Environmental Checklist Form (Initial Study)

County of Los Angeles, Department of Regional Planning

Project title: "24600 Thousand Peaks Road Residential Project" / Project No. R2014-03698-(3) / Case No(s): Coastal Development Permit No. 201400019, Environmental Assessment No. RPPL2020009798.

Lead agency name and address: County of Los Angeles, Department of Regional Planning, 320 West Temple Street, Los Angeles, CA 90012

Contact Person and phone number: Martin Gies, 213-974-0051

Project sponsor's name and address: Raymond Tran, John Andrews Group Architects ("applicant"), 2109 Stoner Avenue, Los Angeles, CA, 90025

Project location: 24600 Thousand Peaks Road, in unincorporated County of Los Angeles area near the City of Calabasas (see **Figure 1, Project Location Map**).
APN: 4455-052-002 *USGS Quad*: Township 1 South, Range 17 West, Section 4 of the Malibu Beach USGS 7.5 Minute Series Quadrangle

Gross Acreage: 11.2 acres

General plan designation: Santa Monica Mountains Local Coastal Program

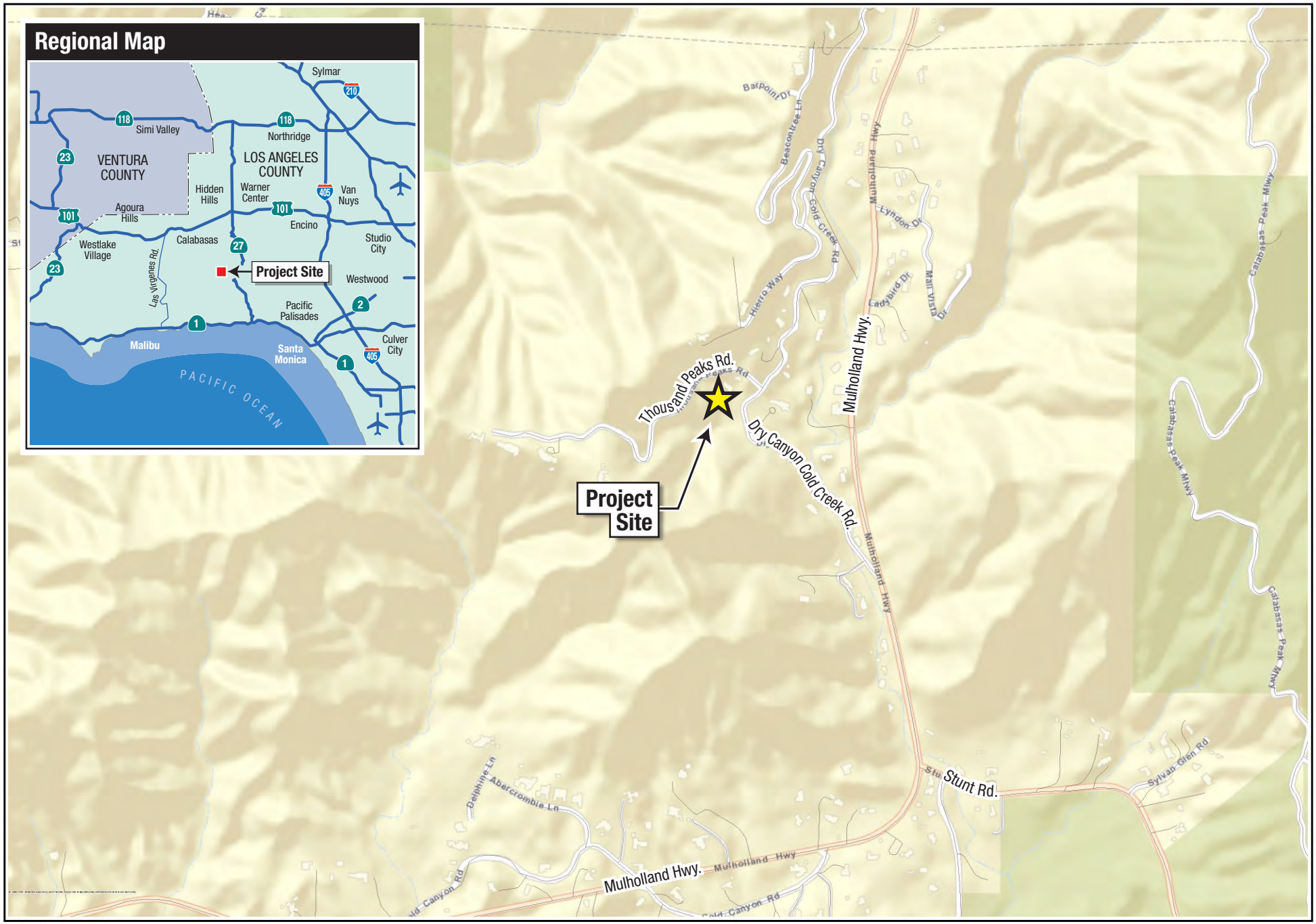
Community/Area wide Plan designation: RL20 - Rural Lands 20 (1 dwelling unit/ 20 acres)

Zoning: (R-C-20 (Rural Coastal, 20-acre minimum required lot area

Description of project: The 24600 Thousand Peaks Road Residential Project ("project") consists of the construction, use, and maintenance of a two-story, single-family residence on a previously graded pad (circa 1988-1990), within a 486,266 square-foot (11.16 acre) lot ("project site" or "subject property") as shown on **Figure 2, Site Plan**. The project site is associated with Assessor Parcel Number (APN) 4455-052-002. The proposed floor area of the residence is 5,278 square feet (SF) for the first floor, 2,027 SF for the second floor, and 3,498 SF for the basement, for a total of 10,803 SF of built floor area. The Project would result in a total disturbed area of 29,208 SF (0.67 acre) ("limits of disturbance"). 16,523 SF (0.38 acre) of the proposed limits of disturbance are within the previously graded pad.

Project Components

The project proposes several components including landscaping, decking, balconies, and a driveway with a firelane to provide access to the proposed residence from Thousand Peaks Road. The total area of the driveway, without deducting for the firelane, is 9,872 SF. The alignment of the proposed driveway and firelane improvements approximate the extent of an existing dirt driveway between the proposed motor court and Thousand Peaks Road. The project includes a Santa Monica Backbone



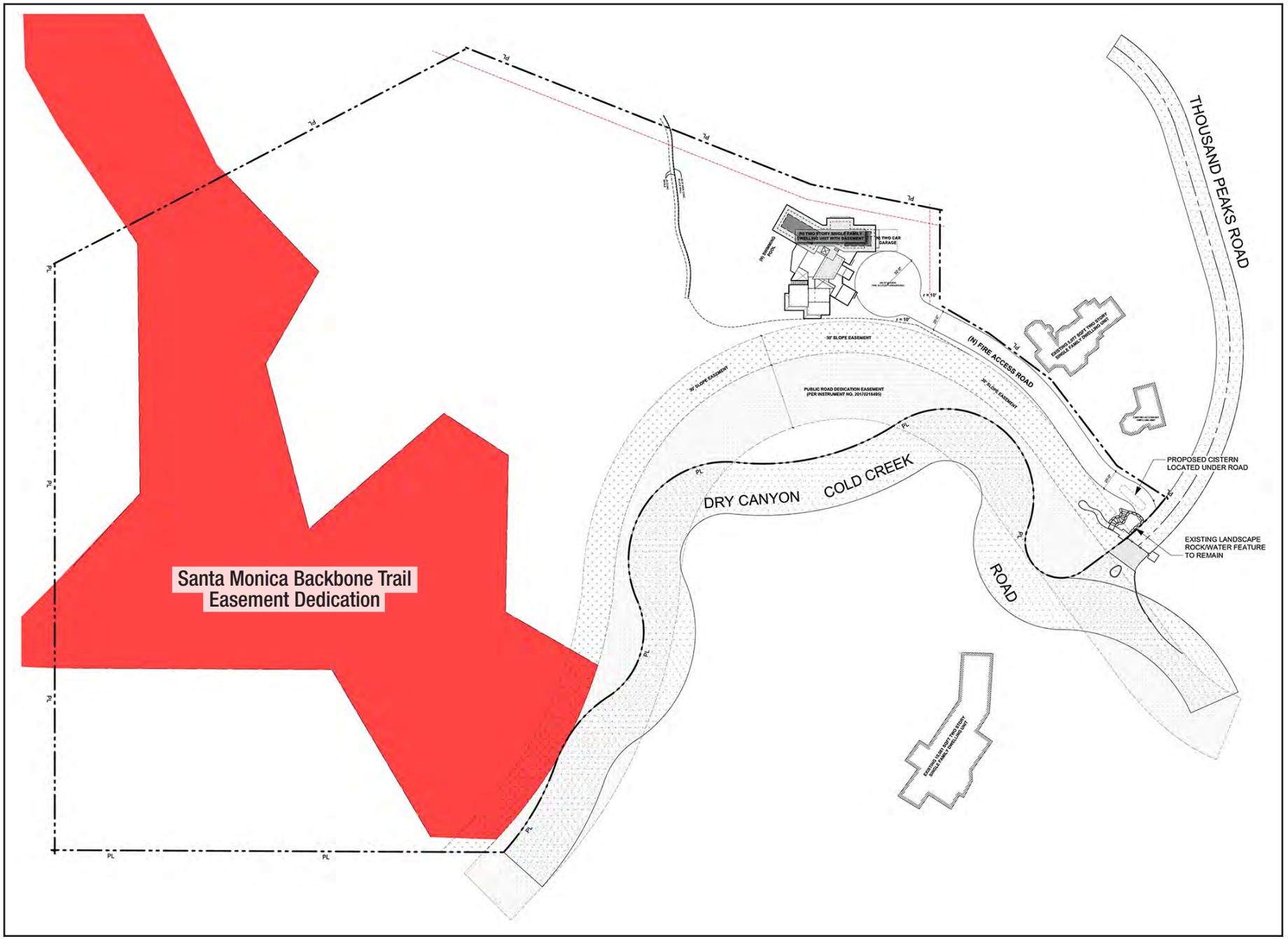
Sources: ESRI, World Street Map, 2016.

24600 THOUSAND PEAKS ROAD RESIDENTIAL PROJECT - MITIGATED NEGATIVE DECLARATION

Project Location Map

0 500 1,000 Feet

FIGURE 1



Source: John Andrews Group Architects Inc., December 2, 2020.

Site Plan

No Scale

FIGURE 2

Trail Easement Dedication in the southern portion of the subject property (shown in Figure 2, Site Plan). An existing Concrete Masonry Unit (CMU) wall runs along the southern margin of the existing building pad and a concrete drainage swale is present on the south side of the CMU wall. Additional on-site support features for the proposed single-family residence consist of a pool structure, attached garage, patio, driveway with turnaround for fire department apparatus, septic system, bio-swales/irrigation, and cistern near the intersection of the driveway and Thousand Peaks Road, as shown in the Focused Site Plan in the Architectural Plans prepared by John Andrews Group dated December 2, 2020, in **Appendix A**. Civil engineering plans prepared by Forma Engineering Inc. are provided in **Appendix B**.

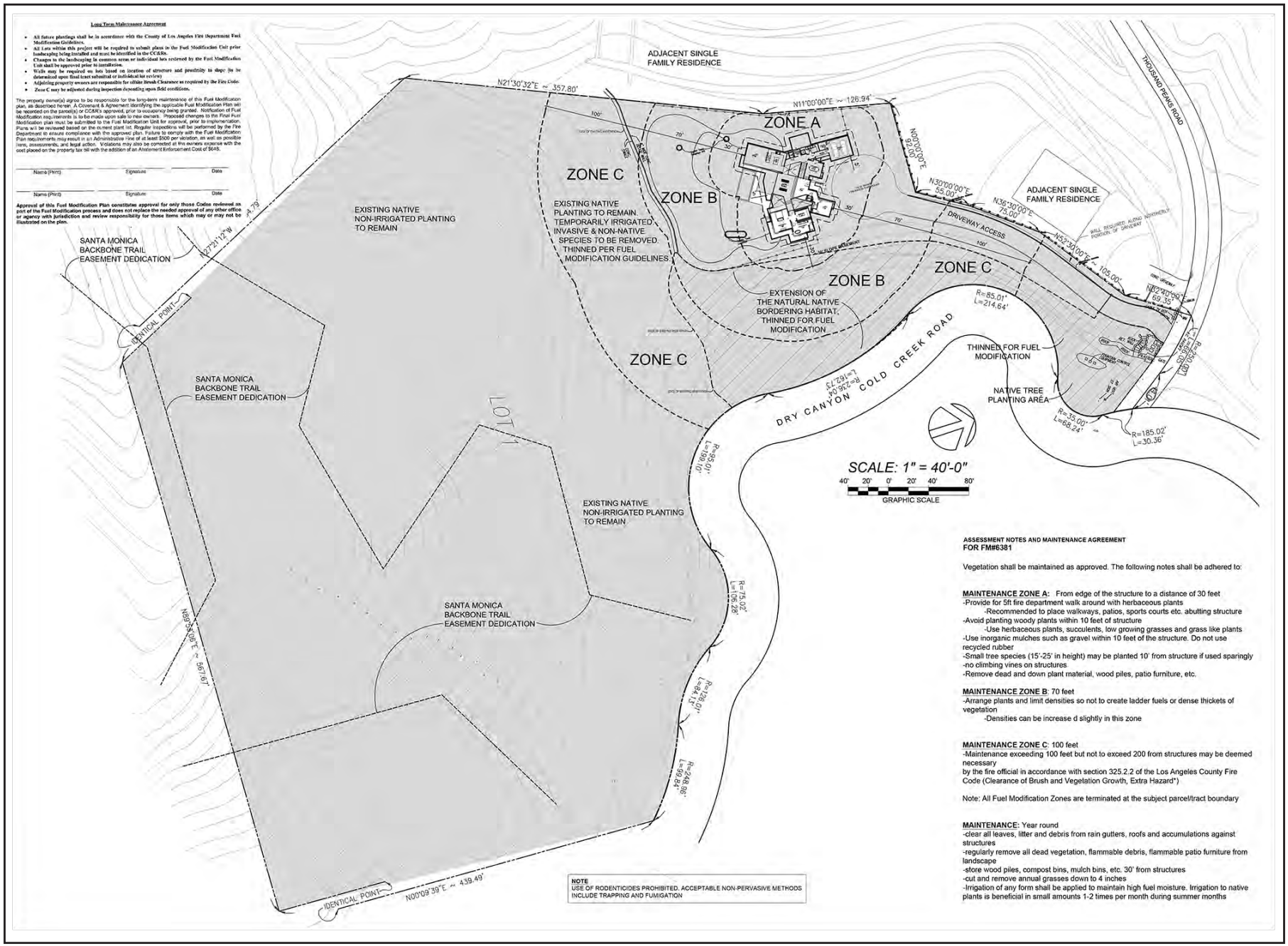
Landscape Plan

The project proposes a landscape plan ("landscape plan") dated September 7, 2021, prepared by Gaudet Design Group and provided in **Appendix C**. The landscape plan includes a Fuel Modification Plan (FM #6381) as shown in **Figure 3, Fuel Modification Plan**, and a Planting Plan, shown in **Figure 4, Landscape Plan**. The fuel modification area extends up to 200 feet beyond the edge of the proposed residence. The fuel modification area consists of Zones A, B, and C. Fuel modification zone A extends up to 30 feet from the proposed residence, zone B extends up to 70 feet from the limit of Zone A, and Zone C extends up to 100 feet from the limit of Zone B. The project's planting plan establishes locations onsite where native trees would be planted as mitigation for removals, primarily on an east-facing slope to be replanted with native shrubs and trees. A manmade drainage feature traverses the eastern edge of the subject property predominately outside the property fence line adjacent to Dry Canyon/Cold Creek Road. In order to meet tree replacement requirements of the LUP that cannot be accomplished onsite due to physical constraints, the project has funded a Conceptual Native Tree Replacement Plan dated September 16, 2021 prepared by the TreePeople Land Trust ("TPLT") to establish 142 additional replacement trees offsite in the Cold Creek Valley Preserve. See Section 4. Biological Resources for further discussion of tree replacement plans.

Construction

Considering the lapse of time since the rough grading at the subject site, circa (1988-1990), which included grading of the aforementioned pad, further minor grading would be required within the graded pad, driveway and motor court. The preliminary construction schedule estimates construction, from initial site preparation expected to start in June 2021 to final building, would last an estimated 18 months. Site preparation and excavation would require 3,694 cubic yards (CY) of grading, 36 CY of which would be spread on site as fill and 3,658 CY as export to be hauled to the Calabasas Landfill. Because the Project is located on a previously graded, stabilized pad, no over-excavation into older alluvial material is proposed.

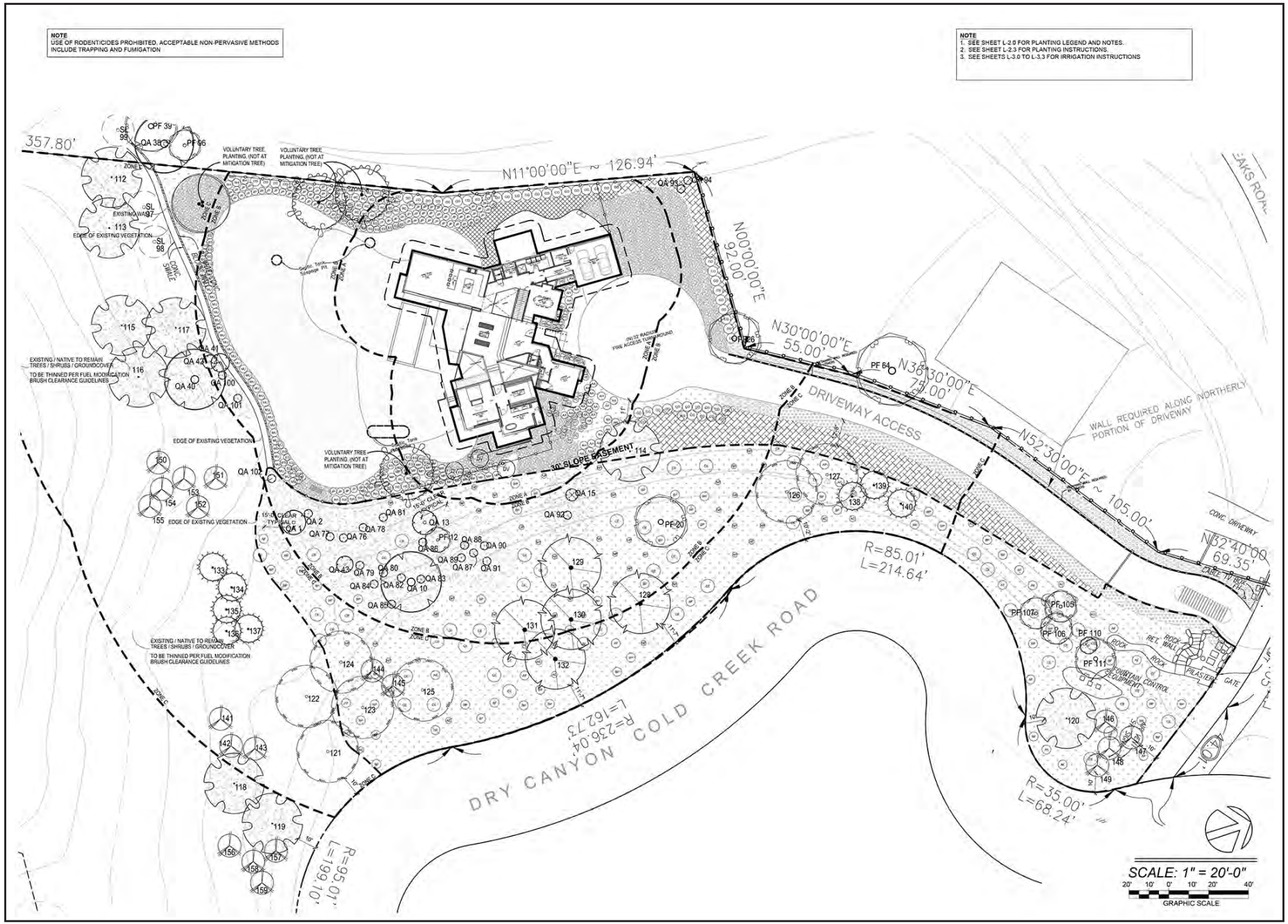
Surrounding land uses and setting: Existing single-family residences in the Santa Monica Mountains at approximately 1,200 feet above mean sea level. There is an unpaved access road connecting the property to Thousand Peaks Road and similar existing residences to the north. To the east, there is an ornamental creek between the previously-graded building pad and Dry Canyon Cold Creek Road and existing residences. There is a landscaped slope on the west of the property. On the south of the property, there is undisturbed open space. The property has Sensitive Environmental Resource Area (SERA) H2 and H3 habitat and has been reviewed by the Environmental Review Board (ERB.)



Source: Gaudet Design Group, September 7, 2021.

Fuel Modification Plan

FIGURE 3



Source: Gaudet Design Group, September 7, 2021.

Landscape Plan

FIGURE 4

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code § 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.?

Yes. The County notified all California Native American Tribes that previously requested formal notification. One California Native American tribe requested consultation on the project. The County completed confidential consultation with the tribe on November 30, 2017. The discussion on determination of significance of impacts to tribal cultural resources is further detailed in Cultural Resources and Tribal Cultural Resources.

Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement):

Public Agency	*Approval Required*
X Los Angeles County	Minor CDP*, grading permit, building permit, tree permit * The County of Los Angeles (County) General Plan maps place the project within the Santa Monica Local Coastal Program (LCP) boundaries. The Santa Monica Mountains LCP consists of the Land Use Plan (LUP), which contains broad land use policies, and more specific implementing actions in the Local Implementation Program (LIP), a series of ordinance sections added to the County Zoning Ordinance, Title 22 of the Los Angeles County Code (LACC). With regard to the Santa Monica Mountains LCP, the site is located in the R-C-20 (Rural-Coastal-20 acre-minimum lot size) Coastal Zone. The Santa Monica Mountains LCP divides the Coastal Zone into three habitat categories: H1, H2, and H3. H1 habitat and H2 habitat are defined as Sensitive Environmental Resource Areas (SERAs). SERAs are areas in which plant and animal life, or their habitats, are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and development. H3 habitat consists of disturbed or isolated habitat areas that provide some important biological functions, but do not rise to a level of a SERA. The proposed construction footprint is located within H3 habitat with County Fire Department required fuel modification encroaching into H2 habitat. Because the required fuel modification encroaches into H2 Habitat, a County Environmental Review Board (ERB) area, the County has determined provisions of Los Angeles County Code (LACC) Section 22.44.940.A, regarding Administrative Coastal Development Permits, do not apply. LACC Section 22.44.860 addresses the application for various types of Coastal Development Permits (CDPs) and the associated review procedures. Because the proposed grading is greater than 50 cubic yards, the County has determined that a Minor CDP, is required pursuant to LACC Section 22.44.1260.A.2 regarding grading. Required project approvals and permits are listed further below. Due to the proximity of the site to the Stokes Ridge Tail and

Mulholland Highway, portions of which are designated scenic routes, the height of the proposed residence is limited to an 18-foot maximum as required by Santa Monica Mountains LCP (Policy CO-136).

Major projects in the area:

Project/Case No.	*Description and Status*
_____	_____
_____	_____

Reviewing Agencies: [*See* **CEQA Appendix B** *to help determine which agencies should review your project***]**

Responsible Agencies

- ☐ None
- Regional Water Quality Control Board:
  - ☒ Los Angeles Region
  - ☐ Lahontan Region
- ☐ Coastal Commission
- ☒ Army Corps of Engineers
- ☐ LAFCO

Special Reviewing Agencies

- ☐ None
- ☒ Santa Monica Mountains Conservancy
- ☒ National Parks
- ☐ National Forest
- ☐ Edwards Air Force Base
- ☒ Resource Conservation District of Santa Monica Mountains Area
- ☐

Regional Significance

- ☐ None
- ☐ SCAG Criteria
- ☐ Air Quality
- ☐ Water Resources
- ☒ Santa Monica Mtns. Area
- ☐

Trustee Agencies

- ☐ None
- ☒ State Dept. of Fish and Wildlife
- ☐ State Dept. of Parks and Recreation
- ☐ State Lands Commission
- ☐ University of California (Natural Land and Water Reserves System)

County Reviewing Agencies

- ☒ DPW
- ☒ Fire Department
  - Forestry, Environmental Division
  - Planning Division
  - Land Development Unit
  - Health Hazmat
- ☐ Sanitation District
- ☒ Public Health/Environmental Health Division: Land Use Program (OWTS), Drinking Water Program (Private Wells), Toxics Epidemiology Program (Noise)
- ☐ Sheriff Department
- ☐ Parks and Recreation
- ☐ Subdivision Committee
- ☐

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially significant impacts affected by this project.

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

DETERMINATION: (To be completed by the Lead Department.)
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 by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

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

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

☐ I find that although the proposed project could have a significant effect on the environment, because all 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.

Martin Gies — Signature (Prepared by)
9/21/2021 — Date

Martin Gies — Signature (Approved by)
9/22/2021 — Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources the Lead Department cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the Lead Department has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level. (Mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced.)

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA processes, an effect has been adequately analyzed in an earlier EIR or negative declaration. (State CEQA Guidelines § 15063(c)(3)(D).) In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of, and adequately analyzed in, an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

7) The explanation of each issue should identify: the significance threshold, if any, used to evaluate each question, and; mitigation measures identified, if any, to reduce the impact to less than significant. Sources of thresholds include the County General Plan, other County planning documents, and County ordinances. Some thresholds are unique to geographical locations.

1. AESTHETICS

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Impact Analysis

The following aesthetics impact analysis is based on the architectural plans prepared by John Andrews Group Architects Inc. dated December 2, 2020, provided in Appendix A.

Less Than Significant Impact. The project site is proximate to two scenic routes, the Stokes Ridge Trail and Mulholland Highway, a scenic route designated in the Santa Monica Mountains LCP. Highly vegetated surroundings, intervening topography, and landscaping, partially screen visibility of the proposed residence from surrounding vantage points. The project design is consistent with an 18-foot maximum height limit, consistent with the scale of existing development the surrounding area. Therefore, the project would not have a substantial adverse effect on a designated scenic vista. The project impact would be less than significant.

b) Be visible from or obstruct views from a regional riding, hiking, or multi-use trail?	☐	☐	☒	☐

Less Than Significant Impact. The project site is approximately 900 feet from the closest segment of the Stokes Ridge Trail, located on the ridge immediately south of the property. From the Stokes Ridge Trail, the project would be visible in the foreground looking northeast towards Mulholland Highway. Given the limited height, surrounding vegetation, and similarly sized neighboring properties with existing residences, the project would blend in with the existing rural residential character of the area. Therefore, the project would have a less than significant impact on views from a multi-use trail.

c) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐

Less Than Significant Impact. Mulholland Highway is the nearest scenic route identified in the Santa Monica Mountains LCP, which is approximately 0.2 miles from the proposed home site. Additionally, the Santa Monica Mountains LCP Recreation Map shows a recreation trail (Stokes Ridge Trail) alignment in the vicinity of the project site. The proposed residence would be located on a portion of a previously graded building pad that contains no trees, rock outcroppings, or historic buildings. Construction of the proposed motor court and driveway; however, would result in the removal of existing trees as specified in the landscape plans in Appendix C (see Existing Plant

Disposition Plan, Sheet L-1.2). Visual impacts for trees that would be removed would be offset by the planting of new trees on the subject property and off-site, pursuant to requirements of the LUP native tree protection policy as discussed in Section 4, Biological Resources. Any change in tree coverage on the site would not cause a substantial change in view from Mulholland Highway due to distance and intervening topography and vegetation that obstruct visibility of the project site, as well as the planting of new trees on the site. As mapped on the Santa Monica Mountains LCP Recreation Map, the Stokes Ridge Trail generally follows a fire road/fire break that extends from Mulholland Highway to a ridgetop that overlooks the project site. The proposed home would not be visible from the majority of the mapped route of the trail due to an intervening ridgeline, with the exception of the point where the mapped route along the fire road/fire break reaches the crest of the ridgeline at a peak located approximately 800 feet (0.15 miles) southwest of, and approximately 300 feet higher in elevation than the proposed residence, as examined using Google Earth. The mapped route of the trail continues along the ridge from this peak in a generally north-northwesterly direction approximately 0.18 mile towards Thousand Peaks Road, which is a gated private drive, and then westward and beyond any potential views of the project site. As discussed in the project description, the proposed home has been designed to not exceed 18 feet in height pursuant to Santa Monica Mountains LCP Policy CO-136 to minimize visual impacts and preserve the quality of the scenic area. Based on the distance of approximately 800 feet between the portion of the Stokes Ridge Trail alignment where the home could be visible as well as the approximately 300 feet difference in elevation, the proposed home would not represent a prominent portion of an observer's field of view, and would not appear substantially different than existing single-family homes and rural development located within the viewshed, including homes located adjacent to, and in the nearby vicinity of the proposed home. Additionally, the home would be constructed on an existing graded pad and would not require extensive grading or alteration of existing slopes or other topographic features, would be limited to 18 feet in height, and would be buffered by proposed tree plantings that would provide partial screening of the proposed house. As such, the project would not substantially alter existing views and would not dominate views from the Stokes Ridge Trail. Due to project design features including the limited height and landscaping with trees that provide screening, the linear distance of approximately 0.15 miles between the proposed home and points where potentially visible from the proposed house, and the difference of approximately 300 feet in elevation from potential viewpoints, as well as the lack of visibility due to intervening topography and vegetation for the vast majority of the mapped trail route, the project would have a less than significant impact to scenic resources, including, but not limited to, trees within a state scenic highway, or views from trails.

d) Substantially degrade the existing visual character or quality of public views of the site and its surroundings because of height, bulk, pattern, scale, character, or other features and/or conflict with applicable zoning and other regulations governing scenic quality? (Public views are those that are experienced from publicly accessible vantage point)	☐	☐	☒	☐

Less Than Significant Impact. The project would be located in the visual context of a low-density residential area with existing residences of similar scale and visual character. Existing vegetation surrounding the project Site and the mountainous topography would restrict public visibility of the residence along the approximately 600-foot long segment of Dry Canyon Cold Creek Road that fronts

the subject property, the nearest public road, and portions of the Stokes Ridge Trail. Thousand Peaks Road is a gated, private road. The overall design would blend in with other similarly developed properties in the area and thus would not substantially degrade the existing visual character of the site and surroundings. The project design conforms to an 18-foot maximum height limitation to minimize the impact of the residence on the existing visual quality of the site and its surroundings and integrate with existing residences in the neighborhood.

As the subject property contains hillsides exceeding a 25 percent grade, the project is required to comply with the County Hillside Management Area (HMA) Ordinance (Los Angeles County Code Title 22, Section 22.56.217) to protect designated hillsides from incompatible development. The proposed residence would be located on a previously-graded pad and would comply with the HMA Ordinance to reduce the project visual impact, minimizing grading to hillside resources and protecting hillsides. Therefore, the project would have a less than significant impact with regard to degrading the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features.

e) Create a new source of substantial shadows, light, or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Less Than Significant Impact. The rural environmental setting provides sufficient distance (at least 100 feet) between the project site and the nearest neighboring residence, such that there would be no significant shadow impact to neighboring uses. Substantial vegetation and steep hillsides between the project site and neighboring roads and residences create barriers to lessen any new source of light or glare. The proposed building exterior would consist of non-reflective surfaces in conformance with the scenic resource protections of the Santa Monica Mountains Local Coastal Program so the project would not create a new source of substantial glare. In terms of nighttime views, although the project is not located in a County-designated Rural Outdoor Lighting District (Final/Adopted District Map, 2014), the proposed exterior lighting is limited to that necessary for resident safety and security. This minimal residential lighting proposed would not create a new source of substantial light. Therefore, the project will have a less than significant impact to creating a new source of substantial shadows, light, or glare which would adversely affect day or nighttime views in the area.

Sources:

- County of Los Angeles, Department of Parks and Recreation, List of Trails, Accessed on October 10, 2017 at: https://trails.lacounty.gov/Trail/List.

2. AGRICULTURE / FOREST

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.

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

No Impact. The project is located within the Santa Monica Mountains National Recreation Area in the rural coastal zone. The site is on a previously graded building pad, with similar private residences to the north and east, a landscaped slope to the west, and open space on the south. The site is zoned R-C-20 (Rural Coastal, 20-acre minimum required lot area). The project is not on or near Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Los Angeles County Important Farmlands Map 2016). Therefore, the project would not convert farmland land to non-agricultural use.

b) Conflict with existing zoning for agricultural use, with a designated Agricultural Resource Area, or with a Williamson Act contract?	☐	☐	☐	☒

No Impact. There are no agricultural uses on or surrounding the project area and it is not zoned for agricultural use. The site is not located in a General Plan-designated Agricultural Resource Area and is not in conflict with a Williamson Act contract. Therefore, the project will have no impact to lands with these designations.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code § 12220 (g)), timberland (as defined in Public Resources Code § 4526), or timberland zoned Timberland Production (as defined in Government Code § 51104(g))?	☐	☐	☐	☒

No Impact. The project is in a rural neighborhood and has no forest land, timberland, or timberland zoned Timberland Production. The project site is not located in a National Forest area. Therefore, the project will have no impact to forest land, timberland, or timberland zoned Timberland Production.

d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact. The project site is not in a designated forest nor does it have forest land. Therefore, the project would not create an impact resulting in the loss or conversion of forest land.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact. Areas surrounding the project contain similar residences and landscaped areas but no farmland or forest land. Therefore, the project would not have an impact on farmland or forest land.

Sources:

- Los Angeles County, Department of Regional Planning, Agricultural Resource Areas Policy Map, Accessed on October 11, 2017 at: http://planning.lacounty.gov/assets/upl/project/gp_2035_2014-FIG_9-5_agricultural_resource_policy.pdf.
- California Department of Conservation, California Important Farmland Finder, Accessed on October 11, 2017 at: https://maps.conservation.ca.gov/DLRP/CIFF/.
- Cal Fire, State of California, Land Cover, Accessed on October 11, 2017 at: http://frap.fire.ca.gov/data/frapgismaps/pdfs/fvegwhr13b_map.pdf.

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

The following impact analysis relies upon the California Emissions Estimator Model (CalEEMod) outputs, dated December 7, 2020, and provided in **Appendix D**.

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Conflict with or obstruct implementation of applicable air quality plans of either the South Coast AQMD (SCAQMD) or the Antelope Valley AQMD (AVAQMD)?	☐	☐	☒	☐

Less Than Significant Impact. The project falls within the SCAQMD's boundaries, where project may have a significant impact if it is not consistent with the applicable Air Quality Management Plan (AQMP) prepared by the SCAQMD, or if the project would substantially hinder employing the policies or obtaining the goals of that plan. The AQMP outlines the air pollution measures needed to meet the federal health-based standards for ozone and particulates. The governing board of the SCAQMD adopted the most recent version of the 2016 AQMP on March 3, 2017, which has been submitted to the California Air Resources Board for forwarding to the Environmental Protection Agency. The project is consistent with the County General Plan land use designation and is consistent with regional growth projections. However, the SCAQMD does not favor designating regional impacts as less than significant based only upon the proposed development's consistency with regional growth projections. Therefore, the impact of the proposed project on air quality was analyzed on a project-specific basis. The results are presented in the context of air quality standards in response to Checklist Question 3.b. According to Tables 3-2 and 3-3 found in response to Checklist Question 3.b, both construction and operational daily maximum emissions would fall under the thresholds set as standards of significance by the SCAQMD. Therefore, the proposed project would not conflict with or obstruct implementation of the AQMP.

Additionally, the project would be required to comply with SCAQMD Rule 403 during construction, for fugitive dust control. Compliance with SCAQMND Rule 403 requires the implementation of best available dust control measures (BACM) during active operations capable of generating fugitive dust, including grading or excavation activities. As regulatory requirement of **RCM AQ-1**, the project would comply with Rule 403 by applying BACM, which includes watering the soil during construction to minimize air pollutants released during the movement of soil. Compliance with Rule 403 would also reduce risks associated with exposure to Coccidioidomycosis, or Valley Fever, a fungal disease transmitted through the inhalation of Coccidioides immitis spores. Given the residential land use type, the small scale of the project, the results of the emissions analysis, and BACM to prevent significant

fugitive dust levels, the project would have a less than significant impact on implementation of the applicable air quality plan.

Regulatory Compliance Measure

RCM AQ-1 **Fugitive Dust Control**. To reduce the project impact on air quality, and associated public health risks, the applicant shall comply with applicable South Coast Air Quality Management District regulations for fugitive dust control as required in Rule 403, including the application of Best Available Control Measures for watering and stabilizing soils during grading and excavation activities.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

Less Than Significant Impact. A project may have a significant impact if project emissions exceeds a thresholds of significance or substantially contribute to an existing or projected air quality violation. The SCAQMD has designated significant emissions levels for evaluating regional air quality impact significance under CEQA, shown in **Table 3-1, Daily Emission Thresholds**.

Table 3-1
Daily Emissions Thresholds

Pollutant	Emissions (lbs./day)	
	Construction	Operations
Reactive Organic Gasses (ROG)	75	55
Nitrogen Oxides (NOx)	100	55
Carbon Monoxide (CO)	550	550
Respirable Particulate Matter (PM-10)	150	150
Fine Particulate Matter (PM-2.5)	55	55
Sulfur Oxides (SOx)	150	150
Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.		

As shown in Table 3-1, projects with daily emissions that exceed the thresholds for construction and operations are recommended by the SCAQMD to have a significant air quality impact. These standards are thresholds of significance to determine whether or not the project's maximum daily construction or maximum daily operational emissions create a significant impact.

Construction Air Quality Emissions

The SCAQMD developed CalEEMod to provide a model to calculate both construction emissions and operational emissions from a variety of land use projects. The model calculates both daily maximum and annual average emissions for criteria pollutants and total or annual greenhouse gas (GHG) emissions. Project construction would result in temporary emissions of air pollutants due to the use of construction equipment. Construction emissions modeling identified the maximum daily emissions for

each pollutant during construction based on equipment fleet, construction duration, and truck haul information. The results are provided in **Table 3-2, Maximum Daily Construction Emissions.**

Table 3-2
Maximum Daily Construction Emissions

	ROG	NO_x	CO	SO_2	PM-10	PM-2.5
Construction Emissions (lbs./day)	15.1	22.0	16.1	0.05	2.2	1.0
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No
Source: CalEEMod Outputs, Appendix D. Maximum daily emissions were determined based on Summer and Winter outputs, whichever value was higher, for a conservative analysis.						

As shown in Table 3-2 peak daily construction activity emissions are estimated to be well below regional SCAQMD CEQA thresholds. Therefore, potential project air quality impacts due to construction emissions would be less than significant.

Operational Air Quality Emissions

The main project-related air quality concern during operations of a single-family residence is mobile source emissions generated during travel to and from the site. Heating, Ventilation, and Air Conditioning (HVAC) equipment is another point source of possible emissions resulting from the operations of the project. Maximum daily operation emissions for criteria pollutants are shown in **Table 3-3, Maximum Daily Operations Emissions.**

Table 3-3
Maximum Daily Operations Emissions

	ROG	NO_x	CO	SO_2	PM-10	PM-2.5
Operations Emissions (lbs./day)	0.02	0.11	0.33	0	0.10	0.03
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No
Source: CalEEMod Outputs, Appendix D. Maximum daily emissions were determined based on Summer and Winter outputs for mobile source emissions, whichever value was higher, for a conservative analysis.						

