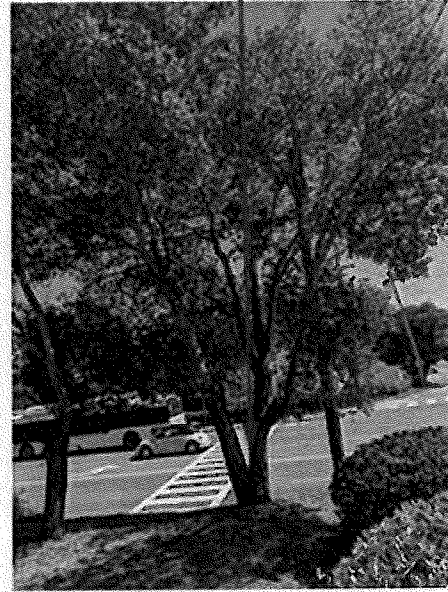
Tree #5



Tree #6



Tree #7



ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other government regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
4. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
5. Loss, alteration, or reproduction of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.
7. Neither all nor any part of this report, nor any copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or initialed designation conferred upon the consultant/appraiser as stated in his qualification.
8. This report and the values expressed herein represent the opinion of the consult/appraiser, and the consult/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) 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 problems or deficiencies of the plants or property in question may not arise in future.