As shown in Table 3-3, the maximum daily operational emissions are predicted to be far below the SCAQMD CEQA thresholds of significance. As a result, potential air quality impacts due to operational emissions would be less than significant.

Less Than Significant Impact. A project may have a significant impact if it adds a considerable cumulative contribution to federal or state non-attainment pollutants. As the South Coast Air Basin is currently in State non-attainment for ozone and PM-2.5, projects could exceed an air quality standard or contribute to an existing or projected air quality deterioration. The SCAQMD recommends assessing a project's potential contribution to cumulative impacts using the same significance criteria as used for project-specific impacts, shown in Table 3-1. Accordingly, if an individual project's construction or operational impacts would be less than significant, then the project would not generate a cumulatively considerable impact in emissions for those pollutants which the South Coast Air Basin is in the non-attainment.

As shown in Table 3-2, project construction related emissions would be less than significant because the peak daily construction activity emissions are estimated to be well below the regional SCAQMD thresholds. Similarly, as shown in Table 3-3, project operational emissions would also be less than significant because estimated maximum daily operation emissions would be well below the SCAQMD thresholds. Based on this analysis, the project's contribution to the basin-wide emissions of criteria air pollutants would not be cumulatively considerable for pollutants for which the South Coast Air Basin is in non-attainment, impacts would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Less Than Significant Impact. A project may have a significant impact if a project were to generate pollutant concentrations to a degree that would significantly affect sensitive receptors. Sensitive receptors are populations that are more susceptible to the effects of air pollution than the population at large, such as residences, long-term care facilities, schools, playgrounds, parks, hospitals, and outdoor athletic facilities.

The Governing Board of the SCAQMD developed Localized Significance Thresholds (LSTs) in response to Environmental Justice Enhancement Initiative I-4. LSTs are only applicable for the following criteria pollutants: oxides of nitrogen (NOx), Carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5) and are applicable for sensitive receptor land uses where it is possible an individual could remain for 24 hours, such as residence, hospital, or convalescent facility. As stated by the SCAQMD, the use of LSTs is voluntary, to be implemented at the discretion of local public agencies acting as a lead agency under CEQA. For the proposed project, the primary source of possible LST impacts would be construction activities.

The closest sensitive receptor potentially subject to localized air quality impacts from construction is a single-family residence adjacent to the property boundary. Therefore, LST impacts were evaluated based on a 50-meter source-receptor distance on a 1-acre site, although the proposed limits of disturbance are less than 1-acre. Results of this analysis are located in **Table 3-4, Localized Significance Thresholds and Project Emissions**.

Table 3-4
Localized Significance Thresholds and Project Emissions

LST 1.0 acre at 50 meters Northwest Coastal LA County	Project LST Emissions (pounds/day)			
	CO	**NOx**	**PM-10**	**PM-2.5**
Max On-Site Emissions	7.1	6.7	1.2	0.72
LST Thresholds for Construction	**833**	**104**	**12**	**4**
Exceeds Threshold?	No	No	No	No
Source: CalEEMod.2016.3.2 - Output provided in Appendix D.				

As shown in Table 3-4, construction emissions would not exceed the LST thresholds. Therefore, localized impacts would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Less Than Significant Impact. A project may have a significant impact if objectionable odors would be emitted affecting a substantial number of people. Objectionable odors are typically associated with industrial operations involving chemicals, solvents, petroleum products, and other strong-smelling material used in manufacturing processes, as well as sewage treatment facilities and landfills. The project proposes one single-family residence where activities would consist of grading, paving, and moving construction materials as opposed to heavy industrial manufacturing processes that may generate objectionable odors.

Construction activities associated with architectural coating, such as paints and finishes, may produce discernible odors typical of most construction sites. Such odors dissipate with distance and would be temporary. Given the distance to the nearest homes, construction odors are expected to be undetectable at adjacent properties. However, SCAQMD Rule 1113 limits the amount of volatile organic compounds from architectural coatings. These odors would only occur during acceptable work hours and due to the low density of residences neighboring the project site, these low level and intermittent odors would be almost imperceptible. Based on compliance with SCAQMD rules, including Rule 1113, and due to the small-scale of the project and its distance from sensitive receptors, the resulting construction impacts associated with objectionable odors would be less than significant. Operational impacts from the proposed single-family residence would not include use of large quantities of objectionable odor-producing substances. Operational impacts would be less than significant.

4. BIOLOGICAL RESOURCES

The following impact analysis is based on a Biological Assessment for the 24600 Thousand Peaks Road Project (Biological Assessment) updated by Dudek in December 2016, and the 24600 Thousand Peaks Road Calabasas, California R2014-03698 Mitigation And Encroached Tree Plan & Annual Report (September 2021). These reports are attached in **Appendix E**, Biological Reports, as **Appendix E-1 and E-2**, respectively. Also applied to this Initial Study are the Recommendations of the Environmental Review Board (ERB) in August 2017, Minutes of the ERB of August 2017, and requirements of the Santa Monica Mountains Local Implementation Program (SMM LIP). The Biological Assessment evaluated the potential for occurrence at the site of special-status plant and wildlife species known to occur in the region through a search of the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants and the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) Rarefind 5 application for sensitive "elements" reported within the 6-United States Geological Survey 7.5-minute quadrangle maps surrounding the project site including the Malibu Beach, Thousand Oaks, Calabasas, Canoga Park, Point Dume, and Topanga as well as CDFW's Special Vascular Plants, Bryophytes, and Lichens List and Special Animals list.

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. Various federal, state, and local laws and ordinances protect biological resources within the County. The federal Endangered Species Act and the California Endangered Species Act (CESA) state that animals and plants that are threatened with extinction or are in a significant decline will be protected and preserved. The CDFW created the California CNDDB to inventory the status and locations of rare plants and animals in California. Dudek performed field surveys as documented in the Biological Assessment in Appendix E-1. No special status wildlife or plant species were found at the project site during prior field surveys. Nevertheless, there are special-status plant and wildlife species known to occur in the surrounding areas, which could potentially be impacted by construction and fuel modification within the proposed limits of disturbance as shown the fuel modification plan (FM #6381) provided in Appendix C, Landscape Plans.

Construction would take place on a previously graded pad that, at the time of the field assessment, was devoid of vegetation cover. Existing trees along the proposed driveway access would be

trimmed or removed to facilitate construction of the proposed project. In accordance with County regulations, a fuel modification zone extending up to 200 feet from the building exterior of the proposed residence would be established and maintained as stipulated in County Fire Department Fuel Modification Guidelines (LAFD 2011). Fuel modification in Zones A and B will take place in areas currently landscaped with a combination of native and ornamental species. Zones A and B, and a portion of Zone C to be revegetated would be irrigated. The irrigated portion of Zone C would only receive temporary irrigation with the goal of establishing self- sustaining habitat. A portion of Zone C is located within a slope containing dense native chaparral vegetation and would not be irrigated.

The environmental setting of the project site is within upland habitat on generally flat terrain previously altered by grading located near a canyon bottom. Macro- topographic features in the immediate vicinity of the project site consist of steep north- and east- facing slopes rising approximately 300 vertical feet above the subject property. The primary source of surface water in the project site is rainfall runoff from the slopes to the south of the project site. The runoff flows in the canyon bottom to the southern edge of the previously graded building pad at which point flows enter an existing concrete v-ditch which extends to the east and flows into Dry Canyon-Cold Creek, a ~~unnamed~~ tributary to Cold Creek of the Malibu Creek Watershed.

Special-Status Plant Species

The Biological Assessment provided vegetation mapping of the proposed development footprint and the 200-foot fuel modification zone, which identified only one natural vegetation community: birchleaf mountain mahogany chaparral. No special-status plant species were found during the biological inventory and they are not anticipated to occur within the proposed limits of disturbance. As described in the Biological Assessment, 11 federal-listed, state-listed, or California Rare Plant Rank (CRPR) plant species have moderate potential to occur within the vicinity of the project as well as within the 200-foot Fuel Modification Zone. Plants with a CRPR of 4 are not rare, but rather are included on a "watch list" of species with limited distribution. However, while plants in this category cannot be called "rare" from a statewide perspective, and very few, if any, are eligible for state listing, many of them are significant locally. For this reason, CNPS strongly recommends that CRPR 4 plants be evaluated for consideration during preparation of environmental documents, which may be particularly appropriate for: the type locality of a CRPR 4 plant; populations at the periphery of a species' range; areas where the taxon is especially uncommon; areas where the taxon has sustained heavy losses; or, populations exhibiting unusual morphology or occurring on unusual substrates.

The federal and state listed species include western spleenwort (*Asplenium vespertinum*) [CRPR 4.2], Catalina mariposa lily (*Calochortus catalinae*) [CRPR 4.2], slender mariposa-lily (*Calochortus clavatus* var. *gracilis*) [CRPR 1B.2], Plummer's mariposa lily (*Calochortus plummerae*) [CRPR 4.2], island mountain mahogany *(Cercocarpus betuloides var. blancheae*) [CRPR 4.3], Santa Susana tarplant (*Deinandra minthornii*) [California Rare/CRPR 1B.2], Santa Monica dudleya (*Dudleya cymosa ssp. ovatifolia*) [Federally Threatened/CRPR 1B.1], white-veined Monardella (*Monardella hypoleuca ssp. hypoleuca*) [CRPR 1B.3], Ojai navarretia (*Navarretia ojaiensis*) [CRPR 1B.1], chaparral nolina (*Nolina cismontana*) [CRPR 1B.2], and Hubby's phacelia (*Phacelia hubbyi*) [CRPR 4.2].

Individuals and seed banks of each of these species, if present, could be removed, damaged, or disturbed by the project. Furthermore, listed species could be susceptible to direct impacts during

fuel modification, which results in disturbances such as trampling and mowing. Some of these species are more common locally than others (i.e., Catalina mariposa lily is fairly common within the Santa Monica Mountains) but impacts to these species would be considered significant. Although the potential for impacts to special-status plant species is low, implementation of **Mitigation Measures (MM) BIO-1** through **BIO-3,** which calls for the project-specific Best Management Practices (BMPs), periodic biological monitoring, and a pre-construction special-status plant survey, would ensure that special-status plants are protected to the greatest extent feasible by disturbance area delineation and pre-construction surveys.

Although the potential for impacts to habitat that supports special-status plant species is low, **MM BIO-4** requires removal of non-native plant species to minimize impacts to native vegetation communities and potentially occurring special-status plant species. Removal of non-natives from development area, which includes fuel modification areas, is a requirement of the Santa Monica Mountains Local Implementation Plan (SMM LIP, §22.44.1240.B.6). Cuttings of non-natives discarded into the native area of the project (Zone C fuel modification area south beyond the "V" ditch) have established substantially in near native habitat as well as non-natives planted and seeded into the main development area and Fuel Modification Zones A and B. Recommendations for part of the mitigation are to remove all non-natives from development areas of the project parcel and replace these with native vegetation. The plan for planting onsite mitigation trees is on the Landscape Plan sheet L-2.1B. Long-term, indirect impacts to potential special-status plants within the project site are not anticipated due to the relatively small building footprint, the contiguous condition of native habitat adjacent to the project site, and implementation of mitigation measures.

According to the project-specific Planting Program, the slope east of the previously-graded pad is vegetated with non-native ground cover in the understory and a mix of native and non-native trees in the overstory including invasive species Tree-of-Heaven (*Ailanthus altissima*), Brazilian pepper trees (*Schinus terebinthifolius*), Peruvian pepper trees (*Schinus molle*), Aleppo pines (*Pinus halepensis*), Pampas grass (*Cortaderia selloana*), *Tamarix* spp. and native species cottonwood trees (*Populus fremontii*), and coast live oaks (*Quercus agrifolia*). To comply with the Santa Monica Mountains LCP and LIP, the County has determined this landscaped area is to be revegetated by removal of non-natives, conservation of natives, and planting in voids with native species. **MM BIO-5** requires the revegetation of the non-native areas of fuel modification zone C as part of the Planting Plan. MM BIO-5 would ensure impacts to native plant species, and their habitat, are protected to the greatest extent feasible. Implementation of MM BIO-1 though BIO-5 would reduce the impact of the project on special-status plant species to less than significant with mitigation incorporated.

Special-Status Wildlife Species

As described in the Biological Assessment (Appendix E-1), 13 special-status wildlife species have moderate potential to occur within the birchleaf mountain mahogany chaparral growing south of the proposed residence, even if in some cases only infrequently, in transit, or on a temporary basis.

Twelve of the 13 special-status wildlife species are highly mobile and are not anticipated to be permanently directly impacted by the proposed project (i.e., are capable of escaping harm during project development, including grading or fuel modification), while a few are vulnerable to direct impacts, including injury and mortality. In this case, only one (1) potentially occurring land dwelling animal, the San Diego desert woodrat (*Neotoma lepida intermedia*) [SSC] and seven (7) species of special-status bats, could be directly impacted by project-related activities if present.

Direct loss or injury to individual woodrats would be a significant, but mitigable impact. Given the surrounding level of development and the amount of remaining suitable habitat in the surrounding area, the habitat loss associated with the project would not significantly impact a population of any of these species. While the bats are capable of escaping harm, they could potentially roost in tree cavities or in tree foliage at the project site. Similarly, ground and vegetation disturbing activities, if conducted during the nesting bird season (February 1 to August 31), would have the potential to result in removal or disturbance to trees and shrubs that could contain active bird nests. In addition, these activities would also affect herbaceous vegetation that could support and conceal ground-nesting species. Project activities that result in the loss of bird nests, eggs, and young, would be in violation of one or more of California Fish and Game Code sections 3503 (any bird nest), 3503.5 (birds-of-prey), or 3511 (fully protected birds). Furthermore, removal or destruction of one or more active nests of any other birds listed by the federal Migratory Bird Treaty Act of 1918 (MBTA), whether nest damage was due to vegetation removal or to other construction activities, would be considered a violation of the MBTA and California Fish and Game Code Section 3511. Trees slated for removal may provide suitable habitat for sensitive roosting bats and nesting birds.

Because vegetation within Fuel Modification Zone C would be selectively thinned and not completely removed, the potential impacts to special-status wildlife habitat would be minimal. Nevertheless, because special-status species have the potential to inhabit the chaparral vegetation community, project-related fuel modification activities have the potential to adversely affect species listed as sensitive, or special-status.

Potential short-term, construction-related, or temporary direct impacts to these special-status wildlife species could primarily result from clearing, trampling, or grading outside of the building footprint, as well as vehicle access during construction. Long-term, indirect impacts to this special-status wildlife species could result from increased noise and artificial lighting, which may reduce populations in the immediate vicinity of the proposed project. Direct permanent impacts to these species are not anticipated to occur with implementation of MM BIO-1, which requires fencing during construction, and **MM BIO-6** through **MM BIO-8b,** which require pre-construction wildlife surveys and compliance with State and Federal laws. Implementation of MM BIO-1, and MM BIO-6 through BIO-MM 8b would reduce direct or indirect impacts on potentially-present wildlife species identified as a candidate, sensitive, or special status to less than significant with mitigation incorporated.

Mitigation Measures

BIO-1 **Best Management Practices.** Prior to ground disturbing activities, appropriate construction Best Management Practices (BMPs) shall be developed in accordance with those measures identified by the County. BMPs shall mean any activities, prohibitions, practices, procedures, programs, or other measures designed to prevent or reduce the discharge of pollutants directly or indirectly into waters of the United States. The following measures shall be implemented during the construction phase to avoid impacts to native habitats and ephemeral drainages adjacent to or in the vicinity of the limits of disturbance, as well as special-status flora and fauna associated with these habitats.

1. The applicant shall demarcate the project limits of disturbance with exclusionary fencing to prevent encroachment of project activities into adjacent native habitats and to dissuade wildlife from entering the construction area. The

fencing shall be marked with highly visible flagging and signed as a sensitive area. The temporary fencing shall be routinely inspected and maintained in functional condition for the duration of project construction. A biologist should locate and remove any wildlife within the work site immediately after it has been fenced and one (1) day before construction activity begins.

2. If construction lighting is required, then lighting shall be pointed away from native habitats, directed toward the ground, and shielded.
3. All food-related trash shall be disposed of in closed animal-proof containers. The project applicant shall be required to provide sufficient containers on site during project construction.
4. All trenches shall be filled within the same day, or escape ramps will be constructed if trenches are to be left open overnight.
5. All project related equipment and vehicles shall be cleaned and decontaminated of weeds and soils prior to entering the project site to reduce the potential for the spread and introduction of invasive and noxious weeds.
6. Contractors shall supply drip pans and place drip pans under all parked construction equipment on the project site.
7. Jurisdictional and other waterways shall be demarcated for avoidance during all construction and fuel modification activities. No impacts to the bed and bank or associated riparian vegetation shall occur. Non-natives in waterways of the project parcel and adjacent areas west of Dry Canyon-Cold Creek Road will be replaced by native plantings according to the Landscape Plan sheet L-2.1B.
8. Demarcation of the birchleaf mountain mahogany chaparral included in the fuel modification area shall remain in place during fuel modification activities and only trained landscape crews shall be allowed to enter this area.
9. Construction personnel shall be informed of these demarcations and the sensitive nature of the protected areas. These demarcations shall also be included on the project design and landscape plans.

BIO-2 **Biological Monitoring.** A biological monitor shall be retained during construction to periodically inspect construction BMPs and ensure compliance with Conditions of Approval, including but not limited to the equipment washing, drip pans, and ensure that impacts to special-status species do not occur and disturbance boundaries are respected.

BIO-3 **Special-Status Plant Species Survey.** No more than seven (7) days prior to initial fuel modification in the 200-foot fuel modification zone, a botanical survey shall be completed to determine the presence/ absence of special-status plants in the proposed disturbance area. If special-status plants are identified, they shall be flagged for avoidance during fuel modification operations.

BIO-4 **Removal of Non-Native Plant Species**. To minimize impacts to native vegetation communities and potentially occurring special-status plant species, fuel modification activities in Fuel Modification Zones B and C shall focus on non-native species removal. Thinning or removal of native species shall be limited to the minimum amount necessary to achieve Los Angeles County Fire Department standards for

FMZs. Non-native species targeted for initial removal shall be mapped and included on the project landscape plans. Non-native species within the boundaries of the waterways present within the property shall be controlled without disturbance to the bed and bank of the feature. Excavation of isolated non-native species in the non-jurisdictional waterway is planned. The waterway on the eastern border of the project was determined to be non-jurisdictional by CDFW, but due to riparian vegetation and hydrology will be treated as a wetland for care, and rehabilitated to all native shrubs and trees. The location of the non-jurisdictional waterways shall be included on the project landscape plans. Follow-up fuel modification activities will follow the LA County Fire Department standards and shall also focus on the removal and control of non- native species.

BIO-5 **Revegetation of FMZ Zones B and C.** Revegetation of Zone C south beyond the "V" ditch shall follow the Landscape Plan sheet L-2.1B. Temporary irrigation may be needed until the container plants establish. The revegetation of the currently cleared portion of FMZ Zone C shall be designed to mimic natural vegetation present adjacent to the project site. Species selected for the revegetation area shall include locally indigenous native species included in the Recommended List of Native Plants for Landscaping on the Santa Monica Mountains (California Native Plant Society 2007). Revegetation goals shall include the establishment of self-sustaining native habitat consistent with the adjacent natural areas. Irrigation shall be allowed within the revegetation area, however, following establishment, the irrigation system shall be removed and the revegetation area shall be maintained as non-irrigated FMZ Zone C. In addition to the revegetation of FMZ Zone C, native species installation may be necessary in FMZ Zone B to achieve LA County Fire Department cover requirements for FMZ's. Per the Santa Monica Mountains LCP/ LIP Section 22.44.1240.C.8.b, with the exception of turf, plant species used in Zone B shall be restricted to locally indigenous species. Recommended native plant species to be included in the revegetation of FMZ Zones B and C are included in **Table BIO-5-1, Fuel Modification Zone B and C Native Plant Species**.

Table BIO 5-1
Fuel Modification Zone B and C Native Plant Species

Container Plants	
Common Name	**Scientific Name**
Trees	
California bay	*Umbellularia californica*
California sycamore	*Platanus racemosa*
coast live oak	*Quercus agrifolia*
Shrubs	
birchleaf mountain mahogany	*Cercocarpus betuloides*
Toyon	*Heteromeles arbutifolia*
sugarbush	*Rhus ovata*
black sage	*Salvia mellifera*
Herbs	
golden yarrow	*Eriophyllum confertiflorum*
scarlet bugler	*Penstemon centranthifolius*

wild canterbury bells	*Phacelia minor*
hummingbird sage	*Salvia spathacea*
purple nightshade	*Solanum xantii*
Seed Mix	
elegant clarkia	*Clarkia unguiculata*
western wildrye	*Elymus glaucus*
succulent lupine	*Lupinus succulentus*
chaparral melic	*Melica imperfecta*
chia	*Salvia columbariae*

The primary goal of the revegetation shall be to achieve native cover percentages similar to natural vegetation in the project vicinity. Species cover data was collected during the October 2016 site visit via two continuous line transects in natural habitat south of the project site. The results of the transect data collected are provided below in **Table BIO-5-2, Natural Habitat Transect Data Collection Results**. The revegetation shall be determined to be successful once established and displaying cover consistent with the average coverage provided in Table BIO-5-2.

Table BIO-5-2
Natural Habitat Transect Data Collection Results

Cover Class	Transect 1 Percent Cover	Transect 2 Percent Cover	Average Percent Cover
Native Shrub	66.06%	71.78%	68.92%
Native Herb	3.72%	0.32%	2.02%
Non-Native Herb	0.56%	0.20%	0.38%
Bare Ground	0.20%	27.70%	13.95%

BIO-6 **Pre-Construction Biological Survey.** No more than 72 hours prior to the start of construction activities, a qualified biologist shall conduct a pre-construction biological survey for woodrat houses within the proposed development area including the proposed fuel modification zones. If woodrat houses are located within the development area, they should be dismantled and the sticks of each placed in a pile beyond the fuel modification zone. Woodrat houses in the fuel modification zone should simply be avoided and a surrounding buffer of 10-ft. of vegetation left if possible. If the 10-ft. buffer needs to be modified, then the woodrat house should be dismantled and sticks transferred as described.

BIO-7 **Pre-Construction Nesting Bird Survey.** No more than 7 days prior to initial ground-disturbing activities associated with construction, grading, or fuel modification that would occur during the nesting/breeding season of native bird species potentially nesting on the site (December 1 through September 30 in the project region, or as determined by a qualified biologist), the applicant shall have a single pre-construction survey conducted by a qualified biologist to determine if active nests of bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone. If nesting birds are found to be present, surveys will continue on a weekly basis until those within the disturbance zone or buffer area are finished nesting.

If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors) shall be postponed or halted, at the discretion of the biologist in written consultation with the California Department of Fish and Wildlife specialists with ornithological knowledge, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers, and construction personnel shall be instructed on the sensitivity of nest areas. The biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts to these nests occur.

BIO-8a **Pre-Construction Bat Survey and Tree Removal Procedure.** If trees and/or structures must be removed during the maternity season (March 1 to September 30), a qualified bat specialist shall conduct a pre-construction survey to identify those trees and/or structures proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. Each tree and/or structure identified as potentially supporting an active maternity roost shall be closely inspected by the bat specialist no greater than 7 days prior to disturbance to more precisely determine the presence or absence of roosting bats. Trees and/or structures determined to be maternity roosts shall be left in place until the end of the maternity season.

To the extent feasible, tree removal or relocation shall be scheduled between October 1 and November 30, in order to be outside bird nesting season and outside of the bat maternity roosting season (March 1 to September 30). CDFW should be consulted in all cases when bat roosts are to be removed or blocked. In the event of bat expulsion, bat habitat should be constructed appropriate to the species being expelled. Trees shall be removed in a manner that allows birds and bats to escape, pushed or pulled to the ground in 2-3 nudges, with a pause of approximately 30 seconds between each nudge to allow bats and birds to become active. The tree should then be pushed to the ground slowly and should remain in place for a period of 48 hours to allow any trapped animals to escape. Chain saws shall only be used after the tree has been on the ground for 48 hours.

BIO-8b The project proponent shall provide the LA County Department of Regional Planning (DRP) and CA Department of Fish and Wildlife (CDFW) the results of protective measures to document compliance with applicable State and Federal laws pertaining to the protection of native birds and other native wildlife. Discussions of reduction of standard protection zones (300- and 500-ft for bird nests) between the biologist and CDFW shall be documented in written form and be part of the project biologist's report on the project.

b) Have a substantial adverse effect on any sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, non-jurisdictional wetlands) identified in local or regional plans, policies, regulations or by CDFW or USFWS?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. The guiding program and code for protection of sensitive biological resources in the Coastal Zone of the Santa Monica Mountains in Los Angeles County is the Los Angeles County Santa Monica Mountains Local Coastal Program (SMM LCP). The SMM LCP includes a Land Use Plan (SMM LUP) that maps the sensitive resource areas. The sensitive area maps are based primarily on extensive vegetation mapping done by the National Park Service (NPS) and local knowledge of the Park Service personnel. The mapping categorizes the sensitivity of resources to development using Habitat Categories H1, H2, H2 high scrutiny, and H3, with H1 being the most rare and sensitive to the effect of development, H2 less rare but also sensitive to development, and H3 as areas already impacted by development and more suitable for planning further development. The SMM LCP also includes code in the SMM Local Implementation Program (SMM LIP) applied in the SMM region that preserves the resources by defining the Habitat Categories, uses possible within the Habitat Categories, and mitigation required when impacting biological resources by development. Sensitive biological resources in the SMM LCP area are known as Sensitive Environmental Resource Areas (SERAs), which include terrestrial and marine resources that, because of their characteristics and/or vulnerability, require special protection. SERAs include resources in the H1 and H2 areas such as: Significant Woodlands and Savannahs; Significant Watersheds; the Malibu Cold Creek Resource Management Area; and Wildlife Migration Corridors.

The impact of project buildout, that is, the impact resulting from the construction of the proposed residence, is provided in **Table 4-1, Vegetation Community and Land Cover Impacts Associated with Project Build Out.**

Table 4-1
Vegetation Community and Land Cover Impacts Associated with Project Build Out

Vegetation Community / Land Cover	Acres Permanently Impacted
Ornamental Landscape	0.13
Disturbed land	0.12
Total	**0.25**
Source: Dudek, Biological Resources Assessment, December 2016, pg. 47.	

As shown in Table 4-1, project build out would result in a total impact to 0.25 acres of ornamental landscape and disturbed land, neither of which is a sensitive biological resource under the SMM LCP. Native cottonwood trees of protected size would be removed, and these are planned for replacement according to applicable parts of the SMM LIP. Tree planting is onsite in the landscape plan and in an off-site locations. Grouped oaks, such as those in the development space, are considered oak woodlands under the Los Angeles County Oak Woodlands Conservation and Management Plan and these are preserved in the project landscape plans. The plan for the project

is to treat the non-jurisdictional drainage as a wetland and rehabilitate it to all native plants, especially shrubs and trees.

Fuel modification would extend into H2 category habitat containing Birchleaf Mountain Mahogany Chaparral. Development also covers currently open and unpaved land of H3 category that provides habitat for wildlife and provides for percolation of rainwater among other benefits. For this project, acreages for impacts related to fuel modification activities are provided in **Table 4-2, Vegetation Community and Land Cover Impacts from Fuel Modification**.

Table 4-2
Vegetation Community and Land Cover Impacts from Fuel Modification

Vegetation Community/Land Cover	Acres Impacted by Fuel Modification
Birchleaf Mountain Mahogany Chaparral	0.83
Ornamental Landscape*	2.71
Disturbed Land	0.59
Total	**4.13**

* Ornamental Landscape is irrigated and is not anticipated to be removed during fuel modification.
Source: County of Los Angeles, Department of Regional Planning, January 12, 2021.

As shown in Table 4-2, fuel modification would impact 0.83 acres of birchleaf mountain mahogany chaparral associated with H2 habitat under the SMM LCP. For unavoidable impacts to H1 or H2 Habitat, the SMM LIP requires calculation of acreage for the purchase of compensatory natural land by the Resource Conservation Program (SMM LIP §22.44.1950.A.3.f). There are two types of fees based on type of impact: (Type 1) acreage of all hardscape impact + irrigated landscape impact + offsite brush clearance impact, and (Type 2) all on-site non-irrigated fuel modification area. For this project, Habitat Impact Fees for impacts related to fuel modification activities are provided in **Table 4-3, Fee for Impact to Sensitive Habitat from Fuel Modification**.

Table 4-3
Fee for Impact to Sensitive Habitat from Fuel Modification

Habitat Category [1]	Fee Type [1]	Acres Impacted [2]	Fee Amount
H2	Fee type 1, $15,500 per acre	0.06	$930
H2	Fee type 2, $3,900 per acre	0.83	$3,237
	Total	**0.83**	**$4,167**

[1] Source: Santa Monica Mountains, Local Coastal Program, Local Implementation Program, Area-Specific Development Standards, Section 22.44.1950 Mitigation.
[2] Calculations by County of Los Angeles, Department of Regional Planning, January 12, 2021 and March 25, 2021.

As shown in Table 4-2, the effect of fuel modification on H2 Habitat, which consists of birchleaf mountain mahogany chaparral, requires payment of a fee into the Resource Conservation Program established by the SMM LIP. Ongoing maintenance related to the up to 200-foot fuel modification zone would include removal of non-native invasive species and trimming/ thinning of trees and brush. Fuel modification zone management would initially focus on the removal and control of plant species included on the Los Angeles County Fire Undesirable Non-Native Species List (County 2011) and the County Plants to Avoid in the Santa Monica Mountains list (County 2012). Non-native species present within the birchleaf mountain mahogany chaparral vegetation

community include wattle and Spanish broom. Native vegetation removal would be limited to the minimum amount necessary to achieve LA County Fire Department requirements for plant cover in fuel modification zones.

Indirect impacts to native vegetation communities and land covers may occur and could include recruitment of non-native species in newly cleared areas associated with fuel modification activities. Permanent direct impacts to native trees due to project build out are analyzed in response to Checklist Question 4.e. Disturbed land within the fuel modification zone would be part of the property landscape and subject to Los Angeles County landscaping standards. Long-term direct impacts to vegetation communities through fuel modification would be minimized with implementation of MM BIO-4 and MM BIO-5 because non-native and invasive plant species would be removed from the H2 habitat and the currently cleared portion of fuel modification Zone C would be designed to mimic natural vegetation (i.e., revegetation with native species). Therefore, compliance with SMM LCP requirements for the payment of sensitive habitat impact fees, and mitigation measures requiring non-native and invasive plant species removal and revegetation (MM BIO-4 and MM BIO-5), would reduce the effect of the project on sensitive natural communities to less than significant with mitigation incorporated.

Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. Section 404 of the Clean Water Act defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." For the CA Coastal Zone, wetlands to be protected are defined in the CA Code of Regulations Title 14 §13577, and may include non-jurisdictional areas for CDFW and Federal agencies. Two ephemeral waterway features are present immediately adjacent to the project site. As currently designed, the project would not directly impact these waterway features based on an assessment of bed and bank indicators during the October 2016 site visit; however, there is potential for non-native species control and fuel modification activities to affect these features, which may result in impacts to water quality.

The potential impacts related to non- native species control and fuel modification may include the placement of fill material and non-native plants within the non-jurisdictional drainages. Fuel modification involving clearance or thinning of naturally occurring native and non-native vegetation would be conducted per the requirements of the Los Angeles County Fire Department (LACoFD), which typically includes up to 200 feet from habitable structures. LACoFD typically only requires removal of dead wood and debris within jurisdictional riparian habitat. The CDFW determined in 2017 that the drainage courses onsite were not jurisdictional for CDFW. Due to characteristics such as-habitat consisting of vegetation normally associated with riparian conditions, topography including bed and banks, and culverts of 1-ft. bore or larger at each end, the project will treat the ornamental drainage area as a wetland, remove invasive vegetation and replant with natives. This will improve habitat and diminish pollution of invasive plant propagules downstream. Methods for

replacement will minimally impact the drainage with debris. Therefore, potential impacts of non-native species removal coupled with planned compensating native species planting would make the impact less than significant.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐

Less Than Significant Impact. The habitat adjacent to the project site is contiguous to the south and southwest; however, to the north, east, and west, privately owned parcels along Thousand Peaks Road, Dry Canyon Cold Creek Road, and Mulholland Highway fragment native habitat. Although habitat is fragmented by developed parcels, the relatively small area and low density of these properties does not appear to comprise a significant barrier to wildlife movement between large areas of contiguous habitat within the Santa Monica Mountains. The roads noted above experience relatively low amounts of vehicular traffic and constitute a minor wildlife crossing. Existing culverts immediately east of the subject parcel and project site are approximately 24- to 36-inches in diameter. Based on the Biological Assessment, the culvert inlets appeared to be suitable for small wildlife to utilize, though larger wildlife species are not expected to use these structures during movement or migration between habitat patches. The culvert outlets are off-site on private property and were not assessed.

Although no candidate, sensitive or special status wildlife species are known to exist within the project site, there is a potential for migratory birds to nest within the on-site and adjacent trees, including those slated for removal. Destroying active nests, eggs, and young is illegal under California Fish and Game Code. Implementation of MM BIO-7 would reduce impacts to less than significant by requiring a pre-construction nesting bird survey if project activities are conducted during the nesting bird season (typically February 1 to August 31). If project activities are conducted outside the nesting bird season, the potential impact and pre-construction nesting bird survey requirement can be avoided.

Fencing currently surrounding the project site consists of a vertical steel bar design approximately 6-feet in height and some concrete masonry wall. The fencing is located entirely within H3-habitat; but the fence does not meet the definition of "wildlife permeable" in the Santa Monica Mountains SMM LIP. The ERB recommended that fencing be changed to comply with SMM LIP code to enable wildlife transit across natural areas remaining in the subdivision of the project.

To comply with the standards included in the Santa Monica Mountains LCP/ LIP, the Landscape Plan provided in Appendix C shows that the project would remove the existing 6-foot high iron fence along the project boundary, and install a 4-foot high animal-permeable fence along the north and south sides of the project site, with 8-foot wide gaps in the northeast and southeast ends of the fencing that would allow wildlife passage and retain habitat connectivity. Therefore, impacts to wildlife corridors and habitat connectivity would be less than significant with the proposed fence modification. Mitigation Measure **BIO-9** requires the fencing modification to be implemented to ensure impacts would be less than significant with mitigation.

BIO-9 Perimeter fencing of the project shall be modified near the southwest corner and along the south of the development area by installing wildlife-permeable fencing for animals such as deer to transit from Zone C of the west neighbor's property and into the birchleaf mahogany chaparral of Zone C on the project's property. Wildlife shall additionally be able to transit across open, landscaped parts of the project to use the drainage along the east side of the project property. Gaps shall also be created in fencing along the east drainage feature to accommodate this. A plan for wildlife-permeable fencing is shown in Appendix C on Landscape sheet L-1.3.

e) Convert oak woodlands (as defined by the state, oak woodlands are oak stands with greater than 10% canopy cover with oaks at least 5 inch in diameter measured at 4.5 feet above mean natural grade) or other unique native woodlands (juniper, Joshua, southern California black walnut, etc.)?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. The building footprint avoids impacts to existing native habitat; however, according to the project's Mitigation And Encroached Tree Plan & Annual Report (September 2021), the project site contains 109 trees comprised of 33 protected trees and 76 non-protected trees that meet the minimum size criteria identified by the LUP. The 33 protected trees are comprised of 7 coast live oaks and 26 western cottonwood. The remaining 76 trees do not meet the minimum size criteria identified by the LUP. Overall, 62 trees will be retained on site, 31 will require removal (including 3 dead trees), and 16 trees will be encroached upon to accommodate project construction. Of the 31 tree removals; 17 are regulated and will require a 10:1 mitigation rate. Of the 16 encroached trees, 5 are regulated, which require mitigation. Two of the regulated encroached trees have greater than 30 percent encroachment and will require a 10:1 mitigation rate. Three of the regulated encroached trees have less than 10 percent encroachment and will require a 5:1 mitigation rate. Based on the LUP native tree protection policy, 205 native trees are required as mitigation for the anticipated protected tree impacts. Individual tree impacts can be seen in Appendix E-2.

A total of 28 native tree seedlings that were identified and inventoried outside of the project disturbance limits would be retained in place which would reduce the required number of new plantings to 177 trees for mitigation. Due to site constraints, such as fuel modification zone requirements, the total number of mitigation trees that can be accommodated on site is 48 trees. The locations and species for these onsite mitigation trees are shown in Figure 4 and also the Landscape Plan provided in Appendix C. To meet the total mitigation requirements, the Mitigation And Encroached Tree Plan & Annual Report determined that the project would need to provide an additional 129 mitigation trees at off-site mitigation planting locations as the total mitigation requirements cannot be met onsite. As discussed in the Project Description, a Conceptual Native Tree Replacement Plan has been prepared by the TreePeople Land Trust ("TPLT") to establish 168 native trees in the Cold Creek Valley Preserve, to be funded by the project. The 168 offsite tree plantings funded by the project would include 39 more trees (30 percent more) than the 129 additional mitigation replacement trees required by the LUP, as a buffer in the event of replacement

tree mortality. The Conceptual Native Tree Replacement Plan, dated September 16, 2021, is provided in **Appendix E-3**, and describes the location and number of native trees that would be established offsite as mitigation for project impacts.

Implementation of **MM BIO-10** requires mitigation for removals of native trees through a combination of on- and off-site planting as approved by the County, and **MM BIO-11** requires protection of encroached trees. Implementation of MM BIO-10 and BIO-11 would ensure impacts to native trees would be less than significant with mitigation.

Mitigation Measure

BIO-10 **Native Tree Replacement Planting Program.** Prior to the issuance of a grading permit, the County Department of Regional Planning shall receive and approve a Native Tree Replacement Planting Program that meets the requirements of the Santa Monica Mountains Local Coastal Program and Local Implementation Program (LCP and LIP) Section 22.44.1940.K.1. The project shall provide on-site native tree replacement, off-site native tree planting at a County approved location, or off-site native tree planting through a conservation organization to satisfy relevant mitigation ratios established in the Santa Monica Mountains LCP and LIP for native tree removal or encroachment associated with the project. Native tree impact and replacement requirements shall be included in the project design plans, once finalized. Additional mitigation trees shall be provided offsite in the Malibu Creek Watershed on conserved land managed by an agency with previous experience managing natural lands for conservation purposes. Recommended native replacement tree species and locations are included in the landscape plans prepared by Gaudet Design Group dated September 7, 2021, and the Conceptual Native Tree Replacement Plan prepared by the TreePeople Land Trust ("TPLT") dated September 16, 2021, for onsite and offsite plantings, respectively.

BIO-11 **Native Tree Encroachment Protection and Monitoring.** Prior to grading disturbance or tree removals, native trees on or immediately adjacent to the project site development area to be encroached and/or preserved shall be protected in compliance with the LUP native tree protection policy CO-100 as described in the 24600 Thousand Peaks Road Calabasas, California R2014-03698 Mitigation And Encroached Tree Plan & Annual Report (September 2021). Native tree protections include but are not limited to provision of protective fencing and signage, and instructing workers on the necessity of preventing damage to protected trees during construction, as well as post-construction monitoring and reporting on the condition of all trees impacted during construction for 2 years following completion of construction by an arborist meeting applicable certification requirements of the County.

f) Conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas (L.A. County Code, Title 12, Ch. 12.36), the Los Angeles County Oak Tree Ordinance (L.A. County Code, Title 22, Ch. 22.174), the Significant Ecological Areas (SEAs) (L.A. County Code, Title 22, Ch. 102), Specific Plans (L.A. County Code, Title 22, Ch. 22.46), Community Standards Districts (L.A. County Code, Title 22, Ch. 22.300 et seq.), and/or Coastal Resource Areas (L.A. County General Plan, Figure 9.3)?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. According to the County General Plan SEA and Coastal Resource Policy Area Map, the site is located in the Santa Monica Mountains Coastal Resource Area. In the Coastal Zone segment of the Santa Monica Mountains, sensitive biological resources are designated as SERAs by the SMM LCP. As discussed in response to Checklist Question 4.b, direct impacts associated with implementation of a 200-foot fuel modification zone would result in impacts to 2.71-acres of ornamental landscape in fuel modification zone Zones A, B, and C, and 0.33-acre of birchleaf mountain mahogany chaparral in fuel modification Zone C. Birchleaf mountain mahogany chaparral within the project site is designated as SERA H2 by the Santa Monica Mountains LCP and LUP. Implementation of MM BIO-1 through BIO-4, which require demarcation of work areas, non-native plant species removal, revegetation of fuel modifications zones B and C, and special-status plant species surveys, would reduce impacts related to local biological resource protection policies to less than significant with mitigation incorporated.

g) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved state, regional, or local habitat conservation plan?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. Within Los Angeles County, local habitat conservation plans are included as part of Local Coastal Programs as well as the SEA program. The Santa Monica Mountains LCP/ LUP details goals specific to natural resource management and protection. Specifically, the Conservation and Open Space Element outlines the goals included in the Santa Monica Mountains LCP/ LUP as well as the policies to be implemented by LA County in support of each goal. Santa Monica Mountains LCP/ LUP goals pertaining to the proposed project are included below.

> Goal CO-1: Maintain and restore biological productivity and coastal water quality appropriate to maintain optimum populations of marine and freshwater organisms and to protect human health.

Goal CO-2: Sensitive Environmental Resource Areas shall be protected against any significant disruption of habitat values. Development in areas adjacent to Sensitive Environmental Resource Areas shall be sited and designed to prevent impacts which would significantly degrade these areas and shall be compatible with the continuance of the habitat.

Goal CO-3: Retain the natural topographic character and vegetation of hillsides to the maximum extent possible and ensure that all development in such areas is sited and designed to provide maximum protection to public health and safety, coastal waters, public scenic views, and sensitive habitats.

Goal CO-4: An integrated open space system that preserves valuable natural resources and provides a variety of recreational opportunities, within a program coordinated among federal, State, local, and non-profit agencies.

Goal CO-5: Retain the scenic beauty of the plan area by considering and protecting its scenic and visual qualities as a resource of public importance.

Goal CO-6: Provide maximum public access and recreational opportunities for all people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resources from overuse.

Implementation of mitigation measures BIO-1 through BIO-10 would reduce impacts related to conflicts with applicable habitat conservation plans to less than significant by requiring non-native plant species removal, revegetation of fuel modification zones B and C, clear habitat delineations, and special-status plant and wildlife species surveys prior to construction.

5. CULTURAL RESOURCES

The following impact analysis is based on a Phase I(a) Cultural Resource Assessment for the 24600 Thousand Peaks Road Project (Cultural Report) prepared by Envicom Corporation dated January 12, 2017. This report is attached in **Appendix F**.

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines § 15064.5?	☐	☐	☐	☒

No Impact. The project footprint is a previously graded building pad with no historical resources. There are no national, state, or locally-designated historic resources on the project site or in the immediate vicinity of the neighborhood setting. As concluded in the Phase I Cultural Resource Assessment (Cultural Report) in **Appendix F**, the examination of historic maps was also negative for older historic cultural resources. Therefore, the project would have no impact to causing a substantial adverse change in the significance of a historical resource as defined in the CEQA Guidelines Section 15064.5.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5?	☐	☐	☒	☐

Less Than Significant Impact. The Cultural Report included a cultural resource record search by the South Central Coastal Information Center (SCCIC) and a Native American record search conducted by the California Native American Heritage Commission (NAHC). Additional databases examined during the Phase I Assessment included historic regional maps, historic USGS maps, and historic Google Earth images. The results of the SCCIC and the NAHC record searches were negative for cultural resources within, adjacent, or near to the subject property, nor was the surrounding area found to be sensitive for cultural resources. Envicom archaeologists surveyed the property area on December 20, 2017, and the surface survey was negative for prehistoric or older cultural resources within the subject property. Therefore, the project would have less than significant impact on potentially present archaeological resources.

Given these conclusions, the Cultural Report did not recommend monitoring by an archaeological or Native American monitor due to the lack of sensitivity for cultural resources and the extensive previously impacted and graded state of the landscape. However, given that the inadvertent discovery of archaeological resources is always a possibility during ground disturbances; regulatory compliance with California Penal Code Section 622.5 would address these findings as detailed in the project-specific Cultural Report in Appendix F.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ☐ ☐ ☒ ☐

Less Than Significant Impact. The Cultural Report included a paleontological assessment for paleontological resources. This assessment involved examination of the Malibu Beach geological map for the project area and found that the entire project area is within the Conejo Valley volcanic rock unit (tcvb). This type of volcanic rock unit is known for basalt and breccias, which are weak in resisting erosion. Due to this weakness, much of the surface consists of weathered volcanic material. The project property is, therefore, located within an area that should be considered not sensitive for paleontological fossil resources. The project would also be constructed on a previously graded pad consisting of artificial fill soil unlikely to contain paleontological resources. Therefore, the project would have a less than significant impact on known paleontological resources or unique geologic features.

Due to the primary volcanic nature of the underlying bedrock, the Cultural Report did not recommend paleontological monitoring. However, the inadvertent discovery of paleontological resources (fossils) is always a possibility during ground disturbances. If buried materials of potential paleontological significance are inadvertently discovered within an undisturbed context during any earth-moving operation associated with the proposed project, then the following recommended guidance would address these findings as detailed in the project-specific Cultural Report in Appendix F.

d) Disturb any human remains, including those interred outside of dedicated cemeteries? ☐ ☐ ☒ ☐

Less Than Significant Impact. The site is not located on, or in the vicinity of, a dedicated cemetery. The site has previously been graded for a building pad; therefore, any human remains would have likely been encountered during the initial grading. As noted in response to Checklist Question 5.b, the results of the SCCIC and the NAHC record searches were negative for cultural resources within, adjacent, or near to the project property, nor was the surrounding area found to be sensitive for cultural resources. Therefore, the project would have a less than significant impact on known human remains.

However, the project would involve grading and excavation for construction of the basement so there is a very low potential that unknown human remains could be encountered. Given that the inadvertent discovery of human remains is always a possibility during ground disturbances; regulatory compliance with California Health and Safety Code Section 7050.5 and Public Resources Code (PRC) Section 5097.98 would address these findings as detailed in the project-specific Cultural Report in Appendix F.

6. ENERGY

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

Less Than Significant Impact.

Construction

During construction, the project would use heavy-duty equipment associated with grading, paving, architectural coating and building construction. Construction equipment used on the site may include excavators, graders, dozers, scrapers, air compressors, cranes, forklifts, generators, welders, rollers, pavers, and tractors equipped with front end loaders and backhoes, the majority of which would be diesel-fueled. Construction also involves off-site vehicle use for delivery of construction materials, as well as for construction worker transportation.

The California Code of Regulations (CCR), requires drivers of diesel-fueled commercial motor vehicles with gross vehicle weight ratings greater than 10,000 pounds not to idle the vehicle's primary diesel engine longer than five minutes at any location.[1] Compliance with this regulation would reduce the potential for inefficient use of, or unnecessary consumption of energy from diesel fuel.

According to carbon dioxide (CO_2) emission factors for transportation fuels published by the U.S. Energy Information Administration,[2] burning one gallon of diesel fuel generates approximately 22.4 pounds of CO_2 and burning one gallon of petroleum-based gasoline produces approximately 19.6 pounds of CO_2. Based on these emissions factors and the Project's total construction-related CO2 emissions, Project consumption of diesel and petroleum-based gasoline during construction was calculated and shown in **Table 6-1, Total Fuel Consumption During Project Construction**. The calculations are shown in the Construction Fuel Consumption Worksheet provided in **Appendix D.**

Table 6-1
Total Fuel Consumption During Project Construction

Energy Type	Total MT CO2	Total CO2 pounds [a]	CO2 emission factors	Total Gallons Consumed
Total Diesel	158.74	349,962	22.4	**15,623**
Total Gasoline	1.3	2,866	19.6	**146**

Source: CalEEMod Outputs, 24600 Thousand Peaks Road Project. Fuel Consumption by Construction Phase Worksheet, Appendix D.
[a] 1 MT = 2,204.62 lbs. (approx.)

[1] California Code of Regulations, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.
[2] U.S. Energy Information Administration, Carbon Dioxide Emissions Coefficients, Accessed on December 8, 2020 at: https://www.eia.gov/environment/emissions/co2_vol_mass.php.

As shown in Table 6-1, based on the U.S. Energy Information Administration fuel consumption factors, and the project's estimated total CO_2 emissions presented in the CalEEMod output sheets, it is estimated that the project's construction activities would consume a total of approximately 15,623 gallons of diesel fuel and approximately 146 gallons of gasoline. In 2015, 15.1 billion gallons of gasoline were sold in California,[3] and in 2015, 4.2 billion gallons of diesel, including off-road diesel, was sold in California.[4] As such, the use of construction equipment, transportation of materials, and workers necessary for project construction would not represent a substantial proportion of annual gasoline or diesel fuel use in California.

Adherence to CCR Section 2485 and California Air Resources Board anti-idling regulations for off-road diesel-fueled fleets would reduce the potential for wasteful use of energy by construction equipment. Due to the temporary duration of construction, and the necessity of fuel consumption inherent in construction projects, fuel consumption would not be excessive or substantial with respect to fuel supplies. The energy demands associated with fuel consumption during construction would be typical of projects of this size and would not necessitate additional energy facilities or distribution infrastructure or cause wasteful, inefficient or unnecessary consumption of energy. Therefore, project construction would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, impacts would be less than significant.

Operations

The proposed project would be provided electricity by Southern California Edison (SCE). As estimated by CalEEMod, the proposed project's total electricity demand would be approximately 8,018.5 kWh/year. SCE provides electricity service to more than 15 million people in a 50,000 square-mile area of central, coastal and Southern California.[5] In 2019, SCE provided approximately 80,913 millions of kWh of electricity throughout the service area.[6] The Project's total electricity demand would represent approximately 0.000009 percent of the electricity supplied by SCE in 2019, which would be a negligible portion of overall supplies provided by SCE.

The proposed Project would be provided natural gas by the Southern California Gas Company (SoCalGas). As estimated by CalEEMod, the proposed Project's total gas demand would be approximately 25,804 kBTU/year. In 2019, SoCalGas provided approximately 5,424.7 therms or 542,341 million kBTU throughout the service area.[7] The Project's total natural gas demand would represent approximately 0.00005 percent of the natural gas supplied by SoCalGas in 2019, which would be a negligible portion of overall supplies provided by SoCalGas.

As a matter of regulatory compliance, the project would be required to comply with California Green building codes and Los Angeles County Green Building Standards in effect at the time of permit issuance. Energy-efficient design features shown on the project Architectural Plans include sealing building openings, Energy Star rated bathroom fans, and all hot water pipes insulated with proper insulation

[3] California Energy Commission, California Gasoline Data, Facts, and Statistics, Accessed on December 8, 2020 at: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics.

[4] California Energy Commission, Diesel Data, Facts and Statistics, Accessed on December 8, 2020 at: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics.

[5] Southern California Edison, Our Service Territory, Accessed on December 8, 2020 at: https://www.sce.com/about-us/who-we-are/leadership/our-service-territory.

[6] California Energy Commission, Electricity Consumption By Entity, Accessed on December 8, 2020 at: http://www.ecdms.energy.ca.gov/elecbyutil.aspx.

[7] California Energy Commission, Gas Consumption By Entity, Accessed on December 8, 2020 at http://www.ecdms.energy.ca.gov/gasbyutil.aspx.

densities. Therefore, as project construction would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, impacts would be less than significant.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Less Than Significant Impact. The proposed project design, one single-family home, represents a minimal amount of the County's energy demand. As a matter of regulatory compliance, the project would be required to comply with the County Green Building Standards Code, Green Building Standards Code (CALGreen Code or CGBSC) of Title 24 of the California Code of Regulations, and the State of California Green Code, in effect at the time of project approval. These standards require applicable projects to comply with energy saving building standards. CALGreen's mandatory measures establish a minimum for green construction practices. Project specific CGBSC compliance measures are noted on page A1.3 of the project architectural plans provided in Appendix A, including Energy Star rated exhaust fans. Given the project incorporates the efficient energy consumption measures required of by the County Green Building Standards Code and CALGreen, the project would not involve the inefficient use of energy resources and would result in a less than significant impact on energy efficiency.

7. GEOLOGY AND SOILS

The following impact analysis is based on the Geotechnical Engineering Report (Geotechnical Report) prepared by CalWest Geotechnical Consulting Engineers dated May 14, 2014, and the Report of Update Engineering Geologic Study (Geologic Study) prepared by Land Phases Inc. dated February 29, 2016, both provided in **Appendix G**. As noted in the Geologic Study, the geologic units (i.e. earth materials) underlying the project area of the subject property consist of certified compacted fill over bedrock.

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault trace? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐

Less Than Significant Impact. The project is not located within an Earthquake Fault Zone and is not underlain by active fault traces as shown on the most recent Revised Official Map of the Malibu Beach Quadrangle released August 16, 2007. As concluded in the Geotechnical Report, the site is not within an Alquist-Priolo Earthquake Fault Zone. As noted in the Geologic Study regional geologic mapping by Dibblee (1993) and Yerkes (1980) indicate that a northwest/southeast-trending fault traverses the subject property to the south of the previously graded building pad. Based on the findings of the Geologic Study, faults are common in this area of the Santa Monica Mountains and this fault is not interpreted to be a potentially active or active tectonic feature. Therefore, the project would have a less than significant impact with regard to exposing people or structures to potential substantial adverse effects from a 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.

ii) Strong seismic ground shaking?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated - The site is not on an Alquist-Priolo Earthquake Fault Zone as shown on the Malibu Beach Quadrangle Map of Earthquake Zones of Required Investigation. As noted in the Geotechnical Report, although the subject site is not located within any California Earthquake Fault Zone, the site, as all of the Southern California area,

is located in a seismically active region and would be subject to moderate to strong ground shaking should any of the many active Southern California faults produce an earthquake. Should a major earthquake occur with an epicenter location close to the subject site, ground shaking at the site would undoubtedly be severe, as it would for other properties in the general vicinity. Lateral forces due to earthquake loading may be calculated utilizing the formulas presented in the 2013 edition of the California Building Code (CBC). As a regulatory requirement, the project would have to obtain a building permit from the County Department of Public Works to ensure the project meets current building standards to withstand seismic ground shaking. Implementation of mitigation measure GEO-1 ensures the project structural engineer adheres to the seismic parameters identified in the Geotechnical Report and would reduce the impact related to strong seismic ground shaking to less than significant.

Mitigation Measure

GEO-1 To reduce potential seismic ground shaking impacts at the project site, the project structural engineer shall ratify to the seismic design parameters identified in the project-specific Geotechnical Report prepared by CalWest Geotechnical Consulting Engineers dated May 14, 2014. If a more recent Geotechnical Report is prepared, the recommendations of the most recent geotechnical report shall supersede to the satisfaction of the Director of Public Works.

Through regulatory compliance with the latest edition of the CBC and implementation of mitigation measure GEO-1, the project would have a less than significant impact with mitigation incorporated with regard to exposing people or structures to potential substantial adverse effects from strong seismic ground shaking.

iii) Seismic-related ground failure, including liquefaction and lateral spreading? ☐ ☐ ☒ ☐

Less Than Significant Impact. According to the State of California Division of Mines and Geology (CDMG), the subject site is not in an area subject to liquefaction. In addition, the project is not located within a Liquefaction Zone as shown on the most recent California Geological Survey Revised Official Map of the Malibu Beach Quadrangle released August 16, 2007. As concluded in the Geotechnical Report, under the influence of severe ground shaking, the materials underlying the site in the areas of the proposed development, based upon the known consistency of the earth materials and depth to groundwater, are not considered prone to liquefaction. In addition, the Geotechnical Report does not identify other ground failure or lateral spreading concerns for the site, and the project would be reviewed by the County for compliance with the CBC. Therefore, the project would have a less than significant impact regarding seismic-related ground failure, including liquefaction and lateral spreading.

iv) Landslides? ☐ ☒ ☐ ☐

Less Than Significant Impact with Mitigation Incorporated. The Santa Monica Mountains Local Coastal Program identifies the southern, upward sloping portion of the subject property immediately south of the previously graded building pad and existing cinder block wall as a Landslide Hazard area. The proposed residence and related project features would be located north of this existing wall on

the flat, previously graded building pad. Prior to construction, the project would be required to comply with the building standards and receive a grading permit from the County Department of Public Works Division of Building and Safety. According to the Geotechnical Report and Geologic Study, the proposed development would be safe against hazard from landslide and that the proposed development would not have an adverse influence on the stability of the subject site or immediate vicinity, provided the geotechnical and geologic recommendations are made part of the plans and are implemented during construction. Therefore, mitigation measure GEO-2 requires the project to follow the recommendations of the geotechnical engineer, which would reduce this impact to less than significant.

Mitigation Measure

GEO-2 To reduce potential geologic hazard impacts at the project site, the project proponent and contractors shall incorporate the recommendations provided in the Geotechnical Report by CalWest Geotechnical, including those pertaining to the structure and grading, and the Geology Report into the plans and shall implement these recommendations during construction. If a more recent Geotechnical Engineering Report or Engineering Geologic Study is prepared, the recommendations of the most recent report shall supersede to the satisfaction of the Director of Public Works.

b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less Than Significant Impact. The proposed residence would be built on a previously graded pad involving limited re-grading. Soil movement inherently causes erosion potential and requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) as a regulatory requirement. The SWPPP would include BMPs to reduce soil erosion, such as the placement of straw wattles near storm drains and silt fencing. Given the project site was previously graded, there would not be substantial erosion due to the limited re-grading. The project will also follow standard grading and construction practices as a grading permit will be needed. The Santa Monica Mountains LIP prohibits grading during the rainy season, defined as October 15 of any year through April 15 of the subsequent year, unless otherwise permitted pursuant to other provisions of the LIP (Section 22.44.1260.F). During occupancy, the project would not contribute to a substantial increase in soil erosion as the project site would be vegetated, securing soil and prevent substantial soil erosion. Therefore, the project would result in a less than significant amount of soil erosion or the loss of topsoil.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. CalWest Geotechnical concluded the project would be safe against hazard from landslide, settlement or slippage, and would not have an adverse influence on the stability of the subject site or immediate vicinity, provided the geotechnical recommendations are made part of the plans and are implemented during construction. These recommendations include soil stability safety features such as the placement of sub-drains below all

canyon fills, in all fill slope keyways, and behind all retaining walls. As the subject property contains a landslide hazard area to the south of the previously graded building pad, the project will incorporate recommendations provided in the geotechnical report by CalWest Geotechnical, as required by MM GEO-1 through GEO-2. With implementation of the recommendations in the Geotechnical Report, as required by mitigation measures GEO-1 and GEO-2, the project will have a less than significant impact with mitigation incorporated.

Mitigation Measures

The project shall comply with mitigation measures GEO-1 through GEO-2 above.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. The project site is located mainly on the Sumiwawa-Hipuk-Rock outcrop complex. Sumiwawa consists mainly of loamy sand that drains well and has a low shrink-swell potential (United States Department of Agriculture Natural Resources Conservation Service). Hipuk consists of sandy loam and some clay that has a moderate shrink-swell potential. The Geotechnical Report concluded that, based on the anticipated foundation loading and corresponding foundation design, differential settlement is not expected to exceed a ¼ inch, in 20 feet, the maximum settlement is not expected to exceed 1/2 inch. The majority of the settlement, if any, should occur during the construction phase, with post construction settlement being within acceptable ranges for the proposed type of structure. The Geotechnical Report contains building foundation setback requirements with which the project would comply as required by GEO-1 through GEO-2. The project would have a less than significant impact with mitigation incorporated.

Mitigation Measure

The project shall comply with Mitigation Measures GEO-1 through GEO-2 above.

e) Have soils incapable of adequately supporting the use of onsite wastewater treatment systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

Less Than Significant Impact. The project is expected to have an onsite wastewater treatment system (OWTS). The Percolation Testing Report dated February 20, 1989 performed tests and concluded that the soils on site would be able to accommodate an OWTS. The project would be designed in accordance with requirements from the County of Los Angeles Department of Public Health and the Uniform Plumbing Code. Therefore, the project will have a less than significant impact to having soils incapable of adequately supporting OWTS.

f) Conflict with the Hillside Management Area Ordinance (L.A. County Code, Title 22, Ch.22.104)?	☐	☐	☒	☐

Less Than Significant Impact. As the subject property contains natural slopes exceeding 25% grade, the project is subject to the County HMA Ordinance. By locating the proposed residence on a level, previously graded building pad north of the sloped hillside to the south, the project design is consistent with the objective of the HMA Ordinance which seeks to preserve significant natural features in hillside areas. The project design must comply with the Hillside Management Area Ordinance. Therefore, this project would have a less than significant impact.

Sources:

- California Geological Survey, Earthquake Zones of Required Investigation Malibu Beach Quadrangle, Accessed on October 11, 2017 at: http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/MALIBU_BEACH_EZRIM.pdf.
- Los Angeles County, Department of Regional Planning, Hillside Management Area Ordinance, November 5, 2015.
- United States Department of Agriculture, Natural Resources Conservation Service, Soil Data Explorer, Soil Properties and Qualities, Accessed on October 11, 2017 at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.
- United States Department of Agriculture, Natural Resources Conservation Service, Soil Survey for Santa Monica Mountains National Recreation Area, California, Accessed on October 11, 2017 at: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA692/0/Santa_Monica_NRA.pdf.

8. GREENHOUSE GAS EMISSIONS

The following impact analysis is based on the annual CalEEMod outputs prepared by Envicom Corporation dated December 7, 2020, provided in Appendix D.

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Generate greenhouse gas (GHGs) emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Less Than Significant Impact. Greenhouse gas (GHG) emissions from human activity play a role in global climate change, including global warming. Several gasses qualify as GHG. Each differs in its mass and ability to trap heat in the atmosphere. Such differences are based on the ability of each gas to directly absorb radiation, the length of time it remains in the atmosphere, chemical transformations that produce other GHGs, or by affecting atmospheric processes. Therefore, each has its own global warming potential (GWP) factor. Of the GHGs, CO2 is the most common. To provide a single unit of measurement, GHG emissions are commonly expressed in terms of carbon dioxide equivalents (CO2e), where CO2e is calculated by the quantity of each GHG multiplied by its associated global warming potential (GWP) factor.

On December 5, 2008, the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO2 equivalent/year. In September 2010, the Working Group released revisions recommending a threshold of 3,000 MT CO2e for all land use type projects. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of this recommended threshold are presumed to trigger a requirement for enhanced GHG reduction.

Construction GHG Emissions

During construction, equipment and vehicles would generate GHGs during ground disturbance, paving, and building. Due to the temporary nature of construction and the relatively small construction site size of approximately 0.81-acre, construction would not be anticipated to generate GHG emissions that would have a significant impact on the environment or a cumulatively considerable contribution to global climate change. The project GHG analysis calculated the amount of GHG emissions construction activity would generate using the CalEEMod computer model developed by the California Air Districts. Construction would generate the annual CO2e emissions provided in **Table 8-1, Construction GHG Emissions**. SCAQMD GHG emissions policy for construction activities is to amortize emissions over a 30-year lifetime. Therefore, the amortized level is also provided.

Table 8-1
Construction GHG Emissions

Year	CO_2e (Metric Tons/year)
2021 and 2022 Total	167.20
Amortized	5.57
Source: Annual CalEEMod outputs dated December 7, 2020, Appendix D.	

As shown in Table 8-1, amortized construction GHG emissions would be 5.57 MT/year, far below the 3,000 MT/year threshold of significance. Therefore, GHG impacts from construction would be less-than-significant.

Operational GHG Emissions

Operations of the proposed residence would generate GHG emissions from sources such as vehicle use and heating, ventilation, and air conditioning equipment associated with residential development. Total operational emissions plus the annualized construction emissions for the project are identified in **Table 8-2, Operational GHG Emissions**.

Table 8-2
Operational GHG Emissions

Source	CO_2e (Metric Tons/year)
Area Sources	0.26
Energy Utilization	3.95
Mobile Source	19.18
Solid Waste Generation	0.62
Water Consumption	0.51
Construction	5.57
Total	**30.1**
Guideline Threshold	3,000
Exceeds Threshold?	**No**
Source: Annual CalEEMod outputs provided in Appendix B, dated September 29, 2020.	

As shown in Table 8-2, total project GHG emissions of 30.1 MT/year would be substantially below the proposed significance threshold of 3,000 MT suggested by the SCAQMD. Hence, project operations would not result in generation of a significant level of greenhouse gases. Therefore, the project generated GHG emissions for both construction and operations would have a less than significant impact.

b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ☐ ☐ ☒ ☐

Less Than Significant Impact. The Unincorporated Los Angeles County Community Climate Action Plan 2020 (CCAP), adopted in August 2015, aims to reduce the County's GHG emissions by at least 11 percent below 2010 levels by 2020 through implementation of five main strategy areas including green building and energy, land use and transportation, water conservation and wastewater, waste reduction,

reuse and recycling, and land conservation and tree planting. The activities involved with the construction and operation of this project do not conflict with the plans, policies, or regulations in place to reduce greenhouse gases as described in the CCAP. Furthermore, the proposed project, as one single-family residence, represents a very small portion of County development, and would not significantly contribute to regional GHG emissions. The project would have a less than significant impact in regard to a conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG.

9. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	*Potentially Significant Impact*	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Create a significant hazard to the public or the environment through the routine transport, storage, production, use, or disposal of hazardous materials?	☐	☐	☒	☐

Less Than Significant Impact. The construction of a single-family home would not involve the routine transport, storage, production, use, or disposal of large quantities of hazardous materials. The project would properly store small quantities of hazardous materials that are involved in the construction of a home, such as paints and solvents but would properly store such materials and only use them in quantities that would not create a public hazard. During operations, modest amounts of typical solvents and chemicals used for housekeeping, maintenance, or landscaping purposes would be transported to the site but would not create a significant hazard to the public or the environment. Therefore, the project will have a less than significant impact in regard to creating a significant hazard to the public or the environment through the routine transport, storage, production, use, or disposal of hazardous materials.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or waste into the environment?	☐	☐	☒	☐

Less Than Significant Impact. The project will not be handling or transporting significant amounts of hazardous materials during construction or occupancy. The project will properly store hazardous materials that are necessary to build a house, such as paint, but will properly store them in sufficiently small quantities to prevent a significant hazard to the public if they were released. Therefore, the project will have a less than significant impact in creating a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involved the release of hazardous materials or waste into the environment.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of sensitive land uses?	☐	☐	☒	☐

Less Than Significant Impact. The project involves construction of a single-family home that will not involve emission or handling of a significant amount of hazardous waste. Nearby sensitive uses would be other single-family homes. All wastes that the project would use will be stored in small enough

amounts to not create a hazard to nearby sensitive land uses. Therefore, the project will have a less than significant impact in regard to emitting hazardous wastes within one-quarter mile of sensitive land uses.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

No Impact. The project site has not been subject to the previous use of hazardous materials and is not on the list of hazardous materials sites compiled pursuant to Government Code § 65962.5 (the California Department of Toxic Substances Control Hazardous Waste and Substances Site List on EnviroStor). Therefore, the project would have no impact with regard to being located on a site included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, create a significant hazard to the public or the environment.

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

No Impact. The project is not within two miles of a public use airport and is not located within an airport land use plan. Therefore, the project would not result in a safety hazard associated with a public use airport or airport land use plan. The project would have no impact with regard to this issue.

f) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact. The project is not located along an emergency response plan route as designated in the County General Plan's Safety Element Disaster Routes Map and would not displace any emergency response infrastructure. Further, the project consists of only one single-family house, producing no significant impacts on local roads. Therefore, the project would have no impact to impairing implementation of an adopted emergency response plan or emergency evacuation plan.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving fires, because the project is located:

i) within a high fire hazard area with inadequate access?	☐	☐	☒	☐

Less Than Significant Impact. The project is located within a Very High Fire Hazard Severity Zone and would need to provide fuel modification and site access improvements to reduce the risk of loss, injury, or death involving fires. As required, Fuel Modification Plan (FM #6381) prepared by Gaudet Design Group dated January, 11, 2021, is provided in in Appendix C and subject to Los Angeles County Fire Department approval. Through approval of the Fuel Modification Plan, access improvements including a firelane in the driveway from Thousand Peaks Road, and ongoing maintenance pursuant to the terms therein specified, the project will have a less than significant impact in regard to exposing people or structures to a significant risk of loss, injury, or death involving fires within a Very High Fire Hazard Severity Zone.

ii) within an area with inadequate water and pressure to meet fire flow standards?	☐	☐	☒	☐

Less Than Significant Impact. As part of the County plan review process, the project will be required to complete an Information on Fire Flow Availability report prior to issuance of a Building Permit. The report is subject to review by the Los Angeles County Fire Department to ensure that there will be adequate water and pressure to meet fire flow standards. Therefore, the plan review process would verify the adequacy of water pressure to meet fire flow standards and the project would have a less than significant impact.

iii) within proximity to land uses that have the potential for dangerous fire hazard?	☐	☐	☒	☐

Less Than Significant Impact. As part of the County plan review process, the project will be required to complete an Information on Fire Flow Availability report for prior to the issuance of a Building Permit. The report is subject to review by the Los Angeles County Fire Department to ensure that there will be adequate water and pressure to meet fire flow standards. Therefore, the plan review process would verify the adequacy of water pressure to meet fire flow standards and the project would have a less than significant impact.

h) Does the proposed use constitute a potentially dangerous fire hazard?	☐	☐	☒	☐

Less Than Significant Impact. Construction activity could cause a fire hazard and would need to employ control mechanisms to protect against accidental ignition to reduce the likelihood of a potential fire hazard. During occupancy, the project would not involve the storage, use, or transportation of highly flammable chemicals and other combustible materials. As noted on the Cover Sheet of the project architectural plans, an automatic residential fire sprinkler system in accordance with National Fire Protection Association Standard 13D or Section R313.3 would be installed. Project design features and regulatory compliance, as noted in response to Checklist Question operations 9.h.i and 9.h.ii, above, would assure a less than significant fire hazard impact during operations. Therefore, the project would have a less than significant impact to constituting a potentially dangerous fire hazard.

10. HYDROLOGY AND WATER QUALITY

The following impact analysis is based on the Civil Plans prepared by Forma Engineering Inc., dated June 19, 2020, provided in Appendix B.

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐

Less Than Significant Impact. The project proposes an on-site wastewater treatment system (OWTS) in the southeastern portion of the graded pad to treat wastewater generated during operations. The septic system would be subject to permitting under California's Waste Discharge Requirements in effect in Region 4, the Los Angeles Regional Water Quality Control Board (RWQCB). Through the RWQCB permit process as well as County Department of Public Works review, the project's OWTS compliance with water quality standards would be assured.

To address runoff water quality during construction, the State Water Resources Control Board regulations require that new project developments having 1.0 acre or more of grading disturbance file for a Construction General Permit for Storm Water Discharge associated with construction and land disturbance. The project footprint would disturb less than an acre (approx. 0.81 acre), and therefore the project would not require such permit. The project applicant must develop and implement a Storm Water Pollution Prevention Plan (SWPPP), which will describe construction phase erosion and sediment control and pollution prevention BMPs specific to the project and site and consistent with the LACDPW Storm Water Pollution Prevention Plan (SWPPP) Preparation Manual.

To address runoff water quality during operations, the proposed project would submit to the County a Standard Urban Storm Water Mitigation Plan (SUSMP)/LID Plan to manage and treat stormwater runoff from the project. The SUSMP/LID plan will incorporate BMPs to ensure that potential water quality impacts during operations would be reduced to less than significant levels. The proposed project would also be required to comply with the requirements of the Low-Impact Development Ordinance to control and minimize potentially polluted runoff to obtain construction permits and certificates of occupancy. Compliance with these regulatory requirements would reduce the project impact to water quality standards or waste discharge requirements to less than significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ☐ ☐ ☒ ☐

Less Than Significant Impact. The project is located in the service area of the Las Virgenes Municipal Water District; therefore, the project would not rely on groundwater supplies. Groundwater recharge could potentially be reduced through the addition of impervious surfaces comprised of the residence and the garage (which will make up approximately 2% of the total site area), and driveway areas. Stormwater runoff would flow along a curb located along the southern edge of the proposed driveway access and connect to a new 10,000-gallon underground cistern and the stormwater collected in the cistern would be utilized for irrigation purposes onsite. The County Low Impact Development (LID) standards require design strategies that use naturalistic, on-site Best Management Practices to lessen the impacts of development on stormwater quality and quantity. The goal of LID is to mimic the undeveloped runoff conditions of the development site with the post-development conditions. Therefore, the project will have a less than significant impact to the depletion of groundwater supplies and would not substantially interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of a Federal 100-year flood hazard area or County Capital Flood floodplain; the alteration of the course of a stream or river; or through the addition of impervious surfaces, in a manner which would: ☐ ☐ ☒ ☐

(i) Result in substantial erosion or siltation on- or off-site? ☐ ☐ ☒ ☐

Less Than Significant Impact. The project site currently has a graded pad where the residence and garage would be constructed. The primary source of surface water in the project site is rainfall runoff from the slopes to the south of the project site. The runoff flows in the canyon bottom to the southern edge of the previously graded building pad at which point flows enter an existing concrete v- ditch which extends to the east of the property and enter an ornamental drainage feature that eventually flows into Cold Creek within the Malibu Creek watershed.

During construction, the project would implement Best Management Practices (BMP) as required by the County Department of Public Works Construction Site BMP Manual (August 2010). Operational runoff would be required to comply with the Municipal Separate Storm Sewer System National Pollutant Discharge Elimination System (NPDES) Permit, often referred to as the "MS4 Permit" to capture erosion or siltation that could occurs on- or off-site. Stormwater runoff would flow along a curb located along the southern edge of the proposed driveway access and connect toa curb located along the southern edge of existing area drains according to the Runoff Management Plan prepared by Forma Engineering dated June 19, 2020. The stormwater collected in the cistern

would be utilized for irrigation purposes onsite. Therefore, the project would not substantially alter the existing drainage pattern in a manner which would result in substantial erosion or siltation on- or off-site.

(ii) Substantially increase the rate, amount, or depth of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐

Less Than Significant Impact. As evaluated in response to Checklist Question 10.c, the proposed project would not substantially alter drainage pattern of the site or area. As drainage patterns and flows would not be substantially altered, a substantially increase the rate or amount of surface runoff would not occur in a manner which would result in flooding on- or off-site. Compliance with County LID standards would require design strategies to mimic the undeveloped runoff conditions of the development site with the post-development conditions to ensure the project would not increase the rate of surface runoff. In compliance with County LID standards, the Civil Plans in Appendix B provide a Runoff Management Plan including a Peak Flow Hydrologic Analysis (sheet C6); therefore, the impact would be less than significant.

(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

Less Than Significant Impact. During occupancy, the project would not create or contribute a new significant amount of runoff water and will not provide substantial additional sources of polluted runoff. As noted in response to Checklist Question 10.d, compliance with County LID standards would require design strategies to mimic the undeveloped runoff conditions of the development site with the post-development conditions to ensure the project would not increase the rate of surface runoff. During construction, the project would implement BMPs to reduce any impact to creating or contributing runoff water. Stormwater runoff would flow along a curb located along the southern edge of the proposed driveway access and connect to a new 10,000-gallon underground cistern and the stormwater collected in the cistern would be utilized for irrigation purposes onsite. The Civil Plans in Appendix B provide a Runoff Management Plan including a Peak Flow Hydrologic Analysis (sheet C6). Therefore, project design features and compliance with County LID standards and grading and building permit requirements would reduce the impact of site runoff on the existing stormwater drainage system to less than significant.

(iv) Impede or redirect flood flows which would expose existing housing or other insurable structures in a Federal 100-year flood hazard area or County Capital Flood floodplain to a significant risk of loss or damage involving flooding?	☐	☐	☐	☒

No Impact. According to County General Plan Figure 12.2, Flood Hazard Zones Policy Map, the project is not within a 100-year flood hazard area. According to the Santa Monica Mountains Local Coastal Program-NET, the project is not located in a Federal Emergency Management Agency flood zone. According to the County Department of Public Works Flood Zone Determination Website, the project site is not located in a County Floodplain. Therefore, the project would result in no impact regarding the exposure of housing in a Federal 100-year flood hazard area or County-designated floodplain.

d) Otherwise place structures in Federal 100-year flood hazard or County Capital Flood floodplain areas which would require additional flood proofing and flood insurance requirements?	☐	☐	☐	☒

No Impact. According to County General Plan Figure 12.2, Flood Hazard Zones Policy Map, the project is not within a 100-year flood hazard area. According to the Santa Monica Mountains Local Coastal Program-NET, the project is not located in a Federal Emergency Management Agency flood zone. Therefore, there is no impact to placing housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or within a floodway or floodplain.

e) Conflict with the Los Angeles County Low Impact Development Ordinance (L.A. County Code, Title 12, Ch. 12.84)?	☐	☐	☐	☒

No Impact. The project will be required to comply with the Los Angeles County Low Impact Development Ordinance which is intended to promote sustainability and improve the County's watersheds by preserving drainage paths and natural water supplies in order to "…retain, detain, store, change the timing of, or filter stormwater or runoff." According to the Existing Site Drainage Plan prepared by JAG Architects dated February 10, 2017 (Appendix A), operational runoff would flow along an above-ground drainage down the proposed driveway access and connect to an underground 10,000-gallon cistern to be collected and used for irrigation purposes onsite. Therefore, the project will have no impact to conflict with the Los Angeles County Low Impact Development Ordinance.

f) Use onsite wastewater treatment systems in areas with known geological limitations (e.g. high groundwater) or in close proximity to surface water (including, but not limited to, streams, lakes, and drainage course)?	☐	☐	☒	☐

Less Than Significant Impact. The project would feature an OWTS, but is not in an area with known geological limitations or in close proximity to surface water. As noted in the Geologic Study provided in Appendix G, the underlying groundwater level was not encountered during the study of the subject property to the maximum depth exported (i.e. 41 feet below existing grade) and evidence of a historically high groundwater level was not observed. The results of percolation testing presented in the Percolation Testing Report dated February 20, 1989 indicate the proposed installation of a private sewage disposal system on the subject site is feasible from a geotechnical point of view. The Percolation Testing Report

is Appendix D of the project Geotechnical Report provided in Appendix G. The septic system would be installed with consultation of a geotechnical engineer and would follow requirements set by the Department of Public Health and Waste Discharge Requirements set by the Regional Water Quality Control Board. Furthermore, based on the results of percolation testing provided in the Geology Report, the bedrock underlying borings (#3, 5, 6, and 7) provides adequate absorption of effluent for the design and use of a seepage pit-type OWTS. Therefore, the project will have a less than significant impact in regard to wastewater treatment systems in areas with known geological limitations or in close proximity to surface water.

g) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. The project is not near a large body of water to be susceptible to inundation by a seiche, as indicated on the General Plan, Figure 12.3, Tsunami Hazard Areas Map. A mudflow consists of earthen materials or soil and water. The project location is not near a source of water and thus would be unlikely to be inundated by a mudflow. However, the Santa Monica Mountains LCP NET identifies the north-facing slope immediately south of the previously graded pad as a landslide area with potential for permanent ground displacement. If water were to rapidly saturate in the ground and result in a surge of water-saturated rock, earth, and debris, the proposed residence could be subject to inundation by mudflow. Based on the Geology Study provided in Appendix G, the subject property is free from any recent rain-related damage such as landslides or mudflows. Project-related impacts to the slope south of the graded pad and CMU wall would be limited to fuel modification. Review and approval by the County Department of Public Works to assure slope stability, and implementation of the geotechnical recommendations provided in the Geology and Geotechnical Reports, as required by mitigation measures GEO-1 and GEO-2, would reduce the impact of potential mudflow to less than significant with mitigation incorporated.

h) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Less Than Significant Impact. The project is located in the existing service area of, and would be served by, the Las Virgenes Municipal Water District; therefore, the project would not rely on groundwater supplies. Groundwater recharge could be reduced through the addition of impervious surfaces. Through compliance with the County Low Impact Development (LID) standards, which require design strategies that use natural features, the project would provide features, such as the new 10,000-gallon underground cistern to collect and store stormwater for irrigation purposes onsite. Therefore, the project would not substantially interfere with groundwater recharge or groundwater management.

11. LAND USE AND PLANNING

Would the project:	*Potentially Significant Impact*	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Physically divide an established community?	☐	☐	☐	☒

No Impact. The project would be built on an existing residential parcel in a residential neighborhood in the Santa Monica Mountains near other single-family homes with a similar appearance. Therefore, the project would not physically divide an established community and would have no impact.

b) Cause a significant environmental impact due to a conflict with any County land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

No Impact. The General Plan Land Use designation is Rural Lands 20 (RL20 - 1 dwelling unit/20 acres) and is zoned in R-C-20, Rural Coastal, 20-acre minimum required lot area, within the Santa Monica Mountains Local Coastal Program. Although the size of the subject property, at 11.2 acres, is below the minimum required lot area, development of one single –family residence is allowed as a legal non-conforming use. Therefore, the project will have no impact regarding consistency with the applicable County Plans for the subject property including, but no limited to, the General Plan, specific plans, local coastal plans, area plans, and community/neighborhood plans.

c) Conflict with the goals and policies of the General Plan related to Hillside Management Areas or Significant Ecological Areas?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. The project is located in a Hillside Management Area and is subject to the requirements contained in Section 22.44.1350 of the Santa Monica Mountains Local Coastal Program- Local Implementation Program (LIP). The LIP prohibits development on slopes greater than 50% and requires the inclusion of design measures and best management practices for development in hillsides with a slope greater than 15%. The proposed site grading – 3, 730 CY, consisting of 36 cubic yards of fill and 3,658 cubic yards of cut and export – does not exceed 15,000 cubic yards of total cut plus total fill material The project is consistent with the objective of Hillside Management goals and policies for the protection of hillside resources by siting the residence on a previously graded pad, thus not substantially changing the elevation of any structures or proposing structures on the hillside to the south of the graded building pad.

According to the General Plan Figure 9.3, Significant Ecological Areas and Coastal Resource Areas Policy Map, the project is located in a Santa Monica Mountains Coastal Resource Area. Therefore, the

project is subject to the Santa Monica Mountains Local Coastal Program and review by the County Environmental Review Board. As the County Fire Department required fuel modification would encroach into H-2 Habitat, mitigation measures would (see Biological Resources subsection) reduce impacts to less than significant. Incorporation of mitigation measures BIO-1 through BIO-10 would reduce impacts regarding the goals and policies of the Santa Monica Mountains LCP to less than significant with mitigation incorporated

12. MINERAL RESOURCES

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

No Impact. According to General Plan Figure 9.6, Mineral Resources, there are no known mineral resources in the region of the project. Therefore, there would be no impact resulting in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

No Impact. According to General Plan Figure 9.6, Mineral Resources, there are no important mineral resources in the area of the project site. Therefore, the project would have no impact resulting 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.

13. NOISE

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the County General Plan or noise ordinance (Los Angeles County Code, Title 12, Chapter 12.08), or applicable standards of other agencies?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. The proposed construction and operation of a single-family residence could result in the exposure of persons to, or generation of, noise levels in excess of standards established in the County General Plan or noise ordinance.

Construction

Preparation of the previously graded pad and construction of the proposed residence and components would include heavy equipment use, trucks, and hand-held power tools, generating temporary noise increases in the vicinity that could exceed standards established in the County General Plan or County Noise Control Ordinance. Construction activities would be required to comply with noise levels designated as acceptable according to the County Noise Control Ordinance. Compliance may involve performing construction activities during certain times of day, turning off idling machinery, and using noise barriers.

The Noise Element of the General Plan sets goals and policies for the management of noise. The noise metrics in the Noise Element are either Community Noise Equivalent Level (CNEL) or Day-Night Average Level (Ldn). CNEL and Ldn describe annoyance due to noise and establish criteria for land use planning. CNEL is the average equivalent A-weighted sound level during a 24-hour day obtained after the addition of five decibels to sound levels in the evening, from 7:00 p.m. to 10:00 p.m., and after the addition of 10 decibels to sound levels in at night, from 10:00 p.m. to 7:00 a.m.

The noise standards established in the County General Plan limit noise in residential zones to not exceed 65 dBA between the hours of 10:00 p.m. to 7:00 a.m. and 70 dBA between the hours of 7:00 a.m. to 10:00 p.m. (Los Angeles County General Plan, Noise Element, Table 11.2). For construction noise in particular, the County Noise Ordinance (Los Angeles County Code, Title 12, Chapter 12.08) specifies noise restrictions that apply to construction. These restrictions apply to the use of mobile equipment for nonscheduled, intermittent, short-term operation (less than 10 days) and are provided in **Table 13-1, Noise Restrictions at Affected Structures**.

Table 13-1
Noise Restrictions at Affected Structures

	Single-Family Residential	Multi-Family Residential	Semi-residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA
Source: Los Angeles County Code of Ordinances Title 12 - Environmental Protection - Chapter 12.08 – Noise Control – Section 440 – Construction Noise.			

Project construction is reasonably expected to take place between the hours of 7:00 a.m. and 8:00 p.m. Given the single-family residential setting of the surroundings and the use of mobile equipment for construction, the 75-dBA noise restriction (Los Angeles County Code, Title 12, Chapter 12.08.440.B.1.a.) is the applicable standard regulating constriction noise affecting structures. The equipment would be mobile in the sense the equipment would actively move around various portions of the site. In applying the construction noise restrictions specified in the County Code, one notes that the restrictions shown in Table 13-1 restrict the noise level *at affected structures*, meaning the County Code restricts contractors from conducting construction activities in such a manner that the maximum noise *levels at affected buildings* exceed those listed in Table 13-1. Noise levels from the types of equipment reasonably expected for use in the construction of a single-family residence are provided in **Table 13-2, Construction Equipment Noise Levels**.

Table 13-2
Construction Equipment Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from source	Expected Noise Level (dBA) at 125 feet from source
Air Compressor	81	73
Backhoe	80	72
Compactor	82	74
Concrete Mixer	85	77
Dozer	85	77
Generator	81	73
Grader	85	77
Jack Hammer	88	80
Loader	85	77
Paver	89	81
Pump	76	68
Roller	74	66
Saw	76	68
Scarifier	83	75
Scraper	89	81
Shovel	82	74
Truck	88	80
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006, Table 12-1, Construction Equipment Noise Emission Levels.		

The distance between the edge of the previously-graded building pad and the nearest existing residence is approximately 125 feet. As shown in Table 13-2, at this distance, temporary construction noise levels at the nearest affected structure could range from up to 81 dBA from a paver or scraper to 66 dBA from a roller. Also, construction of the access driveway could pass within approximately 15 feet of the southeast-facing wall of the existing two-story residence north of the site. Finishing the driveway is estimated to take 10 days or less along a previously-graded dirt road. However, construction activity could generate noise levels at nearby single-family residences that could temporarily exceed the 75-dBA threshold from Table 13-1 that applies to affected structures. For example, temporary construction noise levels at the nearest affected buildings could range from up to 80 dBA from the use of a paver (i.e., a piece of mobile construction equipment that is used for paving) or levels as high as 92 dBA during installation of the driveway between the motor court and Thousand Peaks Road; however, these are "worst-case" assumptions based on the use of the noisiest equipment types running in the closest proximity to existing structures. Modern materials and building methods attenuate exterior noise levels by approximately 30 dBA with windows closed, reducing these worst-case noise levels to between 50 dBA and 62 dBA. With attenuation from the existing building walls and windows, construction noise, at the northern portion of the graded pad and the driveway access in particular, could exceed the allowable daytime interior noise level of 45 dB specified in the Chapter 12.08.400 - Interior noise standards of the County Noise Control Ordinance.

The project would be required to comply with the County Noise Control Ordinance (Chapter 12.08 – Noise Control), which prohibits excessive noise and vibration within the County. The County Noise Ordinance provides acceptable exterior and interior noise standards for particular noise zones and specific noise restrictions during construction and operations, such as that all mobile or stationary internal-combustion-engine powered equipment or machinery must be equipped with suitable exhaust and air-intake silencers in proper working order. As regulatory requirement of **RCM NOI-1**, the project would comply with the County Noise Control Ordinance and all applicable noise control measures.

In addition, the County Code Chapter 12.12 – Building Construction Noise – prohibits construction noise on any Sunday, or at any other time between the hours of 8:00 p.m. and 6:30 a.m. the following day. Compliance with these regulatory requirements and implementation of mitigation measures **NOI-1** and **NOI-2**, which require the contractor to stage and operate heavy equipment as far as practicable from the northern extent of the building pad and use smaller equipment or a sound barrier during construction of the access driveway, would reduce impacts from temporary exceedances of the County noise ordinance to less than significant.

Operations

During operations, the project would generate a minimal permanent increase in noise resulting from vehicles traveling in and out of the garage and motor court, Heating, Ventilation, and Air Conditioning (HVAC) systems, use of the swimming pool, and regular landscape maintenance. These operational noises are consistent with the general land use of the area and would not cause a substantial permanent increase in ambient noise levels in the project vicinity. The project does not propose the use of amplified outdoor sound systems. Furthermore, the low density of the rural residential setting provides approximately 150 linear feet of separation between the motor court where vehicles would park and the nearest residence. The County General Plan limits noise in residential zones to not exceed 65 dBA between 10:00 pm to 7:00 am and 70 dBA between 7:00 am to 10:00 pm (Los Angeles County General Plan, Noise Element, Table 11.2). Therefore, through compliance with County General Plan and Noise Control Ordinance standards, the project would result in a less than significant impact in regard to a

substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from parking areas.

Mitigation Measures

NOI-1 To reduce the impact of construction equipment noise on the neighboring residence to the north of the previously graded building pad, grading and building contractors shall stage and operate heavy equipment as far as feasible from the northern extent of the building pad.

NOI-2 During construction of the driveway between the motor court and Thousand Peaks Road, contractors shall use smaller equipment, sound blankets, or a combination thereof, to reduce the impact of construction noise on the adjacent residence to the maximum extent feasible.

Regulatory Compliance Measure

RCM NOI-1 Noise Control Ordinance. To reduce noise impacts, the project applicant shall abide by applicable requirements contained in the Noise Control Ordinance for the County of Los Angeles, Title 12, Section 12.08 during construction and operations.

b) Generation of excessive groundborne vibration or groundborne noise levels? ☐ ☐ ☒ ☐

Less Than Significant Impact. Project construction would involve grading and the movement of heavy equipment and materials. This project is located in a rural residential area with large lots that provide wide spacing between individual residences. However, some degree of groundborne vibration or groundborne noise may be experienced during construction to the project's immediate surroundings.

Construction activities typically generate ground-borne vibration when heavy equipment travels over unpaved surfaces or moves soil. Ground borne vibration attenuates quickly with distance. The "soft" sedimentary surfaces in much of southern California quickly dampen out ground vibration. Because vibration is typically not an issue, the County has not adopted a quantitative groundborne vibration significance threshold, however, the County Code states that the perception threshold is "presumed to be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz" (County Code Section 12.08.350 – Vibration). For additional context on various human responses to various vibration, **Table 13-3, Human Response to Transient Vibration**, provides responses at various transient vibration levels.

Table 13-3
Human Response to Transient Vibration

PPV (in/sec)	Human Response
2.0	Severe
0.9	Strongly perceptible
0.24	Distinctly perceptible
0.035	Barely perceptible
Source: Caltrans, Transportation and Construction Vibration Guidance Manual, page 22.	

The responses shown in Table 13-3 relate to human perception, and are not adopted thresholds above which groundborne vibration would be considered excessive. For purposes of this analysis however, vibration above 0.9 PPV, those which are strongly perceptible, could be considered excessive. Excessive levels of groundborne vibration also have the potential to cause structural damage, regulatory guidance from the California Department of Transportation (CalTrans) and Federal Transit Administration (FTA), provided in **Table 13-4, Vibration Damage Potential Threshold Criteria**, may be relied upon as a structural damage threshold of significance for the purpose of this analysis.

Table 13-4
Vibration Damage Potential Threshold Criteria

Building Type	PPV (in/sec)
FTA Criteria	
Reinforced concrete, steel or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Non-engineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12
Caltrans Criteria	
Modern industrial/commercial buildings	0.5
New residential structures	0.5
Older residential structures	0.3
Historic old buildings	0.25
Fragile Buildings	0.1
Extremely fragile ruins, ancient monuments	0.08
Source: FTA 2006, Caltrans 2013.	

As shown in Table 13-4, the Caltrans and FTA threshold criterion for structural vibration damage to modern structures is 0.5 in/sec for intermittent sources, which includes impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment. Older residential structures have a 0.3 in/sec threshold. Below this level, there is virtually no risk of building damage. This analysis estimated vibration levels project construction equipment could generate. These estimates are provided for equipment types in **Table 13-5, Estimated Vibration Levels During Project Construction**.

Table 13-5
Estimated Vibration Levels During Project Construction

Equipment	Peak Particle Velocity (PPV)					
	at 15 ft	at 25 ft	at 40 ft	at 50 ft	at 60 ft	at 75 ft
Large Bulldozer	0.191	0.089	0.044	0.031	0.024	0.017
Loaded trucks	0.152	0.076	0.037	0.027	0.020	0.015
Jackhammer	0.070	0.035	0.017	0.012	0.009	0.007
Small Bulldozer	0.006	0.003	0.001	<0.001	<0.001	<0.001
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.						

To be conservative, this analysis used a structural damage threshold of 0.3 in/sec for older residential structures even though the residences in the vicinity are modern. Given the scale of the site, the construction equipment that could create the maximum potential vibration is a large bulldozer. Given that the project would be constructed on a previously-graded building pad, minimal grading would occur adjacent to the property line, thus reducing vibration potential.

For construction of the driveway, equipment would be temporarily operated as close as 15 feet from the closest adjacent structure. However, even at 15 feet, the predicted vibration levels generated by the largest equipment type – a large bulldozer – would be 0.191 PPV, well below levels that could create structural damage in older buildings (i.e., 0.3 in/sec). Therefore, this analysis concludes that construction vibration levels would be below the distinctly perceptible range for human response (PPV of 0.24 in/sec), even during construction of the driveway. Construction vibration on the previously graded pad would also be well below the structural damage threshold of 0.3 in/sec. Based on this analysis, groundborne vibration would not exceed significance thresholds for human perception or structural damage.

Following installation of the driveway, construction-related groundborne vibration impacts would be less impactful due to ground attenuation, falling below the barely perceptible range of less than 0.035 in/sec. Therefore, the project would have a less than significant impact with regard to the generation of excessive groundborne vibration or groundborne noise levels.

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

No Impact. According to the Los Angeles County Department of Regional Planning Airports and Airport Influence Areas Map (General Plan Figure 6.5), this project is not located within an airport land use influence area. The project is also not located near a public airport. The nearest public airport is the Van Nuys airport, over 15 driving miles from the project site. There are no airports or airstrips within two miles of the project site. The closest heliport to the project site is at Los Angeles Fire Department Camp 8, which is seven driving miles away. Therefore, the project will not have an impact to exposing people residing or working in the project area to excessive noise levels.

14. POPULATION AND HOUSING

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) 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)?	☐	☐	☒	☐

Less Than Significant Impact. The project consists of the construction and operation of a new single-family residence in an existing rural residential neighborhood. As the project will build one single-family home, the project would result in a minor increase in population but would not induce substantial population growth. The proposed driveway would be reached by the existing Thousand Peaks Road, a private road. The extension of public roads or urban infrastructure is not proposed. Project improvements would serve only the proposed project and would therefore not indirectly induce substantial population growth. Therefore, the project would have a less than significant impact regarding directly or indirectly inducing population growth.

b) Displace substantial numbers of existing people or housing, especially affordable housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact. The site is currently an undeveloped building pad and is not displacing any existing people or housing. Therefore, there will be no impact resulting from displacing substantial numbers of existing housing necessitating the construction of replacement housing elsewhere.

15. PUBLIC SERVICES

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Would the project create capacity or service level problems, or result in substantial adverse physical impacts associated with the provision of 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:				
Fire protection?	☐	☐	☒	☐

Less Than Significant Impact. The project site is located in a very high fire hazard severity zone; the County Fire Department has reviewed Fuel Modification Plan (#6381) protect the proposed residence against wildfires. The closest fire station to the site is County Fire Department Station #67 (25801 Piuma Road), which is 3.5 miles away and a 7-minute drive. The current County standards for fire response times are: 5 minutes or less for urban areas; 8 minutes or less for suburban areas; and 12 minutes or less for rural areas. Therefore, a 7-minute drive would be within the current standard response times for fire service in a rural area. In addition, the next closest station is Los Angeles County Fire Station #68, which is 6.3 miles away and 13 minutes from the project site.

The County Fire Department has reviewed the Fuel Modification Plan (#6381) to ensure the plan meets County Fire Code requirements prior to final site plan approval. As shown on the architectural plans in Appendix A, the project must install an automatic residential fire sprinkler system in accordance with the National Fire Protection Association Standard 13D, Section R313.3, to protect against fire risk. Given the scale of the project and compliance with Fire Code regulatory requirements, the project would not create capacity or service level problems and would not result in the need for a new of physically altered fire station. Therefore, the project would have a less than significant impact regarding fire protection.

Sheriff protection?	☐	☐	☒	☐

Less Than Significant Impact. The project is located within the jurisdiction of the Los Angeles County Sheriff Department. This area is in Patrol Division 22, Malibu/Lost Hills, and is approximately 7.3 miles and 12 minutes from the Sheriff station. The Sheriff's service ratio will marginally change as the population increase would only be from one family. Overall, the area does not have a high amount of crime. In the reporting period between April 19, 2017 to October 16, 2017, there were 6 reported crimes, all of which were vehicle burglaries, within 0.5 miles of the project site (crimereports.com). Therefore, the project would not generate a substantial increase in demand such that a new or physically altered

sheriff's facility or additional staff would be required. Therefore, the project will have a less than significant impact in regard to sheriff protection.

Schools? ☐ ☐ ☒ ☐

Less Than Significant Impact. The is located within the Las Virgenes Unified School District jurisdiction. The schools that would serve the project are Chaparral Elementary School, Alice C. Stelle Middle School, and Calabasas High School. The school age population increase that the project would generate, estimated at one to three students based on the architectural plans of the residence, would not result in the need for new or physically altered school facilities. Furthermore, pursuant to Government Code Section 65995, the project would be required to pay impact fees to reduce the impact of any students generated by the project. Therefore, the project would have a less than significant impact on the capacity of schools.

Parks? ☐ ☐ ☒ ☐

Less Than Significant Impact. The project consists of the construction of one single-family residence, which would marginally increase the service population of existing parks. According to the County Department of Parks and Recreation Countywide Comprehensive Parks and Recreation Needs Assessment, the existing park need for the unincorporated Santa Monica Mountains, Triunfo Canyon (Study Area #38), area is very low. Therefore, the population increase resulting from one single-family residence would not reduce the existing park space-to-resident ratio such that new or physically altered parks would be needed. Nearby parks include Malibu Creek State Park and Topanga State Park. The project includes a swimming pool which would reduce the demand on existing County park and recreational facilities. Therefore, the project would have a less than significant impact on creating capacity or service level problems for parks.

Libraries? ☐ ☐ ☒ ☐

Less Than Significant Impact. The project consists of one single-family residence that would marginally increase the population of the existing library service area. This population increase would not be sufficient to result in the need for a new or physically altered library facility. The proposed residence would feature a private library, which would minimize the increase in demand on existing County libraries. The nearest Los Angeles County library is the Malibu Library, which is 9.4 miles away. As the project is located in the Santa Monica Mountains Service Planning Area, the project would be required to pay the Library Facilities Mitigation Fee in effect at the time of development pursuant to County Code Section 22.72.030. Therefore, the project would have a less than significant impact regarding libraries.

Other public facilities?	☐	☐	☐	☒

No Impact. There are no other public facilities that would be impacted by the project.

Sources:

- California Legislative Information, California Law, Code Section, Government Code – GOV, Title 7. Planning and Land Use Division 1. Planning and Zoning, Accessed on October 16, 2017 at: http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV&sectionNum=65995.
- County of Los Angeles Public Library, County Libraries by City, Accessed on October 16, 2017 at: http://www.colapublib.org/libs/cities.php#l.
- Decision Incite, My School Locator, Las Virgenes Unified School District, Accessed: October 16, 2017 at: http://locator.decisioninsite.com/?StudyID=85023#.

Los Angeles County Sheriff, LASD Patrol Divisions, Revised May 7, 2013.

16. RECREATION

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐

Less Than Significant Impact. The project is located within the Santa Monica Mountains National Recreation Area, which contains federal, state, and regional park and open space lands. Nearby state parks include Malibu Creek State Park, Topanga State Park, and Malibu Lagoon State Beach. There are other parks and open space areas within proximity to the project site, including Stunt Ranch, Red Rock Canyon Park, and Cold Creek Preserve. As one single-family residence, the project would not result in a substantial increase in the use of existing regional parks and would have a minimal overall impact to the surrounding parks and recreational facilities. The scale of the project and availability of parks and recreational areas would not allow for substantial physical deterioration to any surrounding parks or open space. Therefore, the project would have a less than significant impact.

b) Does the project include neighborhood and regional parks or other recreational facilities or require the construction or expansion of such facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Less Than Significant Impact. The project does not include any neighborhood or regional parks but does include a private swimming pool which would reduce the demand on existing County recreational facilities. The physical effects resulting from the proposed swimming pool are considered within the project site plan analyzed in this Initial Study. The southern portion of the project property also features a Santa Monica Backbone Trail Easement Dedication, but this dedication would not result in the construction or expansion of facilities that might have an adverse physical effect on the environment. Therefore, impact of the proposed recreational features and trail dedication would be less than significant. As discussed in response to section 15. Public Services, Parks, the expected population increase from one single-family residence would not require the construction or expansion of existing parks and recreation facilities. Furthermore, according to the Los Angeles County Department of Parks and Recreation Countywide Comprehensive Parks and Recreation Needs Assessment, the existing park need for the unincorporated Santa Monica Mountains – Triunfo Canyon (Study Area #38) area is very low. Therefore, the impact of the project on existing parks and recreation facilities would be less than significant.

c) Would the project interfere with regional trail connectivity? ☐ ☐ ☐ ☒

No Impact. The project would be located on a previously subdivided lot and previously graded building pad. The proposed residence and associated features would affect only a small part of the property that has a been previously disturbed (0.81 acres) and would not interfere with access to any surrounding public open space areas. The project site plan includes a Santa Monica Mountains Backbone Trail Easement Dedication to effectively improve open space connectivity. Therefore, the project would have no impact in regard to interfering with regional open space connectivity.

Sources:

- California Department of Parks and Recreation, Find a California State Park, Accessed on October 16, 2017 at: https://www.parks.ca.gov/parkindex/.
- National Park Service, Santa Monica Mountains, National Recreation Area, California, Maps, Accessed on October 17, 2017 at: https://www.nps.gov/samo/planyourvisit/maps.htm.

17. TRANSPORTATION

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Conflict with an applicable program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐

Less Than Significant Impact. The project would construct one single-family home with a driveway access road connecting to Thousand Peaks Road, an existing private road. This project would not conflict with any mass transit plans because this rural area is not served by mass transit; the nearest bus station is the Parkway Calabasas stop (Metro Stop ID #4314) at the intersection of Parkway Calabasas and Calabasas Road, a driving distance of 6.2 miles north of the project site. The project would not conflict with pedestrian paths as there are no pedestrian paths alongside the private road –Thousand Peaks Road – to which the proposed driveway would connect. There are also no pedestrian paths along the portion of Dry Canyon Cold Creek Road fronting the subject property. The scale of the project would not substantially increase traffic Mulholland Highway, the closest major road to the site. According to the County Bicycle Master Plan Figure 3-28, a Class III – Bike Route, is proposed for Mulholland Highway. However, the limited size of the project would not substantially increase bike traffic or conflict with this plan.

Construction crew members would commute to and from the site, equipment and material deliveries, and soil export. Temporary construction traffic would be required to comply with County Code ordinances such as the assignment of flagmen to construction and maintenance areas (Section 15.76.170). Compliance with County Code requirements would reduce the impact of temporary construction traffic on local roadways serving the project site and vicinity to less than significant. Due to the remote environmental setting and minimal increase in population resulting from one single-family residence, the project would have a less than significant impact with regard to conflicting with an applicable plan, ordinance, or policy addressing the circulation system.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐

Less Than Significant Impact. As explained in the Transportation Impact Analysis Guidelines from the Los Angeles County Public Works (Public Works), for development projects, the intent of this question is to assess whether a proposed project adequately reduces total Vehicle Miles Traveled (VMT). Public Works provides the following guidance regarding screening and impact criteria to address this question. The following screening criteria and impact criteria serve as guidance for projects to determine whether a Transportation Impact Analysis should be performed and the criteria to determine if a project generates a significant transportation impact.

The Transportation Impact Analysis Guidelines state a project's daily vehicle trip generation should be estimated using the most recent edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. Based on the 10th edition of the ITE Trip Generation Manual, one single-family detached housing unit produces 9.44 daily vehicle trips. Therefore, the 9.44 daily vehicle trips us below the screening criteria of 110 or more daily vehicle trips for non-retail development projects. As explained in the Transportation Impact Analysis Guidelines, Screening Criteria Section 3.1.2.1., if a development project generates less than 110 or more daily vehicle trips, further analysis is not required, and a less than significant determination can be made. Therefore, the project would result in a less than significant impact with regard to VMT.

c) Substantially increase hazards due to a road design feature (e.g., sharp curves) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

Less Than Significant Impact. The project would improve an existing driveway road connecting to Thousand Peaks Road. Thousand Peaks Road is a private road, with a gate where it intersects with Dry Canyon Cold Creek Road. This configuration minimizes access and discourages high speeds. There would also be a limited number of cars using Thousand Peaks Road as there are only five houses further up from the project site's access road on Thousand Peaks Road.

During construction, contractors would deliver heavy equipment, make material deliveries, and export soil on trucks. Construction would be temporary and required to comply with County Code ordinances such as the assignment of flagmen to construction and maintenance areas (Section 15.76.170). Compliance with County Code and Transportation Plan requirements would reduce the impact of temporary construction traffic on local roadways serving the project site and vicinity. Therefore, the project will have a less than significant impact to substantially increasing hazards due to a design feature or incompatible uses.

d) Result in inadequate emergency access?	☐	☐	☒	☐

Less Than Significant Impact. According to General Plan Figure 12.6, Disaster Routes Map, the proposed project is not along a disaster route. Prior to construction, the project would be reviewed for consistency with building and fire codes to ensure adequate emergency access. The project involves construction of a driveway with a firelane for emergency vehicle access, which will allow access to the project site in an emergency. During occupancy, the project will be accessed through the driveway shown on the project site plan. This project will not impair accessibility to any other residence. Therefore, the project will have a less than significant impact to result in inadequate emergency access.

18. TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §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:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k), or	☐	☐	☒	

Less Than Significant Impact. As concluded in response to Checklist Question 5.a, the project footprint is a previously graded building pad with no historical resources. There are no national, state, or locally-designated historic resources on the project site or in the immediate vicinity of the neighborhood setting. The examination of numerous historic maps was also negative for older historic cultural resources. Therefore, the project would have a less than significant impact.

ii) 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Less Than Significant Impact. As concluded in the Cultural Report and described in response to Checklist Questions 5.a.-d, the results of the SCCIC and the NAHC record searches were negative for cultural resources within, adjacent, or near to the project property, nor was the surrounding area found to be sensitive for cultural resources. The County notified all California Native American Tribes that previously requested formal notification. One California Native American tribe

requested consultation on the project. The County completed confidential consultation with the tribe on November 30, 2017. No specific information or details of resources on or in the vicinity of the project site was provided to the County to evidence any known resources or likelihood of resources. Following the County's additional request for supporting information, no substantial evidence, nexus, or supporting documentation related to resources on, adjacent to, or resulting in a likelihood be discovered within, the project site was provided the County. Therefore, the lead agency has determined in its discretion that less than significant impacts to resources to a California Native American tribe.

19. UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

Less Than Significant Impact. In terms of water, the project site is in the existing service area of the Las Virgenes Municipal Water District, therefore the project would not require the construction of new or expanded water facilities. In terms of wastewater treatment, the project proposes an on-site septic system, therefore the construction of new or expanded public wastewater treatment facilities. In terms of storm water, the project proposes storm water drainage components described in the civil plans in Appendix B, therefore, the project would not require new or expanded public wastewater treatment facilities. In terms of electric power and natural gas, the project would be serviced by Southern California Gas Company for natural gas and Southern California Edison Company for its electricity. The site is located in a rural residential area within an existing utility service area and would not require construction of new telecommunications facilities. Therefore, the project will have a less than significant impact in terms of the construction or expansion of new utility facilities, the construction of which could cause significant environmental effects.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐

Less Than Significant Impact The project is located within the Las Virgenes Municipal Water District's jurisdiction. The Urban Water Management Plan for the Las Virgenes Municipal Water District projects 2,746 new dwelling units in its service district in unincorporated Los Angeles County between 2014 and 2040. This Urban Water Management Plan takes into consideration expected growth and expects to be able to meet demands, during average, single-dry, and multiple-dry years through the year 2040. The project is accounted for in the service population projections of the Urban Water Management Plan calculations. Therefore, the project would have a less than significant impact with regard to having sufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses.

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

No Impact. The project proposes an on-site septic system to process the wastewater generated by the project. Therefore, the proposed project would not create wastewater system capacity problems at existing wastewater treatment facilities, and would have no impact on the capacities of the public wastewater treatment provider.

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

Less Than Significant Impact. The project consists of the construction and operation of single-family residence. According to General Plan Figure 13.1, Landfills, the nearest Class III landfill in Los Angeles County is the Calabasas Landfill. The Calabasas Landfill has a maximum permitted throughput capacity of 3,500 tons per day, and an estimated remaining life of 20 years. In 2016, the average waste quantities disposed (including import quantities) of at the Calabasas Landfill were 951 tons. Therefore, the Calabasas Landfill has a remaining intake capacity of 2,549 tons. Project solid waste estimates are provided in **Table 19-1, Project Solid Waste Generation.**

Table 19-1
Project Solid Waste Generation

Component	Size (SF)	Generation Rate [(a)]	Solid Waste Generation (Total construction period)	
			lbs	tons
Construction				
Residence	10,339	4.39 (lb/SF)	45,388	22.7
Attached garage	644	4.39 (lb/SF)	2,827	1.4
Construction Total			**48,215**	**24.1**
Operation				
One residence		12.23 lbs/day [(b)]	12.23 lbs/day	

(a) U.S. Environmental Protection Agency, Estimating 2003 Building-Related Construction and Demolition Materials Amounts, pg. 9.
(b) City of Los Angeles, LA CEQA Thresholds Guide, 2006, pg. M.3-2.

As shown in Table 19-1, project construction would generate an estimated 24.1 tons of construction solid waste prior to diversion, and project operations would generate an estimated 12.23 pounds of solid waste per day prior to diversion. To promote the recycling of construction waste materials, the CALGreen Code requires that most new construction and some additions and alterations divert at least 50 percent of their construction waste. State law (Assembly Bill 939) requires jurisdictions to

implement programs to achieve 50 percent diversion of all solid waste from landfill disposal.[8] With 50 percent diversion, the project would generate an estimated 12.05 tons of total construction waste and operations would generate an estimated 6.1 pounds per day of solid waste. Given that the Calabasas landfill has a remaining intake capacity of 2,549 tons, the total solid waste generated by project construction would constitute 0.5 percent of remaining daily disposal capacity and project operations would constitute 0.0001 percent of remaining daily disposal capacity. Therefore, the project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste, impacts would be less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Less Than Significant Impact. The project would comply with applicable solid waste regulations and the County of Los Angeles Countywide Integrated Waste Management Plan. Therefore, the project would have a less than significant regarding complying with federal, state, and local solid waste statutes and regulations.

Sources:

- Las Virgenes Municipal Water District, 2015 Urban Water Management Plan Final, August 17, 2016.
- Los Angeles County, Department of Regional Planning, Figure 13.1, Landfills, May 2014.
- CalRecycle, Facility/Site Summary Details: Calabasas Landfill, Accessed on October 17, 2017 at: http://www.calrecycle.ca.gov/SWFacilities/Directory/19-AA-0056/Detail/.

[8] California Department of Resources Recycling and Recovery, State of Recycling in California, Updated 2016, Pgs. 3 and 68.

20. WILDFIRE

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Less Than Significant Impact. As shown on California Department of Forestry and Fire Protection map, the project site is located within a High Fire Hazard Severity Zone in a State Responsibility Area (Fire and Resource Assessment Program, accessed September 21, 2020). As shown in General Plan Figure 12.5, Fire Hazard Severity Zones Policy Map, the project site is located within a Very High Fire Hazard Severity Zone. According to General Plan Figure 12.6, Disaster Routes Map, the project is not along a disaster route. During occupancy, the project would be accessed through the driveway with a firelane as shown on the architectural plans dated December 2, 2020, in Appendix A. The vicinity includes existing single-family residences served by the County Fire Department and would be accessible from existing local roadways, namely, Las Virgenes Road and the U.S. 101 Freeway, which the Safety Element of the County General Plan shows as disaster routes. The project would not permanently alter vehicular emergency access or evacuation routes or impair public access on public rights-of-way, including access to and from Las Virgenes Road and the U.S. 101 Freeway. Therefore, neither project construction or operations would substantially impair an adopted emergency response plan or emergency evacuation plan, impacts would be less than significant.

Mitigation Measures: No mitigation measures are required.

b) 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?	☐	☐	☒	☐

Less Than Significant Impact. As project site is located in a Very High Fire Hazard Severity Zone, the project includes a fuel modification plan (#6381), provided in Appendix C, to provide fuel modification to protect project occupants. As discussed in the response to Checklist Question 17.d., the County Fire Department has reviewed the Fuel Modification Plan (#6381) for ensure adequate emergency access to project occupants that may be exposed to wildfire. To protect future occupants from wildfire risks, the project would also incorporate an automatic residential fire sprinkler system in accordance with National Fire Protection Association Standard 13D or Section R313.3, as discussed in the responses to Checklist Questions 9.a and 15.a. The closest fire station is County Fire Department Station #67, which is 3.5 miles from the project site. Through approval of the Fuel Modification Plan and ongoing maintenance pursuant to the terms specified therein, installation of an automatic residential

sprinkler system, and proximity to an existing LAFD station, the project would have a less than significant impact.

Mitigation Measures: No mitigation measures are required.

c) 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?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. The project would improve an existing unpaved driveway to reach Thousand Peaks Road, an existing, improved surface street that allows emergency access to the project site from Dry Canyon Cold Creek Road. The installation of emergency water sources, power lines, or other utilities that may exacerbate fire risk are not proposed. The County Fire Department has reviewed the Fuel Modification Plan (#6381) to ensure adequate fuel modification (or fuel breaks) to future project occupants that may be exposed to wildfire. The impact of managing vegetation within the fuel modification zone on an ongoing basis, as required by Fuel Modification Plan (#6381), would be reduced to less than significant through the implementation of mitigation measure BIO-5 by requiring revegetation of the currently cleared portion of fuel modification Zone C to be designed to mimic natural vegetation present adjacent to the project site. Therefore, the project would not result in the installation of associated infrastructure that would not exacerbate fire risk. Implementation of mitigation measure BIO-5 would reduce the impact of the fuel break in the fuel modification plan to less than significant.

Mitigation Measures: Mitigation measure BIO-5 shall apply.

d) 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?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. In terms of post-fire slope stability, the Santa Monica Mountains Local Coastal Program identifies the southern, upward sloping portion of the subject property immediately south of the previously graded building pad as a Landslide Hazard area. According to the Geotechnical Report and Geologic Study in Appendix G, the proposed development would be safe against hazards from landslide and the project would not have an adverse influence on the stability of the project site or immediate vicinity, provided the geotechnical and geologic recommendations are made part of the plans and are implemented during construction. Mitigation measure GEO-2 requires the project to follow the recommendations of the geotechnical engineer, which would reduce post-fire slope stability impacts. With the project fire-protective project measures, noted in response to Checklist Question 20.b, and compliance with GEO-2, the project would avoid a significant exacerbation of a downslope landslide or downstream flooding impact, and impacts would be less than significant after mitigation.

Mitigation Measures: Mitigation measure GEO-2 shall apply.

e) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Less Than Significant Impact. The project site is located in a Very High Fire Hazard Severity Zone near existing single-family residences. The County Fire Department has reviewed the Fuel Modification Plan (#6381) in Appendix C to protect people and the proposed structure from risks involving wildland fires. As discussed in the responses to Checklist Questions 9.a and 15.a, the project would also incorporate an automatic residential fire sprinkler system in accordance with National Fire Protection Association Standard 13D or Section R313.3 to protect people and habitable structures from risks involving wildland fires. As discussed in response to Checklist Question 15.a, the project is located 3.5 miles away from the nearest existing fire station and would not create capacity or service level problems due to the scale of the project and compliance with regulatory requirements specified in the Fire Code. Therefore, impacts regarding wildland fire exposure would be less than significant.

Mitigation Measures: No mitigation measures are required.

21. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	*Less Than Significant Impact with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Less Than Significant Impact with Mitigation Incorporated. As discussed in response to subsection 3, Biological Resources, the impact of the project on biological resources would be less than significant with mitigation incorporated. As evaluated in response to subsection 5, Cultural Resources, the impact of the project on known cultural, historical, and prehistoric resources would be no impact. Although these impacts are localized and small in scale, such that they are unlikely to rise to the level of impact described in the Checklist Question a. (e.g., "drop below self-sustaining levels" or "threaten to eliminate a plant or animal community," this impact is conservatively determined to be less than significant with mitigation incorporated.

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

Less Than Significant Impact with Mitigation Incorporated. As evaluated in response to subsections 1. through 20., the impact of the proposed project is either "no impact," "less than significant," or "less than significant with mitigation incorporated." No significant impacts would remain after mitigation specified in subsections 4., Biological Resources, 13., Noise, and 20., Wildfire. Therefore, after mitigation, the project's contribution to cumulatively considerable impacts would be less than significant.

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

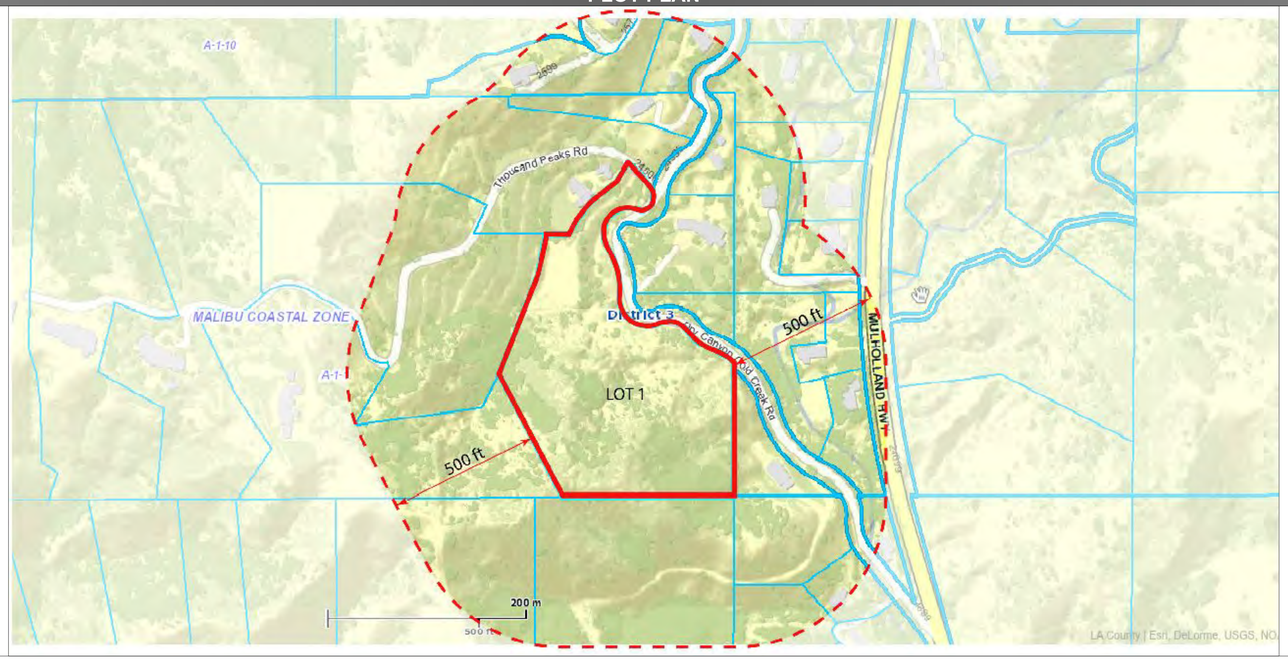
Less Than Significant Impact with Mitigation Incorporated. Environmental effects which could cause substantial adverse effects on human beings were previously evaluated in subsections 3. Air Quality, 7. Geology and Soils, 8. Greenhouse Gas Emissions, 9. Hazards and Hazardous Materials, 10. Hydrology and Water Quality, 13. Noise, 17. Transportation, and 20. Wildfire. Impact conclusions were either "no impact," "less than significant," or "less than significant with mitigation incorporated." No significant impacts would remain after mitigation specified in subsections 4., Biological Resources, 13., Noise, and 20., Wildfire. Therefore, with mitigation, the proposed project would not have environmental effects that cause substantial adverse effects on human beings, either directly or indirectly.

APPENDIX A

Architectural Plans

COLD CREEK RESIDENCE

PLOT PLAN



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Frazier Park, CA 93225-2199
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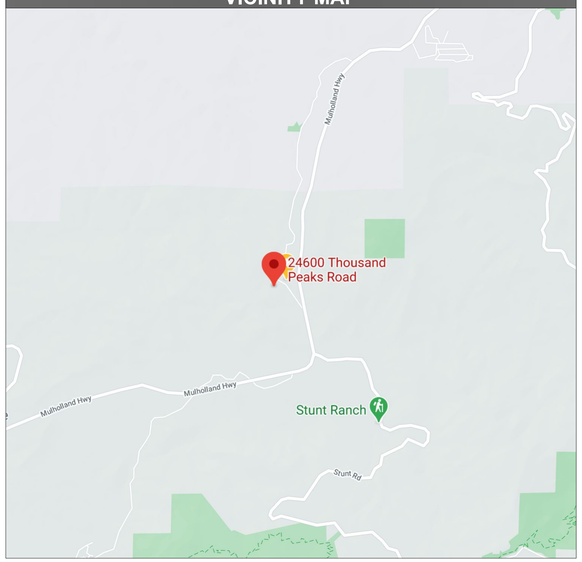
VICINITY MAP



LEGEND

- 1 / A1 — WALL AND BUILDING SECTION
- 1 / A1 — INTERIOR WALL ELEVATION
- COLUMN GRID LINE
- DETAIL / SHEET — DETAIL REFERENCE
- 0 / 00 — FLOOR LEVEL / DOOR NUMBER — DOOR NUMBER
- (SHEET XX.X) / 000 — FLOOR LEVEL — WINDOW NUMBER
- (SHEET XX.X) — ROOM FINISH NUMBER
- (SHEET XX.X) — FINISH NOTES REFERENCE
- PROPERTY LLINE
- REVISION

MATERIALS

- Uncompacted Soil
- Compacted Soil
- Structural Concrete
- Masonry/CMU Construction
- Construction Grade Continuous Wood Member
- Construction Grade Wood
- Solid Finish Wood
- Plywood
- Batt Insulation
- Roof Tile/Ceramic Tile
- Gypsum Board
- Plaster
- Steel
- Rigid Insulation
- Wood Cladding
- Stone Gladding

PROJECT DATA

SUMMARY	
PROJECT ADDRESS:	24600 Thousand Peaks Road, Calabasas, CA 91302
APPLICANT/OWNER:	Thousand Peaks LLC
LEGAL DESCRIPTION:	Lot1, Tract NO. 36172, M.B. 1119-78-82
ASSESSOR'S PARCEL NUMBER:	'4455-052-002"
AUTHORITY HAVING JURISDICTION (AHJ)	Los Angeles County (Unincorporated)
ZONING CLASSIFICATION:	R-C-20 Rural-Coastal (1DU/20AC)
SM MOUNTAINS LUP CLASSIFICATION:	RL20 MOUNTAIN LANDS (1DU/20AC)
SM MOUNTAINS LCP HABITAT CATEGORY:	H2 (Sensitive Environmental Resource Area (SERA))
ENVIRONMENTAL REVIEW BOARD (ERB):	Yes
COMMUNITY ASSOCIATION:	HOA
LOT AREA:	486,266 SQFT or 11.16 ACRES
CBC USE AND OCCUPANCY CLASSIFICATION:	R-3
CALIFORNIA BUILDING CLIMATE ZONE:	6
FIRE HAZARD SEVERITY ZONE:	Very High Fire Hazard Severity Zone (SRA)
COASTAL ZONE / LOCAL COASTAL PROGRAM:	Santa Monica Mountains Local Coastal Program
HILLSIDE:	No
CONSTRUCTION TYPE:	V-B Fire Sprinklered Construction Shall Comply With CRC R.327 / CBC CH.7A
NUMBER OF STORIES:	2
BUILDING HEIGHT:	18'0"

DWELLING UNIT AREA BREAKDOWN

**EXTERIOR WALL DIMENSIONS (BUILDING FOOTPRINT) AREA USED TO CALCULATE PARCEL COVERAGE.

Parcel Area	486,266.00 SQFT

Basement Floor		**Calculated**
BASEMENT FLOOR AREA (INCLUDING EXTERIOR WALL):		**3,498.00 SQFT**
TOTAL BASEMENT FLOOR AREA:	+	**3,498.00 SQFT**

1st Floor		**Calculated**
FIRE ACCESS ROAD (EXEMPT):		9,493.78 SQFT
PATIO (INCLUDING POOL AREA):		983.71 SQFT
GARAGE (INCLUDING EXTERIC		**644.00 SQFT**
1ST FLOOR AREA (INCLUDING EXTERIOR WALL):	+	**4,634.00 SQFT**
TOTAL 1ST FLOOR SQFT		**5,278.00 SQFT**

2ND FLOOR		**Calculated**
EXTERIOR DECK:		94.94 SQFT
2ND FLOOR AREA	+	**2,027.00 SQFT**
TOTAL 2ND FLOOR SQFT		**2,027.00 SQFT**

COUNTY PERMITED SQFT:	7,305.00 SQFT
BUILDABLE SQFT:	10,803.00 SQFT

CODES

THIS PROJECT SHALL COMPLY WITH THE:	2016 CALIFORNIA ADMINISTRATIVE CODE (CAC)
2016 CALIFORNIA BUILDING CODE (CBC)	LOS ANGELES COUNTY MUNICIPAL CODE (LACMC)
2016 CALIFORNIA RESIDENTIAL CODE (CRC)	SANTA MONICA MOUNTAINS LOCAL COASTAL PROGRAM
2016 CALIFORNIA MECHANICAL CODE (CMC)	
2016 CALIFORNIA PLUMBING CODE (CPC)	
2016 CALIFORNIA ELECTRICAL CODE (CEC)	
2016 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS	
2016 CALIFORNIA ENERGY CODE (CNC)	
2016 CALIFORNIA FIRE CODE (CFC)	
2016 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC)	
2016 CALIFORNIA REFERENCE STANDARDS CODE (CRSC)	

DEFERRED PERMITS

THIS PROJECT SHALL DEFER THE FOLLOWING PERMITS:

SCOPE OF WORK

The proposed project is a new construction two-story single-family dwelling unit with basement. The proposed work consists of:

FIRE SPRINKLER SYSTEM (SEPERATE PERMIT)
LID PLAN
GRADING & LANDSCAPING
SWIMMING POOL

NOTES

1. "Erosion and Sediment Control Best Management Practices must be in place and functional PRIOR to the first inspection. No inspections can be performed if they are not in place or have failed to provide erosion control. Failure to maintain erosion control will cause inspections to be delayed until erosion control measures are functional."

2. Special Inspections per CBC Sections 1705.5, 1705.11.1, and 1705.12.2 "Periodic Special inspection is required for nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system, including wood shear walls, wood diaphragms, drag truss, braces, shear panels and hold-downs". In addition, special inspection is required for high load diaphragms and wood trusses spaced more than 60". Where the fastener spacing of the sheathing is more than 4" O/C AND the structure is less than 3,000 sq. ft., special inspection is not required.

3. Structural Observation by the Engineer of Record will be required prior to framing inspection.

4. S.F.D. To be fully sprinklered per 903.3.1.1 or 903.1.2. This includes covered patios type: NFPA 13D
fire sprinklers are required for all new construction (NFPA 13D).

5. A separate fire sprinkler permit shall be secured through the fire department.

SHEET INDEX

Architectural		Structural Engineering		Civil Engineering		Landscape Architecture	
A1.0	COVER SHEET			C1	GENERAL NOTES		
A1.1	NOTES			C2	PRECISE GRADING PLAN		
A1.2	NOTES			C3	PRECISE GRADING PLAN		
A1.3	NOTES			C4	SITE SECTIONS AND DETAILS		
A1.4	SURVEY			C5	PRECISE GRADING PLAN		
A1.5	LAND USE RADIUS MAP			C6	PRECISE GRADING PLAN		
A1.5A	AREA BREAKDOWN						
A1.5B	HAUL ROUTE						
A1.6	SITE PLAN						
A1.6A	FOCUSED SITE PLAN						
A1.7	COLOR AND MATERIALS						
A2.0	BASEMENT						
A2.1	FIRST FLOOR						
A2.2	SECOND FLOOR						
A2.3	ROOF PLAN						
A3.0	ELEVATION						
A3.1	ELEVATION						
A4.0	SECTION						
A4.1	SECTION						
A4.2	SECTION						
A4.3	SECTION						
A5.0	DOOR SCHEDULE						
A5.1	WINDOW SCHEDULE						
E1.0	BASEMENT LIGHTING PLAN						
E1.1	FIRST FLOOR LIGHTING PLAN						
E1.2	SECOND FLOOR LIGHTING PLAN						

JAG
John Andrews Group Architects inc.
architecture + construction

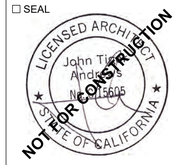
2109 Stoner Avenue
Los Angeles, CA 90025

Phone: 310-445-3337
Fax: 310-445-3336

☐ SCOPE DOCUMENT

This preliminary drawing indicates the general scope of the project in terms of architectural design concept, the dimensions of the building, the major architectural elements and the type of structural, mechanical, and electrical systems. As scope documents the drawings do not necessarily indicate or describe all work required for full performance and completion of the requirements of the contract documents. On the basis of the general scope indicated or described, the contractor shall furnish all items required for proper execution and completion of the work.

☐ SEAL



☐ CLIENT:

Thousand Peaks LLC

☐ ADDRESS:

24600 Thousand Peaks Road
Calabasas, CA 91302

☐ PROJECT / SCOPE:

Proposed:

New Single Family
RESIDENCE
with Attached 2 Car Garage

☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:

COVER SHEET

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 1 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:

A1.0

SOUND REQUIREMENTS BETWEEN UNITS

1. ALL PENETRATION INTO SOUND RATED PARTITIONS OF FLOOR-CEILING ASSEMBLIES WILL BE SEALED, LINED OR INSULATED WITH APPROVED PERMANENT SEALANT. 19.1208.A.3
2. ALL RIGID CONDUIT, DUCTS, PLUMBING PIPES, APPLIANCE VENTS LOCATED IN SOUND ASSEMBLIES WILL BE ISOLATED FROM THE BUILDING CONSTRUCTION BY MEANS OF RESILIENT SLEEVES, MOUNTS OR MINIMUM 1/4" THICK APPROVED RESILIENT MATERIAL.
3. AN APPROVED PERMANENT, AND RESILIENT ACOUSTICAL SEALANT WILL BE PROVIDED ALONG THE JOINT BETWEEN THE FLOOR AND THE SEPARATION WALLS.
4. CARPETS OR SIMILAR SURFACE MATERIAL WHICH ARE PART OF THE FLOOR-CEILING ASSEMBLY MUST BE INSTALLED AND INSPECTED BEFORE THE CERTIFICATE OF OCCUPANCY IS ISSUED.
5. METAL VENTIFATING AND CONDITIONED AIR DUCTS LOCATED IN SOUND ASSEMBLIES WILL BE LINED. (EXCEPTION: DUCTS SERVING ONLY EXITWAYS, KITCHEN COOKING FACILITIES, AND BATHROOMS NEED NOT BE LINED).
6. MINERAL FIBER INSULATION WILL BE INSTALLED IN JOIST SPACES WHENEVER A PLUMBING PIPING, OR DUCT PENETRATES A FLOOR-CEILING ASSEMBLY OR WHERE SUCH UNIT PASSES THROUGH THE PLANE OF THE FLOOR-CEILING ASSEMBLY FROM WITHIN A WALL. THE INSULATION SHALL BE INSTALLED TO A POINT 12" BEYOND THE PIPE OR DUCT. THIS REQUIREMENT IS NOT APPLICABLE TO FIRE SPRINKLER PIPE, GAS LINE OR ELECTRICAL CONDUIT.
7. ELECTRICAL OUTLET BOXES IN OPPOSITE FACES OF SEPARATION WALLS WILL BE SEPARATED HORIZONTALLY BY 24" AND NOTE THAT BACK AND SIDES OF BOXES WILL BE SEALED WITH 1/8" RESILIENT SEALANT AND BACKED BY A MINIMUM OF 2" THICK MATERIAL FIBER INSULATION. (TV, TELEPHONE AND INTERCOM OUTLETS MUST BE INSTALLED IN BOXES ACCORDINGLY.)
8. THE ENTRANCE DOORS TO RESIDENTIAL UNITS FORM INTERIOR CORRIDORS ARE REQUIRED TO HAVE A MINIMUM STC RATING OF 26. (LAMINATED 1 3/4" SOLID-CORE DOORS WITH RESILIENT STOPS AND GASKETS OR 18 GAUGE INSULATED STEEL DOORS WITH COMPRESSION SEALS ALL AROUND, INCLUDING THRESHOLDS WILL MEET THIS REQUIREMENT). 91.1208.3
9. WALL MOUNTED LAVATORIES AND TOILETS WILL NOT BE PERMITTED ON SOUND RATED PARTITIONS.

GRADING

1. OBTAIN APPROVAL FROM PUBLIC WORKS AND GRADING DIVISION OF BLDG AND SAFETY FOR GRADING WORK EXCEEDS 200 CUBIC YARD DURING RAINY SEASON FROM NOV. 1 TO APRIL 15 FOR EROSION CONTROL AT JOB SITE PRIOR TO CONSTRUCTION.
2. PROVIDE APPROVED DAMP-PROOFING FOR ALL WALLS BELOW GRADE THAT ENCLOSE HABITABLE OR NON-HABITABLE SPACE. 91.1492.4
3. PIPE SYSTEMS MUST HAVE CLEAN OUT ACCESS AT 1) EVERY HORIZONTAL BEND AND 2) EVERY 50' FOR ONE AND TWO FAMILY BUILDING SITES OR 100' FOR ALL OTHER BUILDING SITES; THEREFORE, PROVIDE CLEAN OUT LOCATIONS AND DETAILS ON PLANS.
4. A REGISTERED DEPUTY GRADING INSPECTOR IS REQUIRED ON ALL GRADING AND FOUNDATION EARTHWORK IN HILLSIDE AREAS' WHERE (SITE EXCEEDS 60K S.F.) (CUT OR FILL SLOPES EXCEEDS 2:1) (CUTS EXCEED 40 FT. IN HEIGHT AND WITHIN 20 FT. OF A PROPERLY LINE) (FOUNDATION EXCAVATION EXTEND BELOW A 1:1 PLANE FROM PROPERTY LINE) (PROJECTS INVOLVE UNUSUAL HAZARDS).
5. A REGISTERED DEPUTY GRADING INSPECTOR IS REQUIRED ON ALL SHORING WORK, INCLUDING THE SLOT CUTS, IN THE HILLISIDE OR NON-HILLSIDE AREAS.

BE 24" DEEP, INTERIOR FOOTINGS TO BE 18" DEEP, 2-#4 REBARS AT TOP AND BOTTOM. SLABS ON GRADE TO BE MIN. 3.5" WITH #4 BARS AND 16" O.C. IN BOTH DIRECTIONS.

STRUCTURAL

1. PROVIDE STRUCTURAL OBSERVATION. (EXCEPT FOR NEW SFD/ACCESSORY BLDGS OR ADDITIONS FOR 1 OR 2-STORY BLDGS WITHOUT BASEMENTS, OF CONVENTIONAL LIGHT WOOD FRAME CONSTRUCTION, WHERE ADJACENT GRADE IS NOT STEEPER THAN 10:1 UTILIZING SHEAR WALLS WITH FORCE LIMITS TO 300#/FT OR UPLIFT NOT GREATER THAN 3000#.)
2. 2" X 6" OR 3" X 4" MINIMUM SIZE STUDS REQUIRED FOR FIRST STORY BEARING WALLS.
3. L.A. CITY LICENSED FABRICATOR REQUIRED FOR (GLULAM BEAMS), (TRUSSES), (STRUCTURAL STEEL).
4. WELDING TO BE DONE BY WELDERS CERTIFED BY THE L.A. CITY BUILDING DEPARTMENT FOR STRUCTURAL, REINFORCING AND LIGHT GAGE STEEL.
5. JOISTS UNDER AND PARALLEL TO BEARING PARTITIONS SHALL BE DOUBLED. 91.2326.8.5
6. FOUNDATION
   - ALL NAILING SHALL UTILIZE COMMON NAILS FOR ALL HORIZONTAL DIAPHRAGMS.
   - ALL NAILING SHALL UTILIZE COMMON NAILS.
   - THE FOLLOWING APPLIES TO ALL SHEAR WALLS WITH ACTUAL SHEAR VALUE GREATER THAN 300 PLF-THESE WALLS SHALL BE CLEARLY IDENTIFIED ON THE PLANS:
   - PROVIDE 3x SILL PLATES FOR SILLS THAT REST ON CONCRETE OR MASONRY.
   - PROVIDE 3x STUDS BETWEEN ADJACENT PANELS.
   2. PROVIDE 1/2" EDGE DISTANCE FOR PLYWOOD BOUNDARY NAILING.
   3. PLATE WASHERS SHALL BE USED WITH ALL ANCHOR BOLTS.
   - 1/2" BOLT - 2X2X3/16 - 5/8" BOLT - 2.5X2.5X1/4
   - 3/4" BOLT - 2.75X2.75X5/16 - 7/8" BOLT - 2.5X2.5X1/4
   4. ALL HORIZONTAL JOINTS OCCURRING IN BRACED WALL PANELS SHALL OCCUR OVER BLOCKING EQUAL IN SIZE TO THE STUDDING.
   5. STRUCTURAL WOOD SHEAR WALLS SHALL BE COVERED WITH MIN. 2 LAYERS 15# FELT UNDERLAY PRIOR TO PLACING FINISH MATERIAL.
   - STUCCO SHEAR WALLS SHEAR UTILIZE SELF FURRING NAILS (MINIMUM 11 GA., 1-1/2" LONG, 7/16" DIAMETER HEAD, GALVANIZED FURRED A MIN OF 1/4" TO ATTACH THE LATH TO THE STUDS. STAPLES SHALL NOT BE USED.
   - PLATE WASHERS ARE REQUIRED FOR ALL HOLD DOWNS. ALL HOLD DOWN ANCHOR NUTS SHALL BE TIGHTENED JUST PRIOR TO COVERING. ALL BOLT HOLES SHALL BE DRILLED A MAXIMUM OF

SECURITY REQUIREMENTS:

1. ALL PIN-TYPE DOOR HINGES ACCESSIBLE FROM OUTSIDE SHALL HAVE NONREMOVABLE HINGE PINS. HINGES SHALL HAVE MIN. 1/4" DIA. STEEL JAMB STUD WITH 1/4" MIN. PROTECTION. THE STRIKE PLATE FOR LATCHES AND HOLDING DEVICE FOR PROJECTING DEAD BOLTS IN WOOD CONSTRUCTION SHALL BE SECURED TO THE JAMB AND THE WALL FRAMING WITH SCREWS NO LESS THAN 2-1/2" LONG. 91.6711 (E,G)
2. ANY RELEASE FOR METAL BARS, GRILLS, GRATES OR SIMILAR DEVICES CONSTRUCTED TO PRECLUDE HUMAN ENTRY THAT ARE INSTALLED SHALL BE LOCATED ON THE INSIDE OF THE ADJACENT ROOM AND AT LEAST 24 INCHES FROM THE CLOSEST OPENING THROUGH SUCH METAL BARS, GRILLS, GRATES OR SIMILAR DEVICES THAT EXCEEDS TWO INCHES IN ANY DIMENSION. 91.6722(D)
3. MULLIONS SHALL BE CONSIDERED A PART OF ADJACENT PANELS UNLESS SIZED AS REQUIRED HEREIN FOR STILES AND RAILS EXCEPT MULLIONS NOT OVER 18 INCHES LONG MAY HAVE AN OVERALL WIDTH OF NOT LESS THAN 2 INCHES. 91.6711(A)2
4. GLAZED OPENINGS WITHIN 40" OF THE DOOR LOCK WHEN THE DOOR IS IN THE CLOSED POSITION, SHALL BE FULLY TEMPERED GLASS OR APPROVED BURGLARY RESISTANT MATERIAL, OR SHALL BE PROTECTED BY METAL BARS, SCREENS OR GRILLS HAVING A MAXIMUM OPENING OF 2". THE PROVISIONS OF THIS SECTION SHALL NOT APPLY TO VIEW PORTS OR WINDOWS WHICH DO NOT EXCEED 2" IN THEIR GREATEST DIMENSIONS. 91.6720
5. LOUVERED WINDOWS SHALL BE PROTECTED BY METAL BARS OR GRILLS WITH OPENINGS THAT HAVE AT LEAST ONE DIMENSION OF 6" OR LESS, WHICH ARE CONSTRUCTED TO PRECLUDE HUMAN ENTRY. 91.6722(C)
6. OTHER OPENABLE WINDOWS SHALL BE PROVIDED WITH SUBSTANTIAL LOCKING DEVICES. 91.6722(B)
7. PROVIDE DOOR VIEWERS, VIEW PORTS, OR VIEWING WINDOWS FOR DWELLING AND GUEST ROOM ENTRANCE DOORS (ALSO SEE 6720).
8. SCREENS, BARRICADES, OR FENCES MADE OF MATERIAL WHICH PRECLUDE HUMAN CLIMBING SHALL BE PROVIDED AT EVERY PORTION OF EVERY ROOF, BALCONY, OR SIMILAR SURFACE WHICH IS WITHIN 8 FT. OF THE UTILITY POLE OR SIMILAR STRUCTURES. 6707
9. SLIDING DOORS AND WINDOWS SHALL BE PROVIDED WITH A DEVICE IN THE UPPER CHANNEL OF THE MOVING PANEL TO PROHIBIT RAISING AND REMOVING OF THE MOVING PANEL IN THE CLOSED OR PARTIALLY OPEN POSITION. 91.6712 & 6722(A)
10. SLIDING GLASS DOORS AND WINDOWS SHALL BE EQUIPPED WITH LOCKING DEVICES AND SHALL BE SO CONSTRUCTED AND INSTALLED THAT THEY REMAIN INTACT AND ENGAGED WHEN SUBJECTED TO THE TESTS SPECIFIED IN 91.6731 & 91.6732.
11. PROVIDE DEAD BOLTS WITH HARDENED INSERTS; DEAK LOCKING LATCH WITH KEY-OPERATED LOCKS ON EXTERIOR; LOCKS OPENABLE WITHOUT KEY, SPECIAL KNOWLEDGE OR SPECIAL EFFORT ON INTERIOR; THROW TYPE AND EMBEDMENT OF DEAD BOLTS FOR SINGLE SWINGING DOOR, OR BOTTOM LEAF OF DUTCH DOOR. 91.6711. FLUSH BOLTS OR SURFACE BOLTS ARE PROHIBITED. THE USE OF A LOCKING SYSTEM WHICH CONSISTS OF A DEADLOCKING LATCH OPERATED BY A DOORKNOB AND A DEADBOLT OPERATED BY A REMOVABLE THUMB TURN WHICH IS INDEPENDENT OF THE DEADLOCKING LATCH AND WHICH MUST BE SEPARATELY OPERATED, SHALL NOT BE CONSIDERED AS A SYSTEM WHICH REQUIRED "SPECIAL KNOWLEDGE OR EFFORT" WHEN USED IN SINGLE-FAMILY RESIDENCES, DUPLEXES OR INDIVIDUAL UNITS IN APARTMENT HOUSED. THE DOOR KNOB AND THE THUMB TURN WHICH OPERATES THE DEADBOLT SHALL NOT BE SEPARATED BY MORE THAN 8 INCHES. HOWEVER, IT MUST ALSO COMPLY WITH ADA'S REQUIREMENT IF REQUIRED PRIOR TO INSTALLATION.
12. STRAIGHT DEAD BOLTS SHALL HAVE A MIN. THROW OF 1" AND AN EMBEDMENT OF NOT LESS THAN 5/8", AND A HOOK-SHAPED OR AN EXPANDING-LUG DEADBOLT SHALL HAVE A MINIMUM THROW OF 3/4". 91.6711(B)
13. WOOD FLUSH-TYPE DOORS SHALL BE 1 3/8" THICK MINIMUM WITH SOLID CORE CONSTRUCTION HOLLOW CORE DOORS LESS THAN 1 3/8" IN THICKNESS COVERED ON THE INSIDE FACE WITH 16 GAUGE SHEET METAL ATTACHED WITH SCREWS A 6" ON CENTERS AROUND THE PERIMETER OR EQUIVALENT. DOOR STOPS OF IN-SWINGING DOORS SHALL BE OF ONE-PIECE CONSTRUCTION WITH THE JAMB OR JOINED BY RABBIT TO THE JAMB.
14. WOOD PANELS TYPE DOORS WITH PANELS FABRICATED OF LUMBER NOT LESS THAN 9/16 IN THICKNESS, PROVIDED SHAPED PORTIONS OF THE PANELS ARE NOT LESS THAN 1/4 IN. THICK. INDIVIDUAL PANELS SHALL NOT EXCEED 300 SQ. FT. IN AREA. STILES AND RAILS SHALL BE OF SOLID LUMBER IN THICKNESS WITH OVERALL DIMENSIONS OF NOT LESS THAN 1 3/8 INCHES AND 3 INCHES IN WIDTH.
15. PROVIDE METAL GUIDES AT TOP AND BOTTOM OF METAL ACCORDION GRATE OR GRILLE-TYPE DOORS.
16. CYLINDER GUARDS SHALL BE INSTALLED ON ALL CYLINDER LOCKS WHENEVER THE CYLINDER PROJECTS BEYOND THE FACE OF THE DOOR OR IS OTHERWISE ACCESSIBLE TO GRIPPING TOOLS. 91.6711(F)

ENERGY REQUIREMENTS:

1. A NIGHT SETBACK THERMOSTAT SHALL BE INSTALLED. MINIMUM 40 LUMENS/WATT EFFICIENCY SHALL BE PROVIDED FOR GENERAL LIGHTING IN KITCHENS AND BATHROOMS (FLORESCENT LIGHTS).
2. PROVIDE R-12 EXTERIOR BLANKET FOR HOT WATER HEATER AND SOLAR TANKS. R-3 INSULATION SHALL BE PROVIDED FOR THE FIRST FIVE FEET OF THE WATER OUTLET PIPE. ALL WATER HEATING AND SPACE CONDITIONING EQUIPMENT, SHOWER HEADS AND FAUCETS SHALL BE C.E.C. CERTIFIED. ALL STEAM AND STEAM CONDENSATE RETURN PIPING AND ALL CONTINUOUSLY CIRCULATING DOMESTIC HEATING OR HOT WATER PIPING SHALL BE INSULATED PER PLUMBING DIVISION.
3. DUCTS SHALL BE CONSTRUCTED, INSTALLED AND INSULATED PER CHAPTER 10 OF 1994 UMC. BACK DRAFT DAMPERS FOR ALL EXHAUST AND FAN SYSTEMS SHALL BE PROVIDED. MASONRY AN FACTORY BUILT FIREPLACES SHALL BE INSTALLED WITH TIGHT FITTING, CLOSEABLE METAL OR GLASS DOORS, OUTSIDE AIR INTAKE WITH DAMPER, AND FLUE DAMPER. CONTINUOUS BURNING GAS PILOTS ARE PROHIBITED.
4. ALL INSULATION MATERIALS SHALL BE CERTIFIED BY THE MANUFACTURER AS COMPLYING WITH THE CALIFORNIA QUALITY STANDARDS FOR INSULATING MATERIAL. DOORS AND WINDOWS BETWEEN CONDITIONED AND OUTSIDE OF UNCONDITIONED SPACES SUCH AS GARAGES AND COMPARTMENTS FOR CENTRAL AIR GAS FURNACES SHALL BE FULLY WEATHERSTRIPPED.
5. MANUFACTURED DOORS AND WINDOWS SHALL BE CERTIFIED AND LABELED IN COMPLIANCE WITH THE APPROPRIATE INFILTRATION STANDARDS. CAULK PLUMBING AND ELECTRICAL PENETRATIONS, ALL WINDOW AND DOOR FRAMES, BETWEEN WALL SOLEPLATES AND FLOORS AND ALL OTHER OPENING IN THE ENVELOPE. ALL EXTERIOR OPENINGS SHALL BE PROPERLY WEATHERSTRIPPED, CERTIFIED, AND LABELED.
6. THE BUILDING DESIGN MEETS THE REQUIREMENTS OF TITLE 24, PART 2, CHAPTER 2.53. INSULATION INSTALLER SHALL POST IN A CONSPICUOUS LOCATION IN THE BUILDING A CERTIFICATE SIGNED BY THE INSTALLER AND BUILDER STATING THAT THE INSTALLATION CONFORMS WITH THE REQUIREMENTS OF TITLE 24, CHAPTER 2.53 AND THAT THE MATERIALS INSTALLED CONFORM LIGHTS).

GENERAL :

1. THE CONSTRUCTION SHALL NOT RESRICT A FIVE-FOOT CLEAR AND UNOBSTRUCTED ACCESS TO ANY WATER OR POWER DISTRIBUTION FACILITIES (POWER POLES,PULL-BOXES, TRANSFORMERS. VAULTS, PUMPS, VALVES, METERS, APPURTENANCES, (ETC.) OR TO THE LOCATION OF THE HOOK-UP. THE CONSTRUCTION SHALL NOT BE WITHIN 10' OF ANY POWER LINES- WHETHER OR NOT THE LINES ARE LOCATED ON THE PROPERTY. FAILURE TO COMPLY MAY CAUSE CONSTRUCTION DELAYS AND/OR ADDITIONAL EXPENSES. OBTAIN APPROVAL FROM REAL ESTATE BUSINESS UNIT OF DWP.
8. INSTALL A SEISMIC GAS SHUTOFF VALVE ON EACH FUEL GAS LINE FOR NEW BUILDINGS AND ALTERATIONS IN EXCESS OF $10,000. CONTACT THE PLUMBING DIVISION FOR MORE INFORMATION.
9. OBTAIN PERMIT FROM PUBLIC WORKS FOR A PROTECTION FENCE CANOPY ON OR OVER ANY STREET OR PUBLIC SPACE.
10. OBTAIN APPROVAL FROM PUBLIC WORKS AND BUILDING DEPARTMENT FOR ANY TEMPORARY SHORING/ EXCAVATIONS THAT REMOVE THE LATERAL SUPPORT FROM A PUBLIC WAY PRIOR TO CONSTRUCTION.
11. FOR SITE WITHIN POTENTIAL METHANE ZONE, OBTAIN APPROVAL FROM FIRE DEPARTMENT AND MECHANICAL DIVISION OF BUILDING DEPARMENT FOR INSTALLING A MECHANICAL VENTING SYSTEM PER MGD #32.
12. OBTAIN PERMIT FROM THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY PRIOR TO PERMIT ISSUANCE FOR:
    - FOR TRENCHES OR EXCAVATIONS 5 FT OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND.
    - THE CONSTRUCTION OR DEMOLITION OF ANY BUILDING, STRUCTURE, OR SCAFFOLDING OR FALSE WORK MORE THAN 3 STORIES OR 36' IN HEIGHT. HSC 17922.5 6.

SPECIAL HAZARDS:

1. ROOF OBSTRUCTIONS SUCH AS TELEVISION ANTENNA, GUY WIRES, SOLARPANELS,RAZOR RIBBON, FENCE CABLE , OR OTHER OBSTRUCTION SHALL NOT PREVENT FIRE DEPARTMENT ACCESS OR EGRESS IN THE EVENT OF A FIRE. LAMC 57.12.02.
2. PROVIDE COLLISION BARRIERS ADEQUATE TO PROTECT CONTROL METERS, REGULATORS, AND PIPING FOR HAZARDOUS MATERIAL THAT ARE EXPOSED TO VEHICULAR DAMAGE. LAMC 57.20.07
3. THE INDOOR STORAGE OF COMBUSTIBLE MATERIALS SHALL BE REGULATED IN RELATION TO ARRANGEMENT, LOCATION, SIZE OF AREAS, HEIGHT, SEPARATIONS, AND HOUSEKEEPING.LAMC 57.57.03

FIRE PROTECTIONS:

1. DRAFT STOPPING:
   - IT SHALL BE PROVIDED WITHIN A CONCEALED FLOOR-CEILING ASSEMBLY FORMED OF COMBUSTIBLE CONSTRUCTION. 91.708.3.1.1
   - IT SHALL BE PROVIDED WITHIN ATTICS, MANSARDS, OVERHANGS AND SIMILAR CONCEALED SPACES FORMED OF COMBUSTIBLE CONSTRUCTION. 91.708.3.1.2
   - IT SHALL BE REQUIRED ABOVE & IN LINE WITH WALLS SEPARATING TENANT SPACES FROM EACH OTHER AND FROM OTHER USES . 91.708.3
2. UNPROTECTED OPENINGS ARE PROHIBITED IN ENVELOPE PROTECTION TYPE CEILINGS. ALL DUCT OPENINGS REQUIRE FIRE DAMPERS AND ARE LIMITED IN AREA TO 100 SQ.IN. IN ANY 100 SQ.FT. OF CEILING. ACCESS OPENINGS REQUIRE 1-HOUR FIRE RATED ASSEMBLIES WITH CLOSING DEVICES APPROVED BY THE DEPARTMENT 91.710.2
3. SMOKE DETECTORS:
   - IN EACH DWELLING UNIT AND GUEST ROOM, PROVIDE A SMOKE DETECTOR MOUNTED ON THE CEILING OF WALL OF EACH SLEEPING ROOM, AT A POINT CENTRALLY LOCATED ON THE WALL OR CEILING OF THE HALLWAY OR ROOM GIVING ACCESS TO THE SLEEPING ROOM AND AT THE TOP OF STAIRWAY WITH SLEEPING ROOM(S) AT THE UPPER LEVEL. 91.310.9.1.4
   - A SMOKE DETECTOR SHALL BE INSTALLED IN THE BASEMENT OF DWELLING UNITS HAVING A STAIRWELL WHICH OPENS INTO THE DWELLING. 91.310.9.1.4
4. SPRINKLER SYSTEM: IF REQUIRED TO BE APPROVED BY PLUMBING DIVISION OF THE BUILDING DEPARTMENT PRIOR TO NSTALLATION.
5. FIRE EXTINGUISHERS: LOCATION TO BE APPROVED BY FIRE/BUILDING INSPECTOR.
   - PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A 10BC WITHIN 75 FEET OF TRAVEL ISTANCE TO ALL PORTIONS OF THE BUILDING ON EACH FLOOR, ALSO DURING CONSTRUCTION. LAMC 57.140.10
6. FIRE LANE IS REQUIRED WHERE ANY OF THE FIRST STORY EXTERIOR WALLS OF A BUILDING (OR THE ENTRANCE TO ANY DWELLING UNIT OR GUEST ROOM) MORE THAN 150 FT FROM THE EDGE OF AN IMPROVED STREET OR APPROVED FIRE LANE (AS MEASURED ALONG THE NORMAL ENTRANCE ROADWAY OR WALKWAY). OBTAIN CLEARANCE FROM THE THE HYDRANTS AND ACCESS UNITOF THE FIRE DEPARTMENT IN ROOM 920 CITY HALL EAST..(LAMC 57.09.03)
7. PROVIDE AN APPROVED SPARK ARRESTER FOR THE CHIMNEY OF A FIREPLACE, STOVE, 0R BARBECUE DEVICE WHICH USES FUEL BURNING MATERIAL LAMC 57.20.25

INTERIOR:

0. PROVIDE 70 INCH HIGH NON-ABSORBENT WALL ADJACENT TO SHOWER AND APPROVED SHATTER RESISTANT MATERIALS FOR SHOWER. 91,807.13, 91,2406.4
1. ONLY LOW CONSUMPTION WATER CLOSETS SHALL BE PROVIDED
2. ENCLOSED USEABLE SPACE UNDER INTERIOR STAIRS REQUIRES 1-HOUR FIRE-RESISTANCE CONSTRUCTION ON ENCLOSED SIDE. 91.1003.3.9
4. EXIT DOORWAYS SHALL BE NOT LESS THAN 36"X6'-8"(WIDTHXHEIGHT). PROJECTIONS, INCLUDING PANIC HARDWARE, SHALL NOT REDUCE THE OPENING TO LESS THAN 32" CLEAR WIDTH 91.1003.3.1.3
5. PROVIDE 32" WIDE DOORS TO ALL ACCESSIBLE ROOMS WITHIN A DWELLING UNIT.
6. GLASS SKYLIGHTS SHALL COMPLY WITH PLASTIC SKYLIGHT SHALL COMPLY WITH
7. PROVIDE WINDOW WELLS (WITH FIXED LADDER) FOR EGRESS WINDOWS BELOW GRADE. 91.310.4.3
8. WATER HEATER ARE REQUIRED TO BE ANCHORED.
9. PROVIDE ACCESS TO THE BOTTOM OF COURT FOR CLEANING PURPOSES.
10. COURT MORE THAN TWO STORIES IN HEIGHT SHALL BE PROVIDED WITH A HORIZONTAL AIR INTAKE WITH A MINIMUM AREA OF 10 SQ. FT.

POOL

1. PROVIDE AN ALARM FOR DOORS TO THE DWELLING THAT FORM A PART OF THE POOL ENCLOSURE. THE ALARM SHALL SOUND CONTINUOUSLY FOR A MIN. OF 30 SECONDS IMMEDIATELY AFTER THE DOOR IS OPENED AND BE CAPABLE OF BEING HEARD THROUGHOUT THE HOUSE DURING NORMAL HOUSEHOLD ACTIVITIES. IT SHALL AUTOMATICALLY RESET AND SHALL BE EQUIPPED WITH A MANUAL MEANS TO TEMPORARILY DEACTIVATE (FOR 15 SECS. MAX.) FOR A SINGLE OPENING. THE DEACTIVATION SWITCH SHALL BE AT LEAST 54" ABOVE THE FLOOR. OR A SELF-CLOSING AND SELF-LATCHING FENCE MIN, 4'-6" ABOVE GROUND ENCLOSING POOL AREA WITH LATCH AT FENCE MIN. HEIGHT. (4" MAX OPENING BETWEEN RAILS).

JAG

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☐ SCOPE DOCUMENT

This preliminary drawing indicates the general scope of the project in terms of architectural design concept, the dimensions of the building, the major architectural elements and the type of structural, mechanical, and electrical systems. As scope documents the drawings do not necessarily indicate or describe all work required for full performance and completion of the requirements of the contract documents. On the basis of the general scope indicated or described, the contractor shall furnish all items required for proper execution and completion of the work.

☐ SEAL

LICENSED ARCHITECT John Tim Andrews No. C-15605 STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

☐ CLIENT:

Thousand Peaks LLC

☐ ADDRESS:

24600 Thousand Peaks Road
Calabasas, CA 91302

☐ PROJECT / SCOPE:

Proposed:

New Single Family
RESIDENCE
with Attached 2 Car Garage

☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:

NOTES

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
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GENERAL REQUIREMENTS

1. Plumbing fixtures and fixture fittings on the plans shall comply with the following flow rates:
   a. Water Closets – 1.28 GPF
   b. Urinals – 0.5 GPF
   c. Single showerhead – 2.0 GPM at 80psi
   d. Multiple showerheads – 2.0 GPM at 80psi for all combined showerheads
   e. Lavatory faucets – 1.5 GPM at 60psi
   f. Lavatory faucets in public use areas – 0.5 GPM at 60psi
   g. Metering faucets - .25 gallons per cycle
   h. Kitchen faucets – 1.8 GPM at 60psi (4.303.1)
2. Annular spaces around pipes, electrical cables, conduits, or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry, or a similar method acceptable to the enforcing agency. (4.406.1)
3. Fireplaces shall be direct vent sealed combustion chamber type. Indicate on the plans the manufacturer name and model number. (4.503.1)
4. At the time of rough installation, during storage on the construction site, and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal, or other acceptable methods to reduce the amount of water, dust and debris which may collect in the system. (4.504.1)
5. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19% moisture content. Insulation products which are visibly wet or have high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. (4.505.3)
6. All mechanical exhaust fans in rooms with a bathtub or shower shall comply with the following:
   a. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
   b. Fans must be controlled by a readily accessible humidistat unless functioning as a component of a whole house ventilation system. Humidity control shall be capable of adjustment between a relative humidity range of 50% and 80%. (4.506.1)
7. Adhesives, sealants and caulks shall meet or exceed the standards outlined in Section 4.504.2.1 and comply with the VOC limits in Tables 4.504.1 and 4.504.2 as applicable. (4.504.2.1)
8. Paints and coatings shall meet or exceed the standards outlined in Section 4.504.2.2 and comply with the VOC limits in Table 4.504.3. (4.504.2.2)
9. Aerosol paints and coatings shall meet or exceed the standards outlined in Section 4.504.2.3. (4.504.2.3)
10. All carpet installed in the building interior shall meet all the testing and product requirements of one of the following:
    a. Carpet and Rug Institute's Green Label Plus Program OR
    b. California Department of Public Health Standard Method for the testing of VOC Emissions (Specification 01350) OR
    c. NSF/ANSI 140 at the Gold Level OR
    d. Scientific Certifications Systems Indoor Advantage Gold (4.504.3)
11. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label Program. Carpet adhesives shall not exceed a VOC limit of 50 g/L. (4.504.3.1, 4.504.3.2)
12. A minimum of 80% of floor area receiving resilient flooring shall comply with one of the following:
    a. VOC emission limits defined in the CHPS High Performance Products Database, OR
    b. Products compliant with CHPS criteria certified under the Greenguard Children & Schools program, OR
    c. RFCI FloorScore program, OR
    d. Meet the California Department of Public Health Standard Method for the testing of VOC Emissions (Specification 01350) (4.504.4)
13. Composite wood products (hardwood plywood, particle board, and MDF) installed on the interior or exterior of the building shall meet or exceed the standards outlined in Table 4.504.5. Verification of compliance with these sections must be provided at the time of inspection. (4.504.5)

TABLE 4.504.1/TABLE 5.504.4.1
ADHESIVE VOC LIMIT[1,2]
Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds

ARCHITECTURAL APPLICATIONS	CURRENT VOC LIMIT
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet pad adhesives	150
Wood flooring adhesives	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Drywall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single-ply roof membrane adhesives	250
Other adhesives	50
SPECIALITY APPLICATIONS	
PVC welding	510
CPVC welding	490
ABS welding	325
Plastic cement welding	250
Adhesive primer for plastic	550
Contact adhesive	80
Special purpose contact adhesive	250
Structural wood member adhesive	140
Top and trim adhesive	250
SUBSTRATE SPECIFIC APPLICATIONS	
Metal to metal	30
Plastic foams	50
Porous material (except wood)	50
Wood	30
Fiberglass	80

1. If an adhesive is used to bond dissimilar substrates together, the adhesive with the highest VOC content shall be allowed.
2. For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168

TABLE 4.504.5/TABLE 5.504.4.5
FORMALDEHYDE LIMITS[1]
Maximum Formaldehyde Emissions in Parts per Million

PRODUCT	CURRENT LIMIT
Hardwood plywood veneer core	0.05
Hardwood plywood composite core	0.05
Particleboard	0.09
Medium density fiberboard	0.11
Thin medium density fiberboard[2]	0.13

1. Values in this table are derived from those specified by the California Air Resources Board, Air Toxics Control Measure for Composite Wood as tested in accordance with ASTM E 1333. For additional information, see *California Code of Regulations*, Title 17, Section 93120 through 93120.12.
2. Thin medium density fiberboard has a maximum thickness 5/16 inch (8mm).

TABLE 4.504.2/TABLE 5.504.4.2
SEALANT VOC LIMIT
Less Water and Less Exempt Compounds in Grams Per Liter

SEALANTS	CURRENT VOC LIMIT
Architectural	250
Marine deck	760
Nonmembrane roof	300
Roadway	250
Single-ply roof membrane	450
Other	420
SEALANT PRIMERS	
Architectural Nonporous Porous	 250 775
Modifited bituminous	500
Marine deck	760
Other	750

Note: For additional information regarding methods to measure the VOC content specified in this table, see South Coast Air Quality Management District Rule 1168.

TABLE 4.504.3/TABLE 5.504.4.3
VOC CONTENT LIMITS FOR ARCHITECTURAL COATING[2,3]
Grams of VOC per Liter of Coating, Less Water and Less Exempt Compounds

COATING CATEGORY	VOC LIMIT	COATING CATEGORY	VOC LIMIT
Flat coatings	50	Magnesite cement coatings	450
Nonflat coatings	100	Mastic texture coatings	100
Nonflat high-gloss coatings	150	Metallic pigmented coatings	500
SPECIALTY COATINGS		Multi-color coatings	250
Aluminum roof coating	400	Pretreatment wash primers	420
Basement specialty coatings	400	Primers, sealers, and undercoaters	100
Bituminous roof coatings	50	Reactive penetrating sealers	350
Bituminous roof primers	350	Recycled coatings	250
Bond breakers	350	Roof coatings	50
Concrete curing compounds	350	Rust preventative coatings	250
Concrete/masonry sealers	100	Shellacs: Clear Opaque	 730 550
Driveway sealers	50	Specialty primers, sealers and undercoaters	100
Dry fog coatings	150	Stains	250
Faux finishing coatings	350	Stone consolidants	450
Fire resistive coatings	350	Swimming pool coatings	340
Floor coatings	100	Traffic marking coatings	100
Form-release compounds	250	Tub and tile refinish coatings	420
Graphic arts coatings (sign paints)	500	Waterproofing membranes	250
High-temperature coatings	420	Wood coatings	275
Industrial maintenance coatings	250	Wood preservatives	350
Low solids coatings[1]	120	Zinc-rich primer	340

1. Grams of VOC per liter of coating, including water and including exempt compounds.
2. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
3. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.

SECURITY REQUIREMENTS

1. Exterior doors, doors between house and garage, windows and their hardware shall conform to the Security Provisions of Chapter 67 of the Los Angeles County Building Code (LACBC):
   a. Single swinging doors, active leaf of a pair of doors, and the bottom leaf of Dutch doors shall be equipped with a latch and a deadbolt key operated from the outside. Deadbolts shall have a hardened insert with 1" minimum throw and 5/8" minimum embedment into the jamb. If a latch has a key locking feature, it shall be dead latch type. (BC6709.2)
   b. Inactive leaf of a pair of doors and the upper leaf of Dutch doors shall have a deadbolt as per paragraph "a", unless it is not key operated from the exterior, or has a hardened deadbolt at top and bottom with ½" embedment. (BC 6709.3)
   c. Swinging wood door(s) shall be solid core not less than 1-3/8" thick , (BC 6709.1.1)
   d. Panels of wood doors shall be 9/16" thick and not more than 300 sq. inches. Stiles and rails to be 1- 3/8" thick and 3" minimum width. (BC6709.1.2)
   e. Door hinge pins accessible from the outside shall be non-removable. (BC 6709.5)
   f. Door stops of wood jambs of in-swinging doors shall be one piece construction or joined by a rabbet. (BC 6709.4)
   g. Windows and door lights within 40" of the locking device of the door shall be fully tempered/approved burglary resistant/protected by bars, screens or grills. (BC 6714)
   h. Overhead and sliding garage doors shall be secured with a cylinder lock, a padlock with a hardened steel shackle, or equivalent when not otherwise locked by electric power operation. Jamb locks shall be on both jambs for doors exceeding 9 feet in width (BC 6711)
   I. Sliding glass doors and sliding glass windows shall be capable of withstanding the tests set forth in Section 6706 and 6707 of the Los Angeles County Building Code and shall bear a label indicating compliance with these tests. (BC 6710, 6715)

CONSTRUCTION REQUIREMENTS

2. Notching of exterior and bearing/nonbearing walls shall not exceed 25% / 40% of its width, respectively. Bored holes in bearing/nonbearing walls shall not exceed 40% / 60% of its width, respectively. (RC 602.6)
3. Interior finishes in Group R-3 shall have a flame spread index of not greater than 200, and a smokedeveloped index not greater than 450. (RC 302.9)
4. Provide fire blocking in concealed spaces of stud walls, partitions, including furred spaces, at the ceiling and floor level, and at 10-foot intervals both vertical and horizontal. (RC 302.10)
5. Ducts installed under a floor in a crawl space shall not prevent access to an area of the crawl space. Where it is required to move under ducts for access to areas of the crawl space, a vertical clearance of 18" minimum shall be provided. (MC 603.1)
6. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than .019 inch (No. 26 galvanized sheet). (RC 903.2.1)
7. Note on the plans: "Roof diaphragm nailing to be inspected before covering. Face grain of plywood shall be perpendicular to supports."
8. Subfloors shall have end-matched lumber, have blocked panel edges, or occur over supports. Floor sheathing shall comply with Section R503.

GLAZING REQUIREMENTS

9. The following shall be considered specific hazardous locations requiring safety glazing per Section R308:
   a. Glazing in fixed and operable panels of swinging, sliding, and bifold doors.
   b. Glazing in fixed or operable panels adjacent to a door where the nearest vertical edge of the glazing is within a 24-inch arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches above the walking surface.
   c. Window glazing in an individual fixed or operable panel, that meets all of the following conditions:
      1. The exposed area of an individual pane is larger than 9 square feet.
      2. The bottom edge is less than 18 inches above the floor.
      3. The top edge is more than 36 inches above the floor.
      4. One or more walking surfaces are within 36 inches, measured horizontally and in a straight line, of the glazing
      d. Glazing in guards, railings, structural baluster panels, and nonstructural in-fill panels, regardless of area or height above a walking surface.
      e. Glazing in walls, enclosures or fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers, and indoor or outdoor swimming pools, where all of the following conditions are present:
         1. The bottom edge of the glazing is less than 60 inches above any standing or walking surface.
         2. The glazing is within 60 inches, measured horizontally and in a straight line, from a hot tub, spa, whirlpool, bathtub, or swimming pool.
   f. Glazing adjacent to stairs and ramps where the bottom exposed edge is less than 36 inches above the plane of the adjacent walking surface of stairways, landings between flights of stairs, and ramps, unless the glazing is more than 36 inches measured horizontally from the walking surface, or a rail is designed per Section R308.4.6.
   g. Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches above the landing and within 60 inches horizontally of the bottom tread, unless the glazing is more than 18 inches from a protective guard per Section R312.

MECHANICAL/PLUMBING/ELECTRICAL CODE REQUIREMENTS

10. Dwelling shall be provided with comfort heating facilities capable of maintaining a room temperature of 68 degrees F at 3 feet above the floor and 2 feet from exterior walls. (R303.9)
11. The following are required for central heating furnaces and low-pressure boilers in a compartment:
    a. Listed appliances shall be installed with clearances in accordance with the terms of their listings and the manufacturer's installation instructions. (MC 904.2(1))
    b. Unlisted appliances shall meet both the clearances in Table 904.2, and the clearances allowed by the manufacturer's installation instructions. (MC 904.2(2))
    c. When combustion air is taken from inside, the area of combustion air openings shall be 1 sq. inch per 1,000 BTU (100 sq. inch minimum) per opening. One Opening shall be within 12 inches of the ceiling and the second shall be within 12 inches of the bottom of the enclosure. The dimension shall not be less than 3 inches. (MC 701.5(1))
    d. 1/4 inch screens are required at openings where combustion air is taken from the outside. (MC 701.10(2))
    e. Separate ducts shall be used for upper and lower combustion air openings, and maintained to the source of combustion air. (MC 701.11(4))
12. The following are required for appliances installed in an attic:
    a. An opening and passageway shall not be less than 22 inches by 30 inches, or less than the size of the largest piece of equipment. (MC 904.10)
    b. Where the passageway height is less than 6 feet, the distance from access to the appliance shall not exceed 20 feet, as measured along the centerline. (MC 904.10.1)
    c. Passageway shall be unobstructed and shall have solid flooring not less than 24 inches wide from entrance to appliance. (MC 904.10.2)
    d. A level working platform not less than 30 inches by 30 inches is required in front of the service side of the appliance. (MC 904.10.3)
    e. A permanent 120V receptacle outlet and a lighting fixture shall be installed near the appliance. Light switch shall be located at the entrance to the passageway. (MC 904.10.4)
    f. A type B or L gas vent shall terminate not less than 5 feet above the highest connected appliance flue collar or draft hood. (MC 802.6.2.1)
    g. Appliance installation shall meet all listed clearances. (MC 303.2)
13. Clothes dryer moisture exhaust duct shall terminate on the outside of the building and shall be equipped with a back-draft damper. Screens shall not be used and the exhaust duct may not extend into or through ducts and plenums. (MC 504.3)
14. Clothes dryer moisture exhaust duct shall be 4 inches in diameter and length is limited to 14 feet with two elbows from the clothes dryer to point of termination. Duct length shall be reduced by 2 feet for every elbow in excess of two. (MC 504.3.1 & 504.3.1.2)
15. Heating appliances (water heater, furnace, etc.) located in the garage, which create a glow, spark or flame, shall be installed at least 18 inches above the floor. (MC 308.1)
16. Ducts shall be sized per Chapter 6 of the Mechanical Code.
17. The effective flush volume of all water closets shall not exceed 1.28gpf. Urinals shall be 0.5gpf maximum. (GC 4.303.1.1)
18. Single shower heads shall have a maximum flow rate or 2.0gpm at 80psi. Multiple shower heads serving one shower shall have a combined flow rate of 2.0gpm at 80psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time. (GC 4.303.1.3)
19. Lavatory faucets shall not exceed 1.5gpm at 60psi. The minimum flow rate shall not be less than 0.8gpm at 20psi. (GC 4.303.1.4)
20. Kitchen faucets shall not exceed 1.8gpm at 60psi. The faucet may temporarily increase to above this rate, but not to exceed 2.2gpm at 60psi, and must default to the maximum flow rate of 1.8gpm at 60psi. (GC 4.303.1.4)
21. ABS and PVC DWV piping installations are limited to not more than two stories of areas. (PC 701.1(2))
22. All showers and tub-showers shall have a pressure balance, thermostatic mixing valve, or a combination pressure balance/thermostatic mixing type valve. (PC 418)
23. All new, replacement and existing water heaters shall be strapped to the wall in two places. One on the upper 1/3 of the tank, and one on the lower 1/3 of the tank. The lower point shall be a minimum of 4 inches above the controls. (PC 508.2)
24. Plumbing plan check and approval are required for 2 inch or larger gas lines and/or water lines.
25. Ground-fault circuit-interruption (GFCI) for personnel shall be provided per EC section 210.8(A), and installed in a readily accessible location.
26. Arc-fault circuit-interruption shall be installed to provide protection of the branch circuit. (EC 210.12)
27. Tamper-resistant receptacles shall be installed in all areas specified in 210.52, all nonlocking-type 12-volt, 15- and 20-ampere receptacles shall be listed tamperresistant receptacles. (EC 406.12)
28. Where NM Cable (Romex) is run across the top of ceiling joists and/or where the attic is not accessible by permanent stairs or ladders, protection within 6 feet of the nearest edge of the scuttle or attic entrance shall be provided. (EC 334.23, 320.23(A))

PUBLIC WORKS

BEST MANAGEMENT PRACTICES FOR CONSTRUCTION ACTIVITIES*

Storm Water Pollution Control Requirements for Construction Activities
Minimum Water Quality Protection Requirements for All Development Construction Projects/Certification Statement

The following is intended as minimum notes or as an attachment for building and grading plans and represent the minimum standards of good housekeeping that must be implemented on all construction sites regardless of size. (Applies to all permits)

- Every effort should be made to eliminate the discharge of non-stormwater from the project site at all times.
- Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheetflow, swales, area drains, natural drainage courses or wind.
- Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.
- Fuels, oils, solvents and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.
- Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on site until they can be disposed of as solid waste.
- Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.
- Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.
- Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/or inaccurate information, failing to update the ESCP to reflect current conditions, or failing to properly and/or adequately implement the ESCP may result in revocation of grading and/or other permits or other sanctions provided by law."

Print Name _____
(Owner or authorized agent of the owner)

Signature _____ Date _____
(Owner or authorized agent of the owner)

*The above Best Management Practices are detailed in the latest edition of the California BMP Handbook or Caltrans Stormwater Quality Handbooks.

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☐ SCOPE DOCUMENT

This preliminary drawing indicates the general scope of the project in terms of architectural design concept, the dimensions of the building, the major architectural elements and the type of structural, mechanical, and electrical systems. As scope documents the drawings do not necessarily indicate or describe all work required for full performance and completion of the requirements of the contract documents. On the basis of the general scope indicated or described, the contractor shall furnish all items required for proper execution and completion of the work.

☐ SEAL

LICENSED ARCHITECT John Tim Andrews No. 15605 STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

☐ CLIENT:
Thousand Peaks LLC

☐ ADDRESS:
24600 Thousand Peaks Road
Calabasas, CA 91302

☐ PROJECT / SCOPE:
Proposed:
New Single Family
RESIDENCE
with Attached 2 Car Garage

☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:
NOTES

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 3/ 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
A1.2

EXITS & STAIRS

1. Required egress doors shall not swing over a landing that is more than 1.5-in. in height below the threshold.

2. Stairway must follow these rules:
   a. Maximum rise of 7.75-in. and minimum run (tread) of 10-in. with maximum 3/8-in. variance.
   b. Where tread depth is < 11-in. a nosing between .75-in. & 1.25-in. shall be provided.
   c. Minimum width of 36-in. (max. 4.5-in. handrail projection is permitted on each side).
   d. Minimum headroom of 6-ft. 8-in.
   e. Framing (stringer, landing, etc.) size, bracing, connections, and footings.
   f. Stairways shall be positively anchored to the primary structure without the use of toenails or nails subject to withdrawal.
3. ~~Spiral Stairways shall meet the following:~~
   ~~a. Submit shop drawings for spiral stairway showing compliance with Section R311.7.10.1.~~
   ~~b. Provide spiral stairway column connections & footing details.~~

4. Handrails shall satisfy the following:
   a. Provide a minimum of one continuous handrail on stairways with 4 or more risers and at all open sides.
   b. Handrail height shall be 34 to 38 inches above the nosing of treads.
   c. Openings between intermediate balusters shall not allow the passage of a 4-3/8-in. diameter sphere. The triangular openings formed by the riser, tread and bottom rail shall not allow the passage of a 6-in. diameter sphere.
   d. Handrail grips shall be either Type I or Type II specified in Section R311.7.8.3.
   e. Return handrail(s) to newel post or wall.

5. Guards shall meet the following:
   a. Provide guards where the open side is more than 30-in. above the floor or grade below at any point within 36-in. horizontally to the edge of the open side.
   b. Guard height shall be a minimum of 42-in.
   c. Required guards shall not have openings which allow passage of a sphere 4 inches in diameter.

VENTILATION

6. Attic Vents shall meet the following:
   a. The net free ventilating area shall not be less than:
      1. 1/150 of the attic space OR
      2. 1/300 provided a Class I or II vapor barrier is installed on the warm side of ceiling OR
      3. 1/300 provided at least 50% and not more than 80% of the required ventilation area must be located at least 3 feet above eave or cornice vents with the balance provided by eave or cornice vents.
   b. Openings shall have corrosion-resistant wire mesh or other approved material with 1/16-in. minimum and 1/4-in. maximum opening.
   c. A minimum of 1-in. airspace shall be provided between insulation and roof sheathing.

GARAGE & CARPORT

7. The following is required for the separation of the private garage from the dwelling unit:
   a. Garages beneath habitable rooms shall be separated by no less than 5/8-in. Type X gypsum board. Provide minimum 1/2-in. gypsum board on the garage side elsewhere.
   b. Doors to the dwelling unit shall be solid wood or solid or honeycomb core steel and not less than 1-3/8-in. thick, or 20 minute rated, unless the dwelling unit and the garage are protected by an automatic fire sprinkler system. Doors shall be self-closing and self-latching.

VENEER / FIREPLACE

8. Wood burning fireplace is prohibited per AQMD's Rule 445. Gas-fueled fireplace or wood burning fireplace above 3,000-ft elevation is allowed when exemptions in Rule 445 are met.
9. For Factory-built steel fireplace specify manufacturer, model and I.C.C./UL number or other approved agency.

GENERAL REQUIREMENTS

10. Buildings/structures erected, constructed, altered, repaired or moved within or into a Very High Fire Hazard Severity Zone shall comply with the following requirements. (701A.3; R327.1.3)

11. Paints, coatings, stains or other surface treatments are NOT AN APPROVED method of protection required in Chapter 7A / Section R327.

ROOFING

12. Roof covering shall be Class A as specified in Section 1505.2/R902.

13. Detail the space between the roof covering and roof decking; the spaces shall be constructed to prevent the intrusion of flames and embers, or provide one layer of 72 pound mineral-surfaced nonperforated cap sheet meeting ASTM D3909.

14. Wood-shingle and wood-shake roofs are PROHIBITED regardless of classification.

15. Valley flashings shall be not less than 0.019-inch (No. 26 galvanized sheet gage) corrosionresistant metal installed over a 36-in. wide underlayment consisting of one layer of 72 pound mineral-surfaced nonperforated cap sheet meeting ASTM D3909 running the full length of the valley.

16. Roof gutters shall be design to prevent the accumulation of leaves and debris.

VENT

17. Vent openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces, and underfloor vents shall resist building ignition from the intrusion of burning embers and flame through the vent openings. Vent openings shall be protected by corrosion resistant, noncombustible wire mesh with min. 1/16" and max. 1/8" openings.

18. Vents shall NOT be installed on underside of eaves and cornices.

EXTERIOR WALLS

19. Exterior wall covering or wall assembly shall comply by meeting one of the following:
    a. Noncombustible construction OR
    b. Ignition resistant material OR
    c. Heavy Timber construction OR
    d. Log wall construction OR
    e. Complies with SFM 12-7A-1

OPEN ROOF EAVES

20. Exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following:
    a. Noncombustible material
    b. Ignition-resistant material
    c. One layer of 5/8" Type X applied behind an exterior covering on the underside exterior of roof deck
    d. Exterior portion of a 1-hr fire resistive exterior wall assembly applied to the underside of roof deck designed for exterior fire exposure per Gypsum Association Fire Resistance Design Manual

ENCLOSED ROOF EAVES AND ROOF EAVE SOFFITS

21. Exposed underside shall be protected by one of the following:
    a. Noncombustible material
    b. Ignition-resistant material
    c. One layer of 5/8" Type X applied behind an exterior covering on the under side of therafter tails or soffit
    d. Exterior portion of a 1-hr fire resistive exterior wall assembly applied to the underside of rafter tails or soffit per Gypsum Association Fire Resistance Design Manual
    e. Boxed-in roof eave soffit assemblies complying with SFM 12-7A-3

EXTERIOR PORCH CEILINGS

22. Exposed underside shall be protected by one of the following:
    a. Noncombustible material
    b. Ignition-resistant material
    c. One layer of 5/8" Type X applied behind an exterior covering on the underside of the ceiling
    d. Exterior portion of a 1-hr fire resistive exterior wall assembly applied to the underside of the ceiling assembly per Gypsum Association Fire Resistance Design Manual
    Ve. Porch ceiling assemblies with a horizontal underside complying with SFM 12-7A-3

FLOOR PROJECTIONS/UNDERFLOOR PROTECTION/UNDERSIDE OF APPENDAGES

23. Exposed underside shall be protected by one of the following:
    a. Noncombustible material
    b. Ignition-resistant material
    c. One layer of 5/8" Type X applied behind an exterior covering on the underside of the floor projection
    d. Exterior portion of a 1-hr fire resistive exterior wall assembly applied to the underside of the floor assembly per Gypsum Association Fire Resistance Design Manual
    e. Underside of a floor assembly complying with SFM 12-7A-3
    f. Heavy timber structural columns and beams is allowed for underfloor protection and underside appendages only.

EXTERIOR WINDOWS & DOORS

24. Exterior glazing shall be MULTI-PANE units with a minimum of ONE TEMPERED PANE, or glass block units, or minimum 20-min. rated or complies with SFM 12-7A-2
25. Exterior doors shall meet one of the following:
    a. Noncombustible material OR
    b. Ignition-resistant material OR
    c. Solid core wood having stiles and rails not less than 1-3/8-in. thick with interior panel thickness not less than 1-1/4-in. thick. OR
    d. Minimum 20-min. rated OR
    e. Complies with SFM 12-7A-1

DECKING

26. Walking surface material of decks, porches, balconies and stairs shall be constructed with one of the following materials when any portion of such surface is within 10 feet of the building:
    a. Ignition-resistant material that complies with SFM 12-7A-4 and 12-7A-5
    b. Exterior fire retardant treated wood
    c. Noncombustible material
    d. Complies with SFM 12-7A-4A when attached exterior wall covering is also either noncombustible or ignition-resistant material.

ACCESSORY STRUCTURES

27. When any portion of an attached or detached accessory structure (trellises, arbors, patio covers, carports, gazebos and similar structures of an accessory or miscellaneous character within 50 ft of an applicable building shall be constructed of:
    a. Noncombustible materials OR
    b. Ignition-resistant materials OR
    c. Heavy timber construction

MECHANICAL/ELECTRICAL/PLUMBING

28. Clothes dryer moisture exhaust duct must be 4-in. in diameter and length is limited to 14-ft. with 2 elbows. The duct length shall be reduced by 2-ft. for every elbow in excess of two.

29. All new, replacement and existing water heaters shall be strapped to the wall in two places. One in the upper 1/3 of the tank and one in the lower 1/3 of the tank. The lower point shall be a minimum of 4-in. above the controls.

30. As of January 1, 2014, SB 407 requires that noncompliant plumbing fixtures in residential and commercial properties built on or before January 1, 1994, be replaced with water-conserving plumbing fixtures when the property is undergoing additions, alterations or improvements.

GENERAL NOTES:

a) This project shall comply with Title 24 and 2013 California Building Code (CBC), 2013 California Residential Code (CRC), California Mechanical Code (CMC), California Plumbing Code (CPC), California Electrical Code (CEC), and California Energy Code (CEnC).

b) AQMD (Air Quality Management District) notification is required for projects involving demolition activity where asbestos containing material is present. For more information contact AQMD at (909)-396-2336 or search www.aqmd.gov.

c) Provide safeguarding features during construction such as protection of adjoining property as required below and other items such as site fencing and barriers (CBC 3306), sanitation (CBC 3305), etc.

d) A seismic gas shut off value is required provide/verify. [SMMC 8.32.070]

e) Two layers of Grade D paper between plywood shear panel and exterior lath.[CBC 2510.2, R703.2]

PLUMBING NOTES:

a) Hose bibs shall be fitted with a non-removable back-flow device. [603.4.7 CPC]

b) Water heater shall be provided with temperature and pressure relief valves [505.6 CPC]. The relief valves shall be provided with a drain which extends from the valves to the outside of the building. Show the drain line on the plans. [608.5 CPC]

c) Showers and shower-tubs shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection. [418 CPC]

d) A permanently accessible 12-inch square bathtub trap access shall be provided or a non-slip-joint trap will be used. [404.2 CPC]

e) A removable panel for the whirlpool bathtub pump shall be located not more than 20' from the pump if through a crawl space. The panel shall be large enough to access and remove the pump. [414.1 CPC]

f) For the installation of tankless water heaters specify whether they are electric or gas and add the following notes to the plans: "Tankless water heaters shall be nationally listed and be installed in accordance with the installation instructions that were approved as part of their listing." "The gas piping serving this appliance must be sized in compliance with the water heater's listed installation instructions and the 2010 California Plumbing Code."

g) All new plumbing fixtures installed in new **and existing buildings** shall meet the 20% water use reduction. [SMMC 8.106.057, 8.106.190]

Showerheads Maximum flow rate 2 gpm @ 80 psi
Lavatory faucets flow rate between of 1.5-0.8 gpm @ 60-20 psi
Water Closets 1.28 gallons/effective flush

ENERGY NOTES:

a) All pressure-sensitive tapes, mastics, aerosol sealants, or other closure systems used for installing field-fabricated duct systems shall meet the applicable requirements of UL181, UL181A or UL 181B" [124(b)(2) CEnC]

b) The supply heating and cooling energy to each space-conditioning zone or dwelling unit shall be controlled by an individual thermostatic control that responds to temperature within the zone. [122(a) CEnC]

c) Luminaries recessed into insulated ceilings shall be approved for zero clearance insulation contact (IC) by the Underwriters Laboratories or other recognized testing/rating laboratory and shall include a label certifying air tight to show air leakage less than 2.0 CFM at 75 Pascals(1.75 #/sf) when tested in accordance with ASTM E 283 and shall be sealed with a gasket or caulk between the housing and ceiling.[150(k)(12)

d) The first 5 feet of hot and cold water pipes from the storage tank for non-recirculating systems shall be thermally insulated with a minimum of 1" (.75") thick insulation for hot (cold) water pipes with a diameter less than or equal to 2 inches or 1.5" (1") for hot (cold) water pipes with a diameter greater than 2 inches. [150(j)(2) CEnC]

e) Joints and other openings in the building envelope that are potential sources of air leakage shall be caulked, gasketed, weather-stripped or otherwise sealed to limit infiltration and exfiltration. [117 CEnC] All plumbing fittings and fixtures must meet standards in CALGreen table 4.303.3 [4.303.3 CGBSC]

f) For installation of fireplaces, decorative gas appliances and gas logs: If a masonry or factory built fireplace is installed, it shall have the following: Closable metal or glass door covering the entire opening of the fire box; A combustion air intake to draw air from the outside of the building directly into the firebox with a minimum 6 sq inch in area a tight fitting damper or combustion air control device, for exception see 150(e)1B A flue damper with a readily accessible control

ELECTRICAL NOTES:

a) A mechanical ventilation system shall be provided in bathrooms containing a bathtub and/or shower, laundry rooms, and capable of 50 cfm. [1203.1, R303.3]

b) A kitchen exhaust fan (min 100 cfm) vented to the outside per ASHRAE 62.2, specify duct size and length or include default table 7.1. [CEC 150(o)]

c) Reference CF-1R mandatory lighting measures requirements.

d) Listed arc-fault circuit interrupter combination type protection are required for <u>all</u> outlets (not just receptacles) for dwelling unit bedrooms, family rooms, dining rooms, living rooms, parlors, libraries, dens, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas. [210.12 CEC]

e) Branch circuit overcurrent devices (fuses and breakers) shall not be located where they will be exposed to physical damage, in the vicinity of easily ignitable materials, such as in clothes closet, bath, or toilet room. [240.24 CEC]

f) A minimum of two 20 amp small appliance branch circuits shall be provided for all receptacle outlets in the kitchen, dining room, pantry, breakfast room or other similar areas [210.11(C)(1) CEC] [210.52(B)(1)(2)(3)]

g) At least one 20 amp branch circuit shall be provided to supply laundry receptacle outlets. Such circuits shall have no other outlets. [210.11(C)(2) CEC]

h) At least one 20 amp branch circuit shall be provided to supply bathroom receptacle outlets. Such circuits shall have no other outlets. [210.11(C)(3) CEC] Show new and existing locations of electrical panel, FAU, and water heater.

CAL GREEN NOTES

a) Seal joints and openings in the building envelope between conditioned and unconditioned spaces [4.406.1 CGBSC]

b) Develop an operation and maintenance manual to be supplied to owner at final inspection [4.410.1 CGBSC]

c) All fireplaces are direct vent sealed combustion gas [4.503.1 CGBSC]

d) Protection and covering of duct openings shall be provided during storage and construction [4.504.1 CGBSC] Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content [4.505.3 CGBSC]

e) Moisture content must be verified in compliance with all of the following:
   1) Moisture content must be determined with either a probe-type or contact type moisture meter;
   2) Moisture readings shall be taken at a point 2 to 4 fees from the grade stamped end to be verified;
   3) At least three random moisture readings shall be performed on wall and floor framing with documentation to enclose the wall and floor framing

f) Bathroom exhaust fans must be ENERGY STAR and be ducted to terminate outside of building, and 50 CFM. Unless the fan is part of a whole house ventilation system, it must be controlled by a readily accessible humidistat which ranges from 50 to 80 percent relative humidity range [CMC T4-4, 4.506.1 CGBSC]

g) HVAC system must be sized and designed with ACCA manuals J, D, and S. [4.507.2 CGBSC]

h) Pipe insulation on all exposed and accessible hot water pipes connected to a new water heater per the California Energy Code. [SMMC 8.106.055, 8.106.180]

i) Low VOC adhesives, sealants, paints, coatings, carpet systems, low formaldehyde wood, low VOC resilient flooring [4.504.2 CGBSC] Save spec sheets readily available and subject to verification during field inspection; product specifications and containers must be available.

ADDITIONAL NOTES:

1. Provide overflow drains or scuppers per section 1101.11.2 of the California Plumbing Code. Overflow drain shall be installed with the inlet flow line 2" above the low point of the roof, and shall not be connected to the roof drain lines unless it complies with the provisions for "Combined System" of that section. [CPC 1101.11.2.2.1&2].
2. All roofs shall be Class A or B roofing assemblies in accordance with CBC Chapter 15 (CRC Chapter 9).The use of non-fire-retardant wood shingles or non-fire-retardant shakes for new or replacement roofing is prohibited. (SMMC 8.12.070)
3. Basement emergency egress shall open directly into a public way, yard or court that opens to a public way. Garage should be not used as an intervening room for egress purposes in the basement. Identify basement egress on plan. [CRC 311014]
4. A minimum two inch (2") layer of mulch shall be applied on all exposed soil surfaces, except in areas covered by groundcovers. Any new landscape and irrigation must be installed in compliance with the current Water-Efficient Landscape and Irrigation Standards.

Provide safety glazing in the following locations: [CBC 2406.4, R308].

a) Glazing in ingress and egress doors.
b) Glazing in fixed and sliding panels of sliding doors and panels in swinging doors.
c) Glazing within 2' vertical edge of closed door and within 5' of walking surface.
d) Glazing in railings and stair landings.
e) Glazing in doors and enclosures for hot tubs, bathtubs, showers, steam rooms within 5' of standing surface and drain inlet
f) Glazing in walls and fences used as the barrier for swimming pools and spas
g) Provide make, model, and ICC number for manufactured skylight(s) [CBC 2610, R308.6] and fireplace(s) [CBC 2111, CBC 2113, R1001, R1003].

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☐ SEAL

LICENSED ARCHITECT John Tim Andrews No. C-15605 STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

☐ CLIENT:

Thousand Peaks LLC

☐ ADDRESS:

24600 Thousand Peaks Road
Calabasas, CA 91302

☐ PROJECT / SCOPE:

Proposed:

New Single Family
RESIDENCE
with Attached 2 Car Garage

☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:

NOTES

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 4 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:

A1.3

SURVEYOR'S NOTES:

1. LEGEND: SOME OF THESE ABBREVIATIONS MAY HAVE USED ON THIS MAP.

C/L CENTERLINE	( ) RECORD DATA	PP POWER POLE
N NORTH	FD FOUND	TP TELEPHONE POLE
E EAST	LS LICENSED SURVEYOR	WM WATER METER
W WEST	S&W SPIKE AND WASHER	CC CONCRETE
S SOUTH	S&T SPIKE AND TACK	CONC. CONCRETE
P/L PROPERTY LINE	L&TAG LEAD AND TAG	BM BENCHMARK
TPI TOP OF PILASTER	L&T LEAD AND TACK	ENCR ENCROACHMENT
TW TOP OF WALL	CE CITY ENGINEER	PM PARKING METER
TR TOP OF ROCKS	MB MAP BOOK	CB CATCH BASIN
CONC. OR BLOCK WALL	SMH SEWER MANHOLE	DR DRAIN
WOOD RETAINING WALL	FH FIRE HYDRANT	R OR RAD RADIAL
FENCE	MH MANHOLE	NTS NOT TO SCALE
XXX GROUND ELEVATION	BW BACK OF WALK	STN STONE
TS TOP OF SLOPE	TC TOP OF CURB	FF FINISH FLOOR
GB GRADE BREAK	AC ASPHALT PAVEMENT	FL FLOWLINE
NG NATURAL GRADE	TB TOP OF BERM	FS FINISHED SURFACE
DT DIRT	TOS TOP OF STEPS	A.N.G. AVERAGE NATURAL GRADE
EP EDGE OF PAVEMENT	SB SETBACK	

2. THE AREA OF THE PROPERTY SURVEYED IS: 486,266 SQUARE FEET OR 11.163 ACRES.

3. BOUNDARIES WERE ESTABLISHED BY FIELD MEASUREMENTS USING CITY, COUNTY AND/OR PRIVATE ENGINEER AND SURVEY MONUMENTS FOUND AT OR NEAR THE SITE OR IN THE SURROUNDING STREETS.

4. ANY EASEMENTS SHOWN HEREON HAVE BEEN TAKEN FROM THE TITLE POLICY OR PRELIMINARY TITLE REPORT AS SUPPLIED BY EITHER THE OWNER OR TITLE COMPANY. ONLY PLOTTABLE EASEMENTS ARE SHOWN AND WE DO NOT GUARANTEE THE ACCURACY OR EXTENT OF THE INFORMATION SUPPLIED BY OTHERS.

5. ANY UTILITIES SHOWN HEREON ARE FROM THE CITY OR COUNTY FILES. ONLY PLOTTABLE UTILITIES ARE SHOWN AND WE DO NOT GUARANTEE THE ACCURACY OR EXTENT OF THE INFORMATION SUPPLIED BY OTHERS.

6. THE TITLE POLICY OR PRELIMINARY TITLE REPORT USED TO PREPARE THIS MAP WAS ISSUED BY:

NAME OF TITLE COMPANY: _____CLIENT DID NOT PROVIDE_____

TITLE REPORT OR POLICY NUMBER: _____

LEGAL DESCRIPTION:
LOT 1, TRACT NO. 36172, M.B. 1119-78-82

BENCHMARK:
USED EXISITING 36 INCH CORRUGATED METAL PIPE INVERT ELEVATION LOCATED 370 FEET +/- SOUTH OF CENTERLINE INTERSECTION OF THOUSAND PEAKS ROAD AND DRY CANYON COLD CREEK ROAD PER TOPOGRAPHIC SURVEY MAP PROVIDED BY CLIENT AND PREPARED BY ORO ENGINEERING COMPANY, DATED 10/28/1987.

INVERT ELEV. = 1153.1

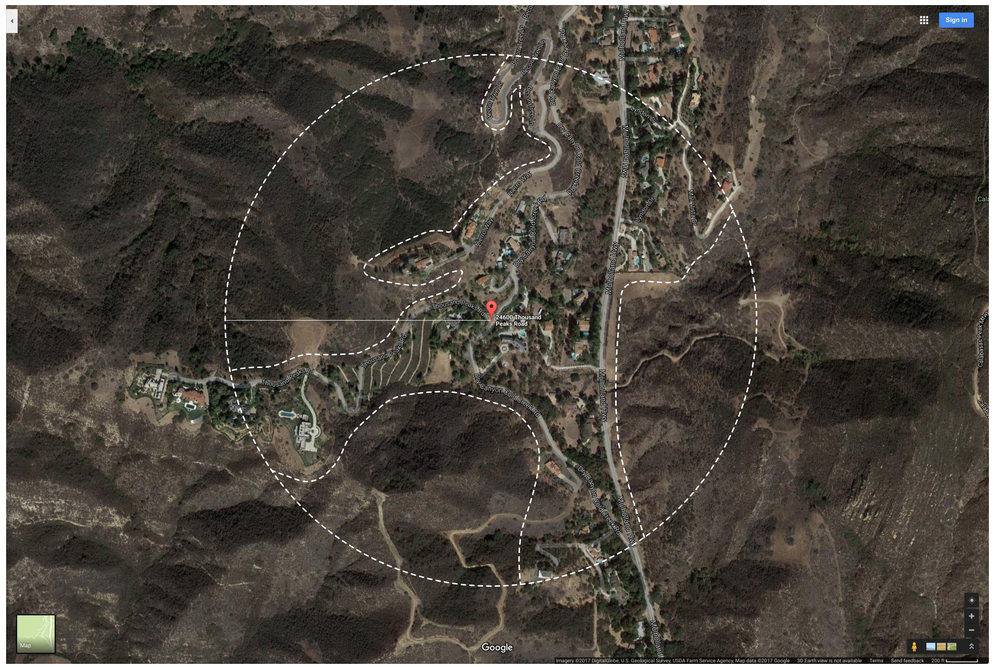
REVISIONS	BY
REV. 11/2016	RJW

PREPARED FOR:
JOHN ANDREWS ARCHITECTS

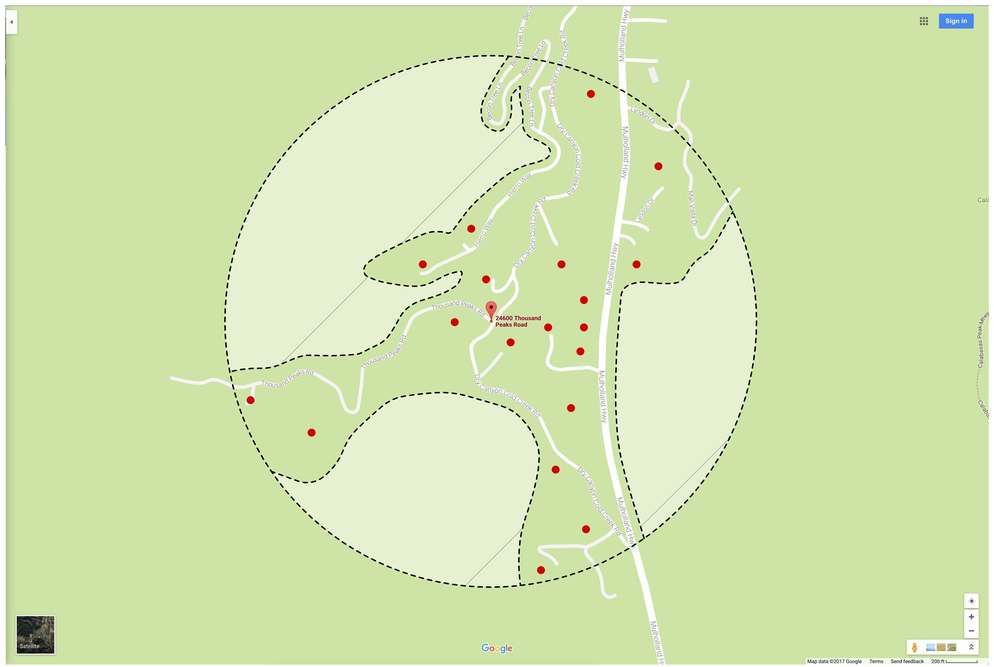
PARTIAL TOPOGRAPHIC SURVEY
FOR
24600 THOUSAND PEAKS ROAD
CALABASAS, CA 91302

PLANS PREPARED BY:
H&W SURVEYING, MAPPING, INC.
10211 VENICE BLVD., SUITE C
LOS ANGELES CA 90034
(310) 395-1191

DRAWN	R.J.W.
CHECKED	D.H.
DATE	11/17/2016
SCALE	1" = 50'
JOB NO.	925-14
SHEET	1
OF	2 SHEETS



1 SATELLITE MAP
Scale: N.T.S.



2 RADIUS MAP AT 700FT
Scale: N.T.S.

LEGEND	
●	RESIDENTIAL AREA
▭	STREET
▨	LAND

NOTE:

THERE IS NO COMMERCIAL USAGE WITHIN THE 700FT RADIUS AROUND THE PROPOSED PROJECT

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☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:
LAND USE RADIUS MAP AT 700FT RADIUS

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 6 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:

A1.5

1 HAUL ROUTE

HAUL ROUTE STREETS AND ROADS:

DRY CANYON COLD CREEK RD
MULHOLLAND HIGHWAY
LAS VIRGENES RD
LOST HILL RD

TOTAL EARTHWORK VOLUMES = 3,694 CUBIC YARDS
AMOUNT TO BE SPREAD ON SITE = 36 CUBIC YARDS
HAUL EXPORT AMOUNT = 3,958 CUBIC YARDS

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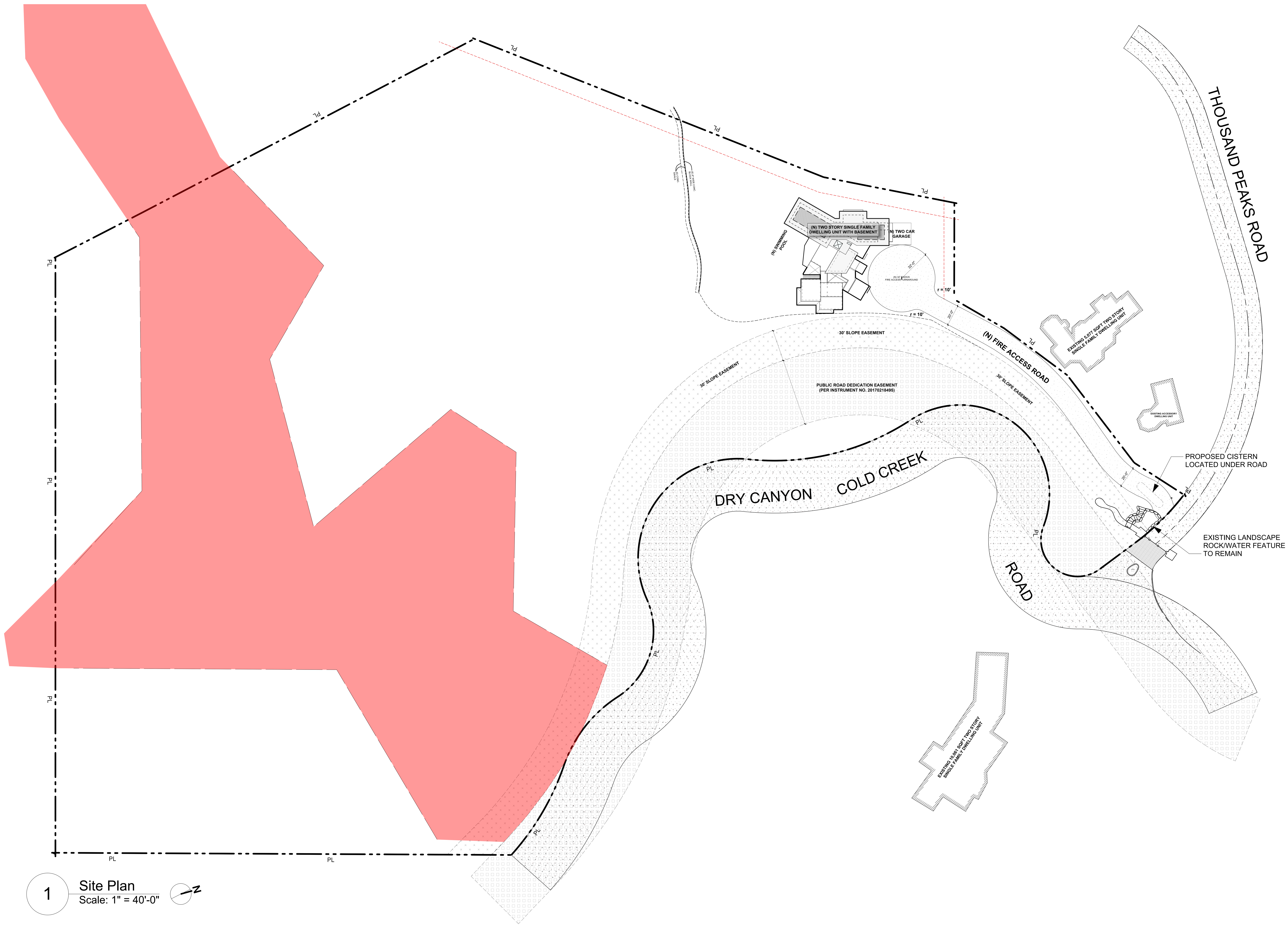
☐ SHEET TITLE:
HAUL ROUTE

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 8 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
A1.5B



1 Site Plan
Scale: 1" = 40'-0"

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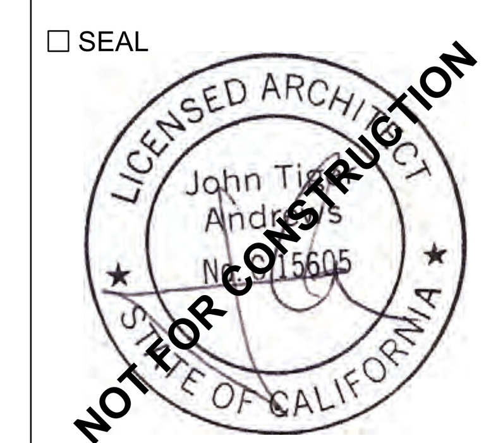

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☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:

SITE PLAN

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 9/24	☐ PLOT DATE: 12/2/20

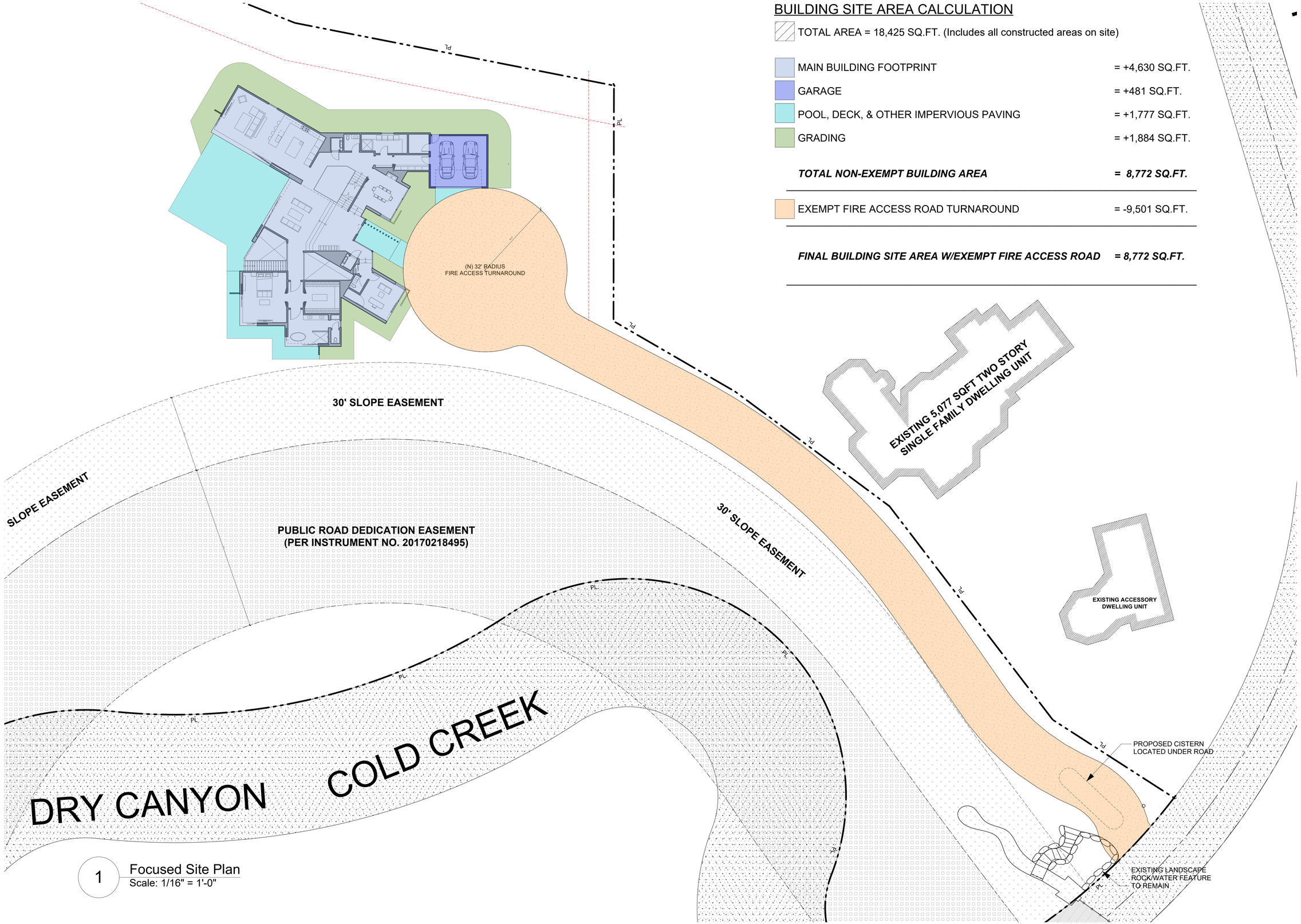
☐ SHEET NO:

A1.6

BUILDING SITE AREA CALCULATION

TOTAL AREA = 18,425 SQ.FT. (Includes all constructed areas on site)

MAIN BUILDING FOOTPRINT	= +4,630 SQ.FT.
GARAGE	= +481 SQ.FT.
POOL, DECK, & OTHER IMPERVIOUS PAVING	= +1,777 SQ.FT.
GRADING	= +1,884 SQ.FT.
TOTAL NON-EXEMPT BUILDING AREA	***= 8,772 SQ.FT.***
EXEMPT FIRE ACCESS ROAD TURNAROUND	= -9,501 SQ.FT.
FINAL BUILDING SITE AREA W/EXEMPT FIRE ACCESS ROAD	***= 8,772 SQ.FT.***



1 Focused Site Plan
Scale: 1/16" = 1'-0"

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☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:
FOCUSED SITE PLAN

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 10/24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
A1.6A

1 Ground Floor Plan
Scale: 1/8" = 1'-0"

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☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

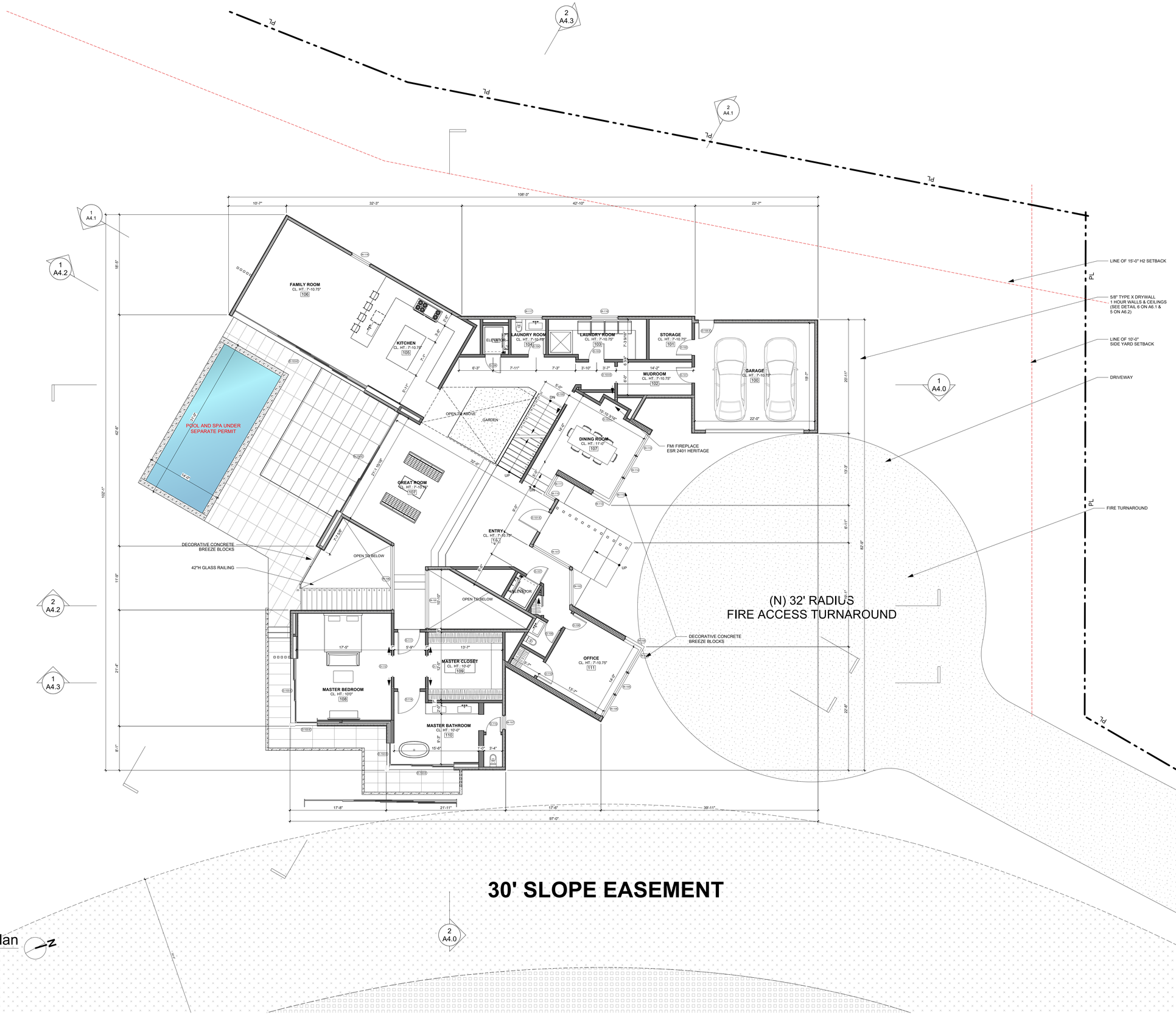
☐ SHEET TITLE:

BASEMENT

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 12/24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:

A2.0



1 Ground Floor Plan
Scale: 1/8" = 1'-0"

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New Single Family
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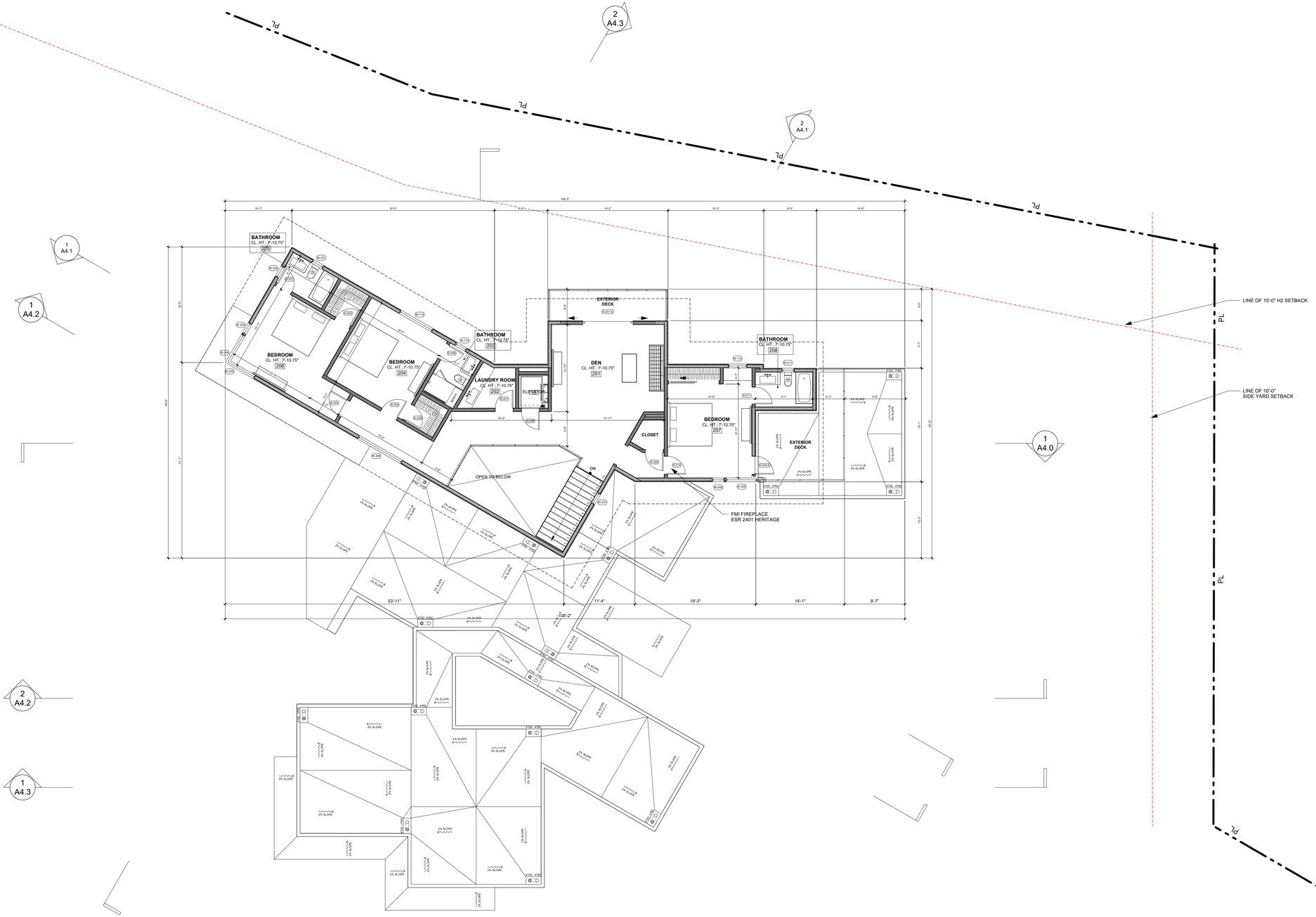
☐ ISSUE:

NO.	DESCRIPTION	DATE
1	SM Permit App. Submittal	12/19/19

☐ SHEET TITLE:
FIRST FLOOR

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 13/ 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
A2.1



30' SLOPE EASEMENT

1 Ground Floor Plan
Scale: 1/8" = 1'-0"

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Proposed:
New Single Family
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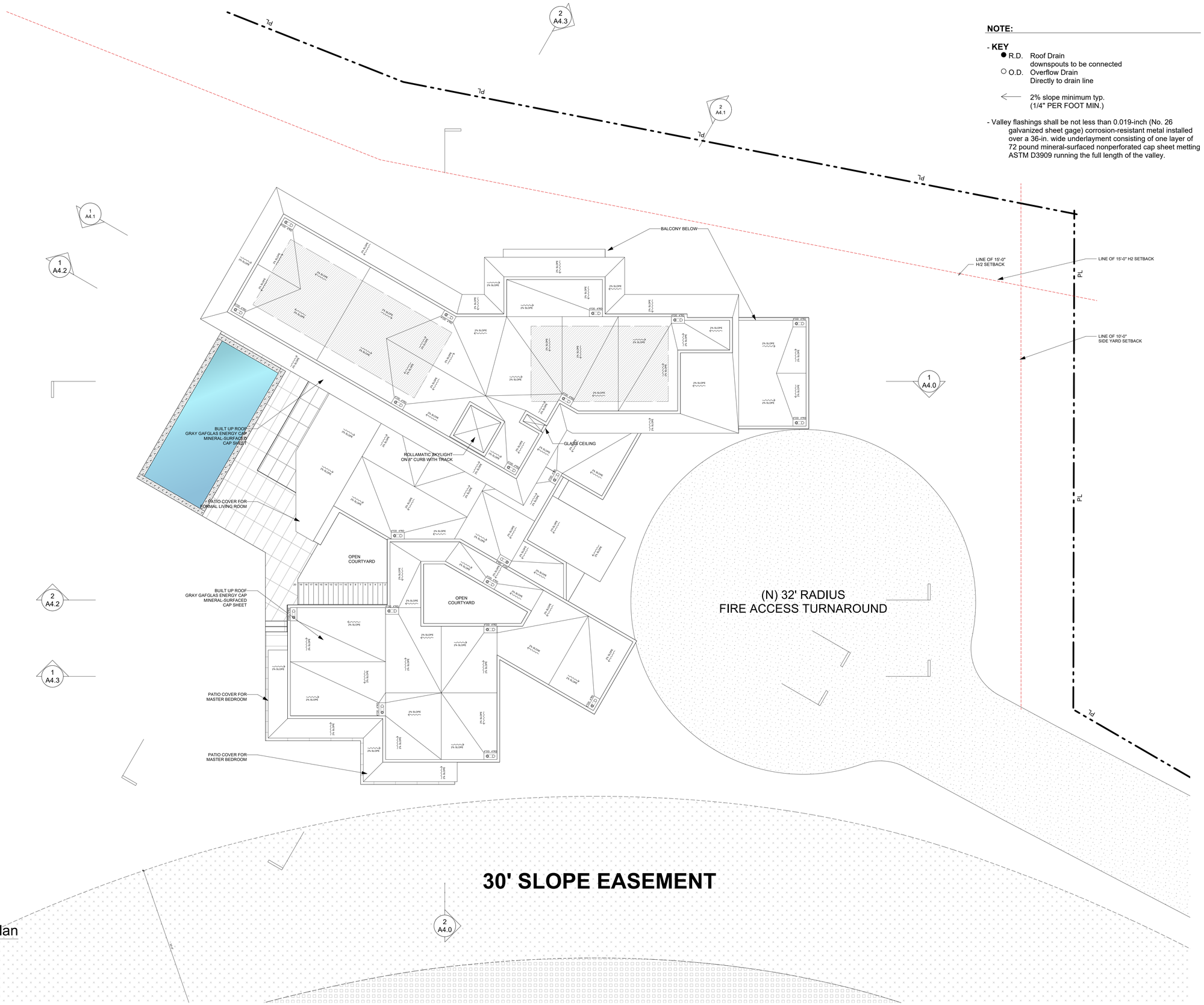
☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:
SECOND FLOOR

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 14 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
A2.2



1 Ground Floor Plan
Scale: 1/8" = 1'-0"

NOTE:

- **KEY**
  - ● R.D. Roof Drain downspouts to be connected
  - ○ O.D. Overflow Drain Directly to drain line
  - ← 2% slope minimum typ. (1/4" PER FOOT MIN.)

- Valley flashings shall be not less than 0.019-inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a 36-in. wide underlayment consisting of one layer of 72 pound mineral-surfaced nonperforated cap sheet metting ASTM D3909 running the full length of the valley.

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New Single Family
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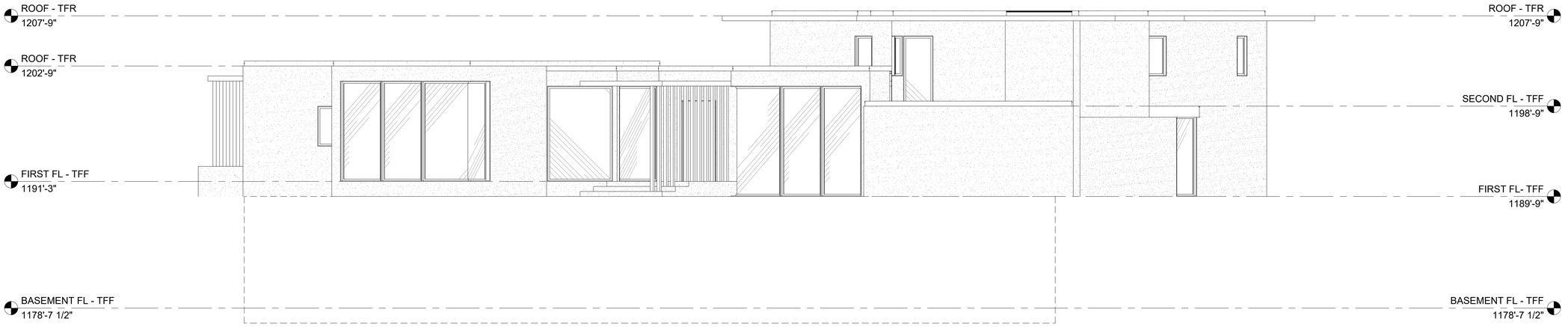
☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:
ROOF PLAN

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 15 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
A2.3



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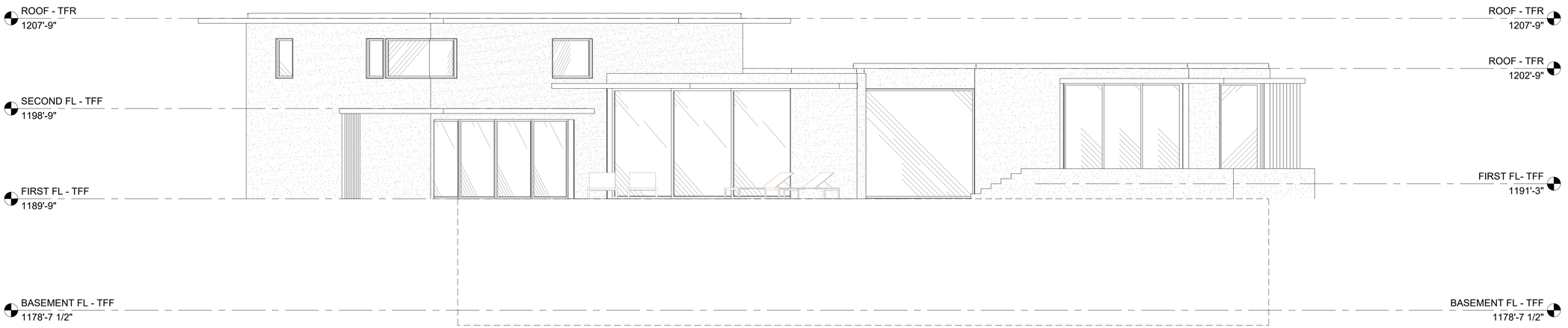

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Scale: 3/16" = 1'-0"

JAG
John Andrews Group Architects inc.
architecture + construction

2109 Stoner Avenue
Los Angeles, CA 90025

Phone: 310-445-3337
Fax: 310-445-3336

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☐ SEAL

LICENSED ARCHITECT
John Tim Andrews
No. C15605
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

☐ CLIENT:
Thousand Peaks LLC

☐ ADDRESS:
24600 Thousand Peaks Road
Calabasas, CA 91302

☐ PROJECT / SCOPE:
Proposed:
New Single Family
RESIDENCE
with Attached 2 Car Garage

☐ ISSUE:

NO.	DESCRIPTION	DATE
1	LAC Permit App. Submittal	10/22/20

☐ SHEET TITLE:
ELEVATION

☐ SCALE: 1/4 = 1'-0"	☐ JOB NO: 16-0001
☐ DRAWN: RT	☐ REV NO: 1
☐ PAGE: 16/24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
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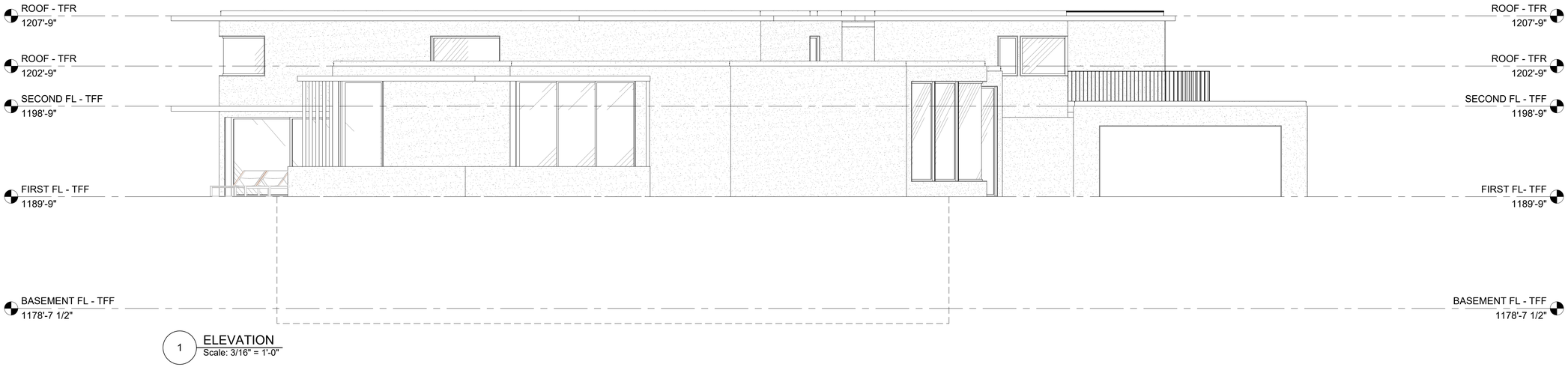

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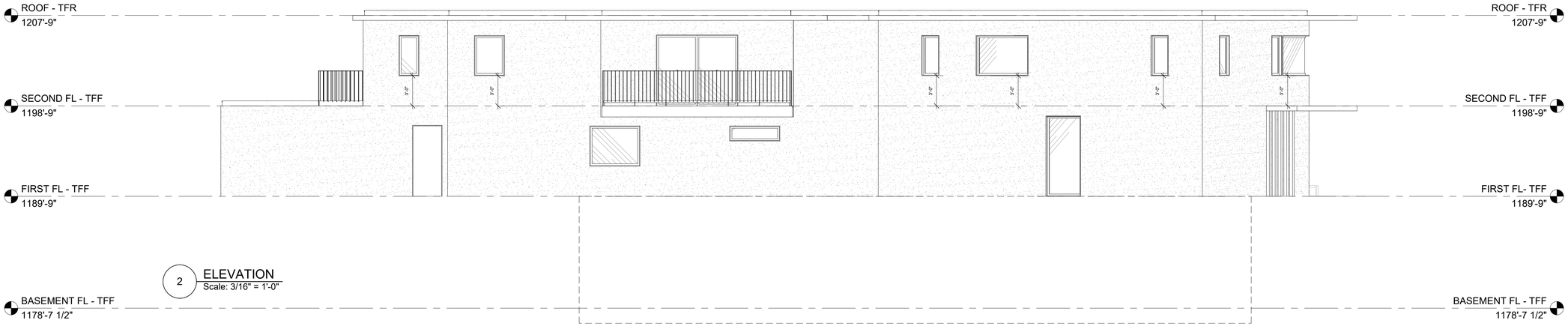

2 ELEVATION
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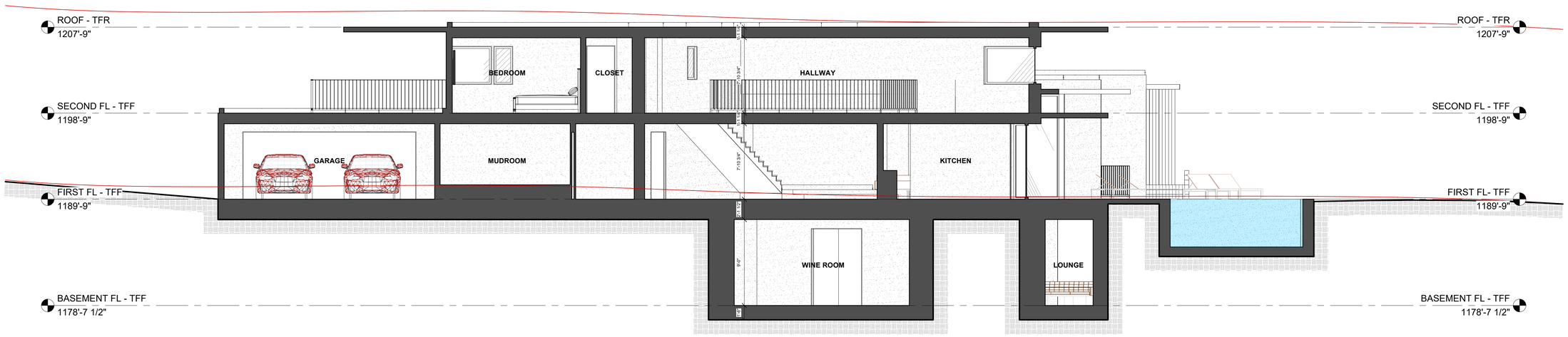

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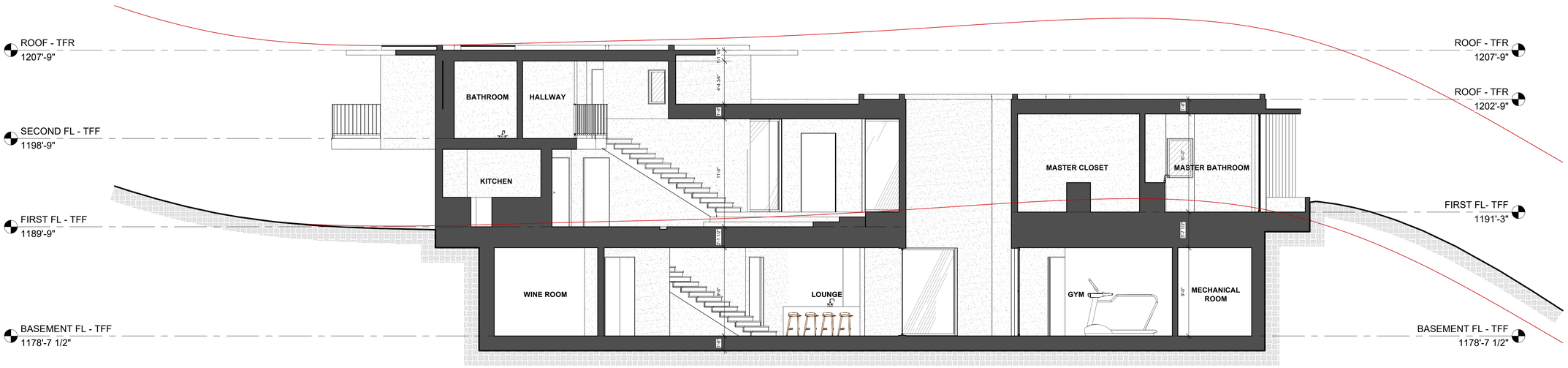

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☐ PAGE: 18 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
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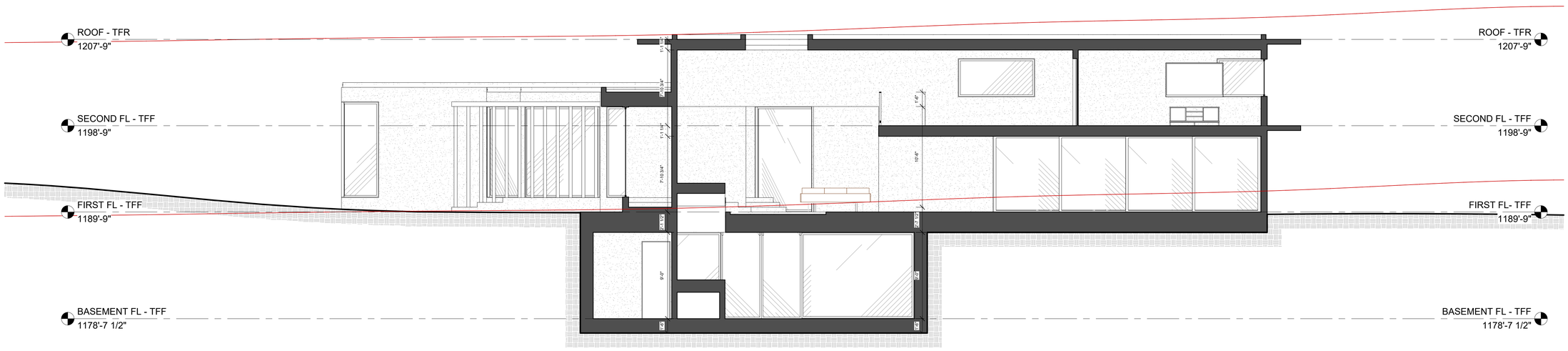

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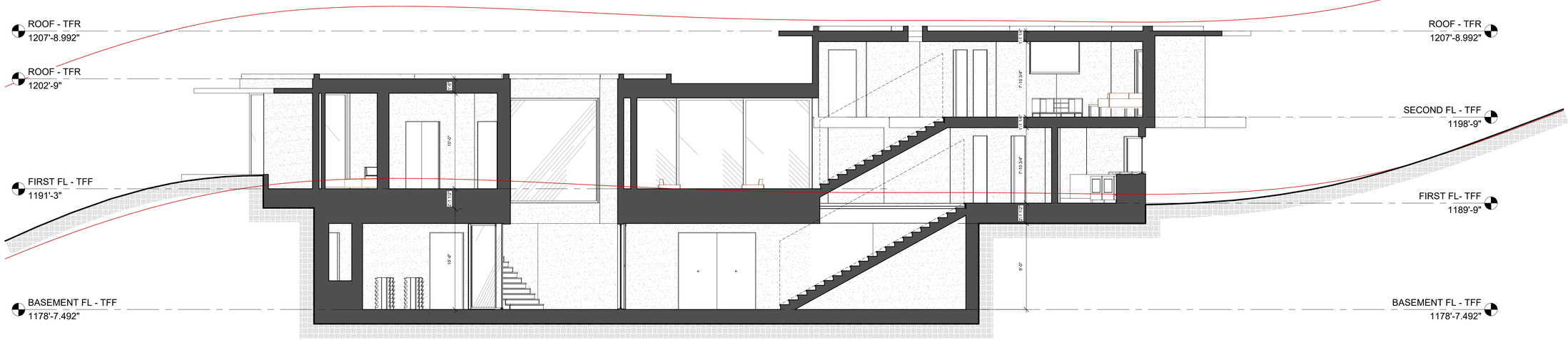

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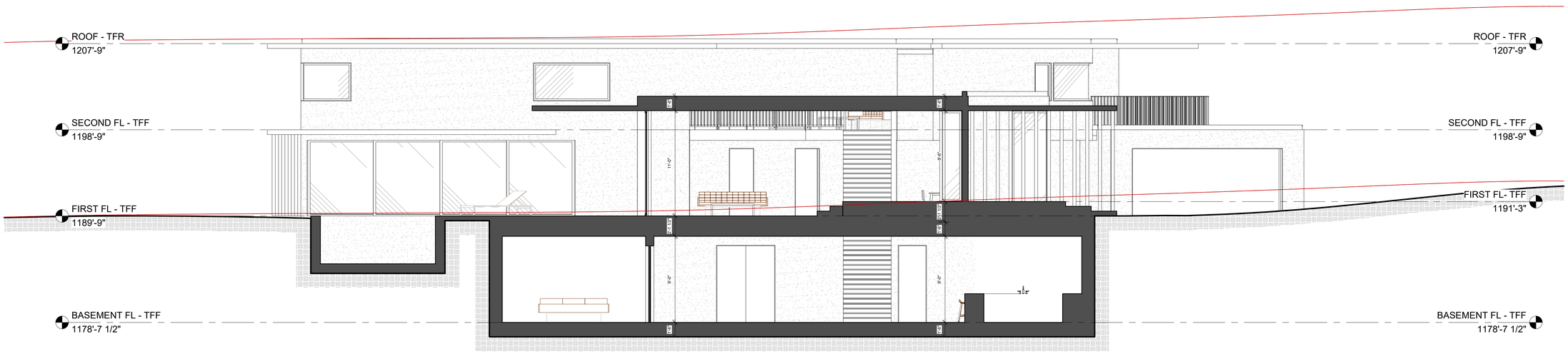

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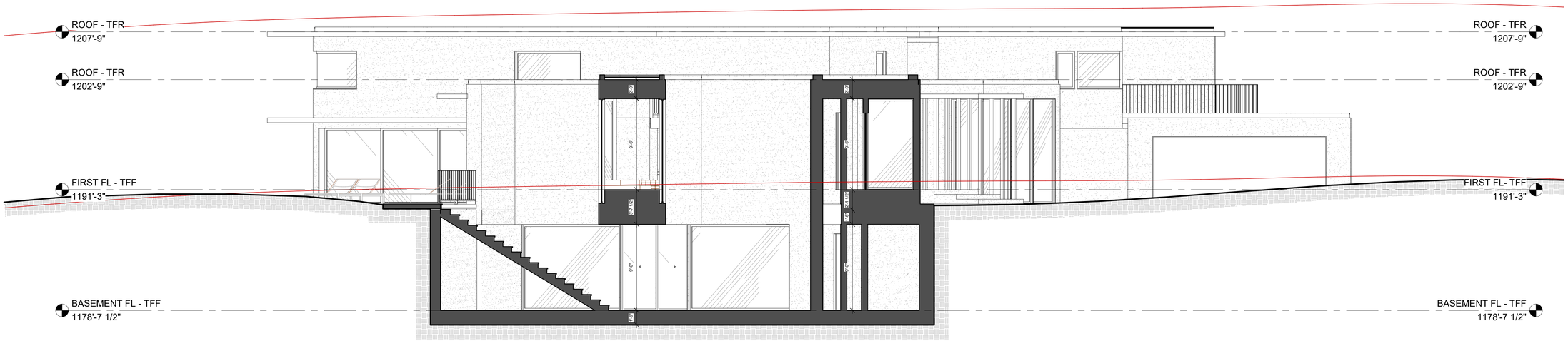

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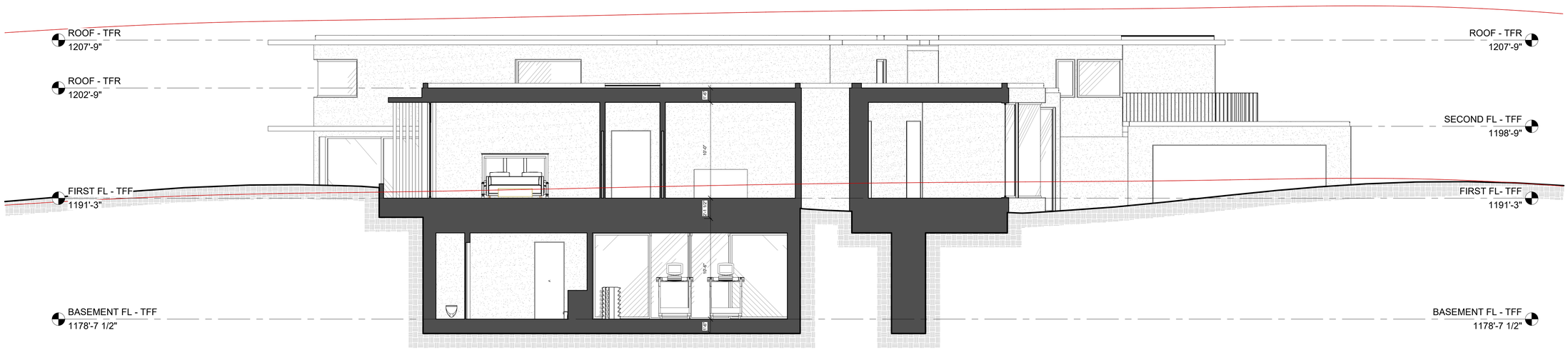
☐ SHEET NO:

A4.2



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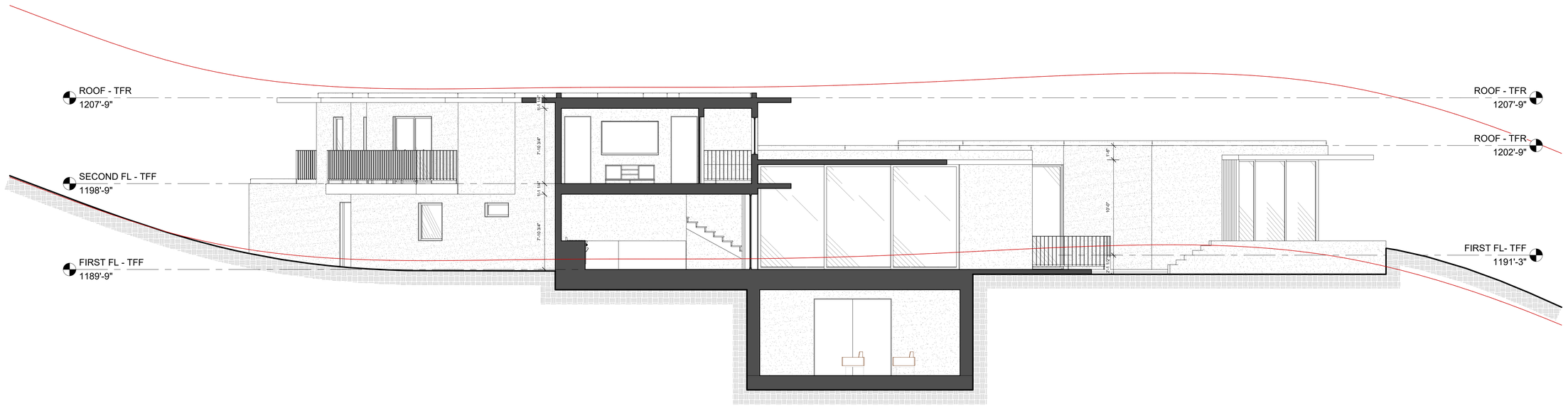

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☐ PAGE: 21 / 24	☐ PLOT DATE: 12/2/20

☐ SHEET NO:
A4.3

APPENDIX B

Civil Plans

GENERAL INFORMATION
* GRADING PERMIT APPLICATION NUMBER = GR XXXXX
* EARTHWORK VOLUMES cut=3,694 cyds fill =36 cyds
Overexcavation/Alluvial removal & Compaction = 0 cyds
Export = 3,658 cyds
* TOTAL DISTURBED AREA = 0.47 ACRES (20,312 sq.ft.)
* TOTAL PROPOSED LANDSCAPE AREA = 81,022 SQ.FT. TOTAL TURF AREA 4.6% (PERCENT OF TOTAL PROPOSED LANDSCAPING)
* TOTAL DROUGHT TOLERANT LANDSCAPING AREA 95% (PERCENT OF TOTAL PROPOSED LANDSCAPING)
* PRE-DEVELOPMENT IMPERVIOUS AREA = 0.01 ACRES
* POST DEVELOPMENT IMPERVIOUS AREA = 0.38 ACRES
* WASTE DISCHARGE IDENTIFICATION NUMBER: WDID# N/A
* CONSTRUCTION & DEMOLITION DEBRIS RECYCLING AND REUSE PLAN 071713-1003 (RPP ID)

PROPERTY INFORMATION
* PROPERTY ADDRESS = 24600 THOUSAND PEAKS RD.
* TRACT NO. 36172 LOT/PARCEL NO. 1
* PROPERTY OWNER = THOUSAND PEAKS, LLC
* ASSESSORS ID NUMBER = 4445-052-002

ZONING AND REGIONAL PLANNING INFORMATION
* PROPERTY ZONING = R-C-20,000
* INTENDED LAND USE = SINGLE FAMILY RESIDENTIAL
* CERTIFICATE OF COMPLIANCE: CC NO. N/A
* PLOT PLAN NUMBER: PP NO. RPP201300063
* CONDITIONAL USE PERMIT: CUP NO. N/A
* OAK TREE PERMIT NUMBER: OTP NO. N/A
* COMMUNITY STANDARDS DISTRICT: X
* CALIFORNIA COASTAL COMMISSION AREA: N/A
* COASTAL DEVELOPMENT PERMIT: CDP N/A
* FISH & GAMES, ARMY CORP OF ENGINEERS, REGIONAL WATER CONTROL BOARD, AQMD & OTHER AGENCY PERMITS SHOULD BE ADDED AS
* APPLICABLE.: N/A

GENERAL NOTES:
1. All grading and construction shall conform to the 2011 County of Los Angeles Building Codes and the State Model Water Efficiency Landscape Ordinance unless specifically noted on these plans.

2. Any modifications of or changes to approved grading plans must be approved by the Building Official.

3. No grading shall be started without first notifying the Building Official. A pre-grading meeting at the site is required before the start of the grading with the following people present: Owner, grading contractor, design civil engineer, soils engineer, geologist, County grading inspector(s) or their representatives, and when required the archeologist or other jurisdictional agencies. Permittee or his agent are responsible for arranging pre-grade meeting and must notify the Building Official at least two business days prior to proposed pre-grade meeting.

4. Approval of these plans reflect solely the review of plans in accordance with the County of Los Angeles Building Code and does not reflect any position by the County of Los Angeles or the Department of Public Works regarding the status of any title issues relating to the land on which the improvements may be constructed. Any disputes relating to title are solely a private matter not involving the County of Los Angeles or the Department of Public Works.

5. All grading and construction activities shall comply with County of Los Angeles Code, Title 12, Section 12.12.030 that controls and restricts noise from the use of construction and grading equipment from the hours of 8:00 PM to 6:30 AM, and on Sundays and Holidays. (More restrictive construction activity times may govern, as required by the Department of Regional Planning and should be shown on the grading plans when applicable.)

6. California Public Resources Code (Section 5097.98) and Health and Safety Code (Section 7050.5) address the discovery and disposition of human remains. In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, the law requires that grading immediately stops and no further excavation or disturbance of the site, or any nearby area where human remains may be located, occur until the following measures has been taken:

a. The County Coroner has been informed and has determined that no investigation of the cause of death is required, and

b. If the remains are of Native American origin, the descendants from the deceased Native Americans have made a recommendation for the means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods.

7. The location and protection of all utilities is the responsibility of the permittee.

8. All export of material from the site must go to a permitted site approved by the Building Official, or a legal dump site. Receipts for acceptance of excess material by a dumpsite are required and must be provided to the Building Official upon request.

9. A copy of the grading permit and approved grading plans must be in the possession of a responsible person and available at the site at all times.

10. Site boundaries, easements, drainage devices, and restricted use areas shall be located per construction staking by Field Engineer or licensed surveyor. Prior to grading, as requested by the Building Official, all property lines, easements, and restricted use areas shall be staked.

11. No grading or construction shall occur within the protected zone of any oak tree as required per Title Chapter 22.56 of the County of Los Angeles Zoning Code. The protected zone shall mean that area within the drip line of an oak tree extending there from a point at least five feet outside the drip line, or 15 feet from the trunk(s) of a tree, whichever is greater.

If an oak tree permit is obtained: (Add the following note)

All grading and construction within the protected zone of all oak trees shall be per oak tree permit no. _____. All recommendations in the permit and associated oak tree report must be compiled with (and are a part of) the grading plan. A copy of the oak tree permit and associated reports shall be maintained in the possession of a responsible person and available at the site at all times.

12. The standard retaining wall details shown on the grading plans are for reference only. Standard retaining walls are not checked under, permitted, or inspected per the grading permit. A separate retaining wall permit is required for all standard retaining walls. Note: This note only applies to standard retaining walls. Geogrid fabric and segmental retaining walls do not require a separate retaining wall permit. Details and construction notes for all Geogrid walls must be on the grading plan.

13. A preventive program to protect the slopes from potential damage from burrowing rodents is required per Section J101.8 of the County of Los Angeles Building Code.. Owner to inspect slopes periodically for evidence of burrowing rodents and a first evidence of their existence shall employ an exterminator for their removal.

14. If grading authorized by this plan is to extend through the rainy season, November 1 through April 15 of the following year, separate updated plans for erosion control must be submitted prior to October per Section J111.13 of the County of Los Angeles Building Code.

15. Transfer if responsibility: if civil engineer, the soils engineer, or the engineering geologist of record is changed during grading, the work shall be stopped until the replacement has agreed in writing to accept their responsibility within the area of technical competence for approval upon completion of the work. It shall be the duty of the permittee to notify the building official in writing of such change prior to the recommencement of such grading.

16. Finished floor shall be 8 inches minimum above finished grade.

INSPECTION NOTES:
17. The permittee, or his agent, shall notify the Building Official at least one working day in advance of required inspections at following stages of the work. (Section J105.7 of the Building Code.)

(a) Pre-grade – Before the start of any earth disturbing activity or construction.
(b) Initial – When the site has been cleared of vegetation and unapproved fill has been scarified, benched, or otherwise prepared for fill. Fill shall not have been placed prior to this inspection. Note: Prior to any construction activities (including grading) all storm water pollution prevention measures, including erosion control devices that contain sediments, must be installed.
(c) Rough. When approximate final elevations have been established; drainage terraces, swales and berms installed at the top of the slope; and the statements required in this Section have been received.
(d) Final. When grading has been completed; all drainage devices installed; slope planting established; irrigation systems installed; and the As-Built plans, required statements, and reports have been submitted and approved.

18. In addition to the inspection required of the Building Official for regular grading, reports and statements shall be submitted to the Building Official in accordance with Sections J105 of the County of Los Angeles Building Code.

19. Unless otherwise directed by the Building Official, the Field Engineer for all engineered grading projects shall prepare routine inspection reports as required under Section J105.11 of the County of Los Angeles Building Code. These reports, known as "Report of Grading Activities", shall be submitted to the Building Official as follows:

1. Bi-weekly during all times when grading exceeds 400 cubic yards or more per week is occurring on the site;
2. Monthly, at all other times; and
3. at any time when requested in writing by the Building Official.

20. All graded sites must have drainage swales, berms, and other drainage devices prior to rough grading approval, per Section J105.7 of the County of Los Angeles Building Code.

21. The grading contractor shall submit the statement to the grading inspector as required by Section J105.12 of the County of Los Angeles Building Code at the completion of rough grading.

22. Final grading must be approved before occupancy of buildings will be allowed, per Section J105 of the County of Los Angeles Building Code.

DRAINAGE NOTES:
23. Roof drainage must be diverted from graded slopes.

24. Provisions shall be made for contributory drainage at all times.

25. All construction and grading within a storm drain easement are to be done per Private Drain PD No. _____ or miscellaneous Transfer Drain MTD No. _____.

26. All storm drain work is to be done under continuous inspection by the Field Engineer. Status reports required under note 18 Section J105.11 of the County of Los Angeles Building Code shall include inspection information and reports on the storm drain installation.

27. Owner will maintain drainage devices and keep free of debris.

AGENCY NOTES (ADD – APPLICABLE NOTES)
28. An encroachment permit from (County of Los Angeles Department of Public Works) (Caltrans) (City of _____) is required for all work within or affecting road right of way. All work within Road right of way shall conform to (County of Los Angeles Department of Public Works) (Caltrans) (City of _____) encroachment permit.

29. An encroachment permit/connection permit is required from the County of Los Angeles Flood Control District for all work within the County of Los Angeles Flood Control District Right of Way. All work shall conform with conditions set by the Permit.

30. Permission to operate in Fire Zone 4 must be obtained from the Fire Prevention Bureau or the local Fire Station prior to commencing work.

31. All work within the streambed and areas outlined on grading plans shall conform to:

Army Corp 404 Permit Number _____.

California Fish & Game Permit No. LAKE OR STREAMBED ALTERATION NO 1600-2011-0237-R5.

32. All construction/demolition, grading, and storage of bulk materials must comply with the local AQMD rule 403 for Fugitive Dust. Information on rule 403 is available at AQMD's website http://www.avaqmd.com.

GENERAL GEOTECHNICAL NOTES:
33. All work must be in compliance with the recommendations included in the Geotechnical consultant's report(s) and the approved grading plans and specifications.

34. Grading operations must be conducted under periodic inspections by the geotechnical consultants with monthly inspection reports to be submitted to the Geology and Soils Section. (900 S. Fremont, Alhambra CA 91803 – 3rd floor)

35. The Soils Engineer shall provide sufficient inspections during the preparation of the natural ground and the placement and compaction of the fill to be satisfied that the work is being performed in accordance with the plan and applicable Code requirements.

36. Rough grading must be approved by a final engineer geology and soils engineering report. An as-built Geologic Map must be included in the final geology report. Provide a final report statement that verifies work was done in accordance with report recommendations and code provisions (Section J105.12 of the County of Los Angeles Building Code). The final report(s) must be submitted to the Geotechnical and Materials Engineering Division for review and approval.

37. Foundation, wall, and pool excavations must be inspected and approved by the consulting geologist and soil engineer, prior to the placing of steel or concrete.

38. Building pads located in cut/fill transition areas shall be over-excavated a minimum of three (3) feet below the proposed bottom of footing.

FILL NOTES:
39. All fill shall be compacted to the following minimum relative compaction criteria:

a. 90 percent of maximum dry density within 40 feet below finish grade.

b. 93 percent of maximum dry density deeper than 40 feet below finish grade, unless a lower relative compaction (not less than 90 percent of maximum dry density) is justified by the geotechnical engineer. The relative compaction shall be determined by A.S.T.M. soil compaction test D1557-91 where applicable. Where not applicable, a test acceptable to the Building Official shall be used. (Section J107.5 of the County of Los Angeles Building Code)

40. Field density shall be determined by a method acceptable to the Building Official. (Section J107.5 of the County of Los Angeles Building Code) However, not less than 10% of the required density test, uniformly distributed, shall be obtained by the Sand Cone Method.

41. Sufficient tests of the fill soils shall be made to determine the relative compaction of the fill in accordance with the following minimum guidelines:

a. One test for each two-foot vertical lift.

b. One test for each 1,000 cubic yards of material placed.

c. One test at the location of the final fill slope for each building site (lot) in each four-foot vertical lift or position thereof.

d. One test in the vicinity of each building pad for each four-foot vertical lift or portion thereof.

42. Sufficient tests of fill soils shall be made to verify that the soil properties comply with the design requirements, as determined by the Soils Engineer including soil types, shear strengths parameters, and corresponding unit weights in accordance with the following guidelines:

a. Prior and subsequent to placement of the fill, shear tests shall be taken on each type of soil, or soil mixture, to be used for all fill slopes steeper than three (3) horizontal to one vertical.

b. Shear test results for the proposed fill material must meet, or exceed, the design values used in the geotechnical report to determine slope stability requirements. Otherwise, the slope must be reevaluated using the actual sheet test value of the fill material that is in place.

c. Fill soils shall be free of deleterious materials.

43. Fill shall not be placed until stripping of vegetation, removal of unsuitable soils, and installation of subdrain (if any) have been inspected and approved by the Soil Engineer. The Building Official may require a "Standard Test Method for moisture, ash, organic matter, peat, or other organic soils" ASTM D-2974-87 on any suspect material. Detrimental amounts of organic material shall not be permitted in fills. Soil containing small amounts of roots may be allowed provided that the roots are in a quantity and distributed in a manner that will not be detrimental to the future use of the site, and the soils engineer approves the use of such material.

44. Rock, or similar material greater than 12 inches in diameter, shall not be placed in the fill unless recommendations for such placement have been submitted by the Soil Engineer and approved in advance by the Building Official. Location, extent, and elevation of rock disposal areas must be shown on as "As-Built" grading plan.

45. Continuous inspection by the Soil Engineer, or a responsible representative, shall be provided during all fill placement and compaction operations where fills have a depth greater than 30 feet or slope surface steeper than 2:1, (Section J107.8 of the County of Los Angeles Building Code).

46. Continuous inspection by the Soil Engineer, or a responsible representative, shall be provided during all subdrain installations. (Section 3313.2 of the County of Los Angeles Building Code).

47. All subdrain outlets are to be surveyed for line and elevation. Subdrain information must be shown on an "As-Built" grading plan.

48. Fill slopes in excess of 2:1 steepness ratio are to be constructed by the placement of soil at sufficient distance beyond the proposed finish slope to allow compaction equipment to be operated at the outer limits of the final slope surface. The excess fill is to be removed prior to completion of rough grading. Other construction procedures may be used when it is demonstrated to the satisfaction of the Building Official that the angle of slope, construction method, and other factors will have equivalent effect. (Section J107.5 of the County of Los Angeles Building Code)

PLANTING AND IRRIGATION NOTES:
49. Planting and irrigation on graded slopes must comply with the following minimum guidelines:

a. The surface of all cut slopes more than 5 feet in height and fill slopes more than 3 feet in height shall be protected against damage by erosion by planting with grass or groundcover plants. Slopes exceeding 15 feet in vertical height shall also be planted with schrubs, spaced at not to exceed 10 feet on centers; or trees, spaced at not to exceed 20 feet on centers, or a combination of scrubs and trees at equivalent spacing, in addition to the grass or groundcover plants. The plants selected and planting methods used shall be suitable for the soil and climatic conditions of the site. Plant material shall be selected which will produce a coverage of permanent planting effectively controlling erosion. Consideration shall be given to deep-rooted planting material needing limited watering, maintenance, high root to shoot ratio, wind susceptibility and fire-retardant characteristics. All plant materials must be approved by the building official. Section J110.3 of the County of Los Angeles Building Code).

NOTE: Planting need not be provided for cut slopes rocky in character and not subject to damage by erosion and any slopes protected against erosion damage by other methods when such methods have been specifically recommended by a soil engineer, engineering geologist, or equivalent authority and found to offer erosion protection equal to that provided by the planting specified above.

b. Slopes required to be planted by Section J110.3 shall be provided with an approved system of irrigation that is designed to cover all portions of the slope. Irrigation system shall be submitted and approved prior to installation. A functional test of the system may be required. For slopes less than 20 feet in vertical height, hose bibs to permit hand watering will be acceptable if such hose bibs are installed at conveniently accessible locations where a hose no longer than 50 feet is necessary for irrigation. the requirement for permanent irrigation systems may be modified upon specific recommendations of a landscape architect or equivalent authority that, because of the type of plants selected, The planting methods used and the soil and climatic conditions at the site, irrigation will not be necessary for the maintenance of the slope planting. (Section J110.4 of the County of Los Angeles Building Code).

c. Other governmental agencies may have additional requirements for landscaping and irrigation. It is the responsibility of the applicant to coordinate with other agencies to meet their requirements while maintaining compliance with the County of Los Angeles Building Code.

50. The planting and irrigation systems shall be installed as soon as practical after rough grading. Prior to final grading approval all required slope planting must be well established. (Section J110.7 of the County of Los Angeles Building code).

51. Landscape irrigation system shall be designed and maintained to prevent spray on structures (Title 31, Section 5.407.2.1)

52. This project requires a landscape permit. Prior to final, certification from a licensed Landscape Architect shall be provided to the Building Official. Final certification can be obtained at the following: http://dpw.lacounty.gov/bsd/publications/index.cfm

BEST MANAGEMENT PRACTICE NOTES:
1. Every effort should be made to eliminate the discharge of non-stormwater from the project site at all times.

2. Eroded sediments and other pollutants must be retained on-site and may be transported from the site via sheet flow, swales, area drains, natural drainage courses or wind.

3. Stockpiles of earth and other construction related materials must be protected from being transported from the site by the forces of wind or water.

4. Fuels, oils, solvents, and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil and surface waters. All approved storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.

5. Excess or waste concrete may not be washed into the public way or any other drainage system. Provisions shall be made to retain concrete wastes on-site until they can be disposed of as solid waste.

6. Trash and construction related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.

7. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public way. Accidental depositions must be swept up immediately and may not be washed down by rain or other means.

8. Any slopes with disturbed soils or denuded of vegetation must be stabilized so as to inhibit erosion by wind and water.

9. As the project owner or authorized agent of the owner, I have read and understand the requirements listed above, necessary to control storm water pollution from sediments, erosion, and construction materials, and I certify that I will comply with these requirements.

Print name_____
(Owner or authorized agent of the owner)

Signature_____ Date_____
(Owner or authorized agent of the owner)

The following BMPs as outlined in, but not limited to, the California Stormwater Best Management Practice Handbook, January 2003, or the latest revised edition, may apply during the construction of this project (additional measures may be required if deemed appropriate by the Project Engineer of the Building Official:

EROSION CONTROL:
EC1 – SCHEDULING
EC2 – PRESERVATION OF EXISTING VEGETATION
EC3 – HYDRAULIC MULCHING
EC4 – HYDROSEEDING
EC5 – SOIL BINDERS
EC6 – STRAW MULCH
EC7 – GEOTEXTILES & MATS
EC8 – WOOD MULCH
EC9 – EARTH DIKES AND DRAINAGE SWALES
EC10 – VELOCITY DISSIPATION DEVICES
EC11 – SLOPE DRAINS
EC12 – STREAMBANK STABILIZATION
EC13 – RESERVED
EC14 – COMPOST BLANKETS
EC15 – SOIL PREPARATION\ROUGHENING
EC16 – NON-VEGETATED STABILIZATION

TEMPORARY SEDIMENT CONTROL:
SE1 – SILT FENCE
SE2 – SEDIMENT BASIN
SE3 – SEDIMENT TRAP
SE4 – CHECK DAMS
SE5 – FIBER ROLLS
SE6 – GRAVEL BAG BERM
SE7 – STREET SWEEPING AND VACUUMING
SE8 – SANDBAG BARRIER
SE9 – STRAW BALE BARRIER
SE10 – STORM DRAIN INLET PROTECTION
SE11 – ACTIVE TREATMENT SYSTEMS
SE12 – TEMPORARY SILT DIKE
SE13 – COMPOST SOCKS & BERMS
SE14 – BIOFILTER BAGS

WIND EROSION CONTROL:
WE1 – WIND EROSION CONTROL

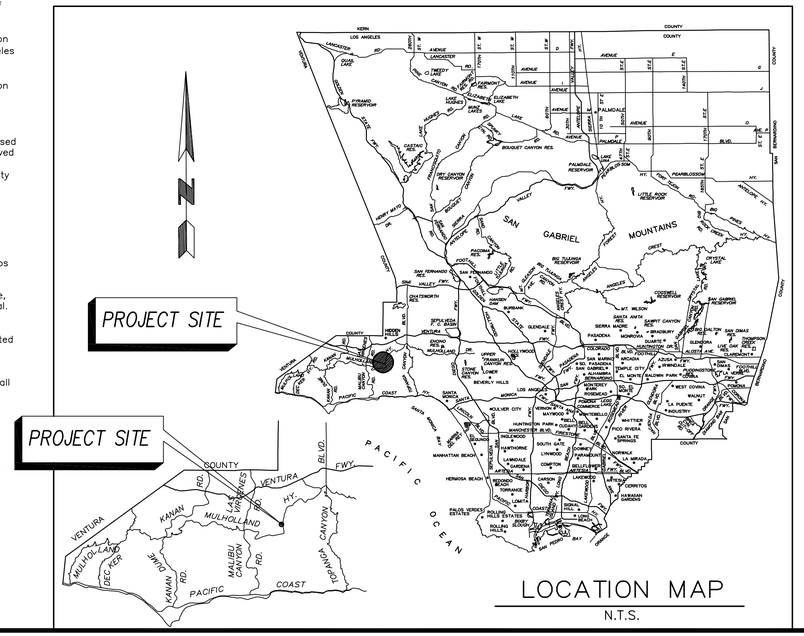
EQUIPMENT TRACKING CONTROL:
TC1 – STABILIZED CONSTRUCTION ENTRANCE/EXIT
TC2 – STABILIZED CONSTRUCTION ROADWAY
TC3 – ENTRANCE/OUTLET TIRE WASH

NON-STORMWATER MANAGEMENT:
NS1 – WATER CONSERVATION PRACTICES
NS2 – DEWATERING OPERATIONS
NS3 – PAVING AND GRINDING OPERATIONS
NS4 – TEMPORARY STREAM CROSSING
NS5 – CLEAR WATER DIVERSION
NS6 – ILLICIT CONNECTION/DISCHARGE
NS7 – POTABLE WATER/IRRIGATION
NS8 – VEHICLE AND EQUIPMENT CLEANING
NS9 – VEHICLE AND EQUIPMENT FUELING
NS10 – VEHICLE AND EQUIPMENT MAINTENANCE
NS11 – PILE DRIVING OPERATIONS
NS12 – CONCRETE CURING
NS13 – CONCRETE FINISHING
NS14 – MATERIAL AND EQUIPMENT USE
NS15 – DEMOLITION ADJACENT TO WATER
NS16 – TEMPORARY BATCH PLANTS

WASTER MANAGEMENT & MATERIAL POLLUTION CONTROL
WM1 – MATERIAL DELIVERY AND STORAGE
WM2 – MATERIAL USE
WM3 – STOCKPILE MANAGEMENT
WM4 – SPILL PREVENTION AND CONTROL
WM5 – SOLID WASTE MANAGEMENT
WM6 – HAZARDOUS WASTE MANAGEMENT
WM7 – CONTAMINATION SOIL MANAGEMENT
WM8 – CONCRETE WASTE MANAGEMENT
WM9 – SANITARY/SEPTIC WASTE MANAGEMENT
WM10 – LIQUID WASTE MANAGEMENT

REGISTERED PROFESSIONAL ENGINEER
WILLIAM MICHAEL WHITE
No. 62111
CIVIL
STATE OF CALIFORNIA

BENCHMARK:
DATUM SHOWN ON SURVEY WAS EXTRAPOLATED FROM AERIAL MAP, AND THEREFORE CONSIDERED TO BE ASSUMED



LOCATION MAP
N.T.S.

FORMA ENGINEERING INC
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Phone: (818) 832-1710 Fax: (818) 832-1740
PREPARED UNDER THE SUPERVISION OF:
WILLIAM M. WHITE, P.E. R.C.E. 62111 DATE

GENERAL NOTES

24600 THOUSAND PEAKS RD.
CALABASAS, CA 91302

Issues & Revisions

Sheet name
GENERAL NOTES

Project # 16127
File name
Drawn by
Approved by

Sheet # C1

CONSTRUCTION NOTES:

1. CONNECT DOWNSPOUT TO SITE DRAINAGE
2. 4" AREA DRAIN WITH GRATED OPENING; DOMED IN HEAVY PLANTING OR GRAVEL AREAS.
3. PVC PIPE (SDR 35 OR EQUAL) AT 1% MINIMUM SLOPE (CLEANOUTS AS REQUIRED PER CODE); SIZE PER PLAN
4. ACO BRICK SLOT WITH 4100S DRAIN OR EQUAL
5. OUTLET TO STREET PER BUBBLE UP CATCH BASIN DETAIL ON SHEET C3
6. INSTALL 8'ø 10,000 GAL. TANK BY XERXES OR EQUAL PER DETAILS ON SHEET C6
7. INSTALL 6" CURB PER SPPWC STANDARDS
8. SMART IRRIGATION CONTROLLER
9. INSTALL PRE-SEDIMENATION BASIN PER DETAILS ON SHEET C6
10. FIRE DEPARTMENT TURNAROUND
11. INSTALL 4" TRENCH DRAIN OR APPROVED EQUAL
12. SLOUGH WALL PER SPPWC 622-4 OR LA COUNTY STD PLAN 6203-1
13. RETAINING WALL PER DETAILS ON SHEET C4; CONTRACTOR TO VERIFY REQUIRED HEIGHT DUE TO FIELD CONDITIONS PRIOR TO CONSTRUCTION

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PRECISE GRADING PLAN

24600 THOUSAND PEAKS RD.
CALABASAS, CA 91302

Issues & Revisions

Sheet name
PRECISE GRADING PLAN

Project #	File name
16127	
Drawn by	Approved by

Sheet #
C2

SEE SHEET C3

SEE SHEET C3

CONSTRUCTION NOTES:

1. CONNECT DOWNSPOUT TO SITE DRAINAGE
2. 4" AREA DRAIN WITH GRATED OPENING; DOMED IN HEAVY PLANTING OR GRAVEL AREAS.
3. PVC PIPE (SDR 35 OR EQUAL) AT 1% MINIMUM SLOPE (CLEANOUTS AS REQUIRED PER CODE); SIZE PER PLAN
4. ACO BRICK SLOT WITH 4100S DRAIN OR EQUAL
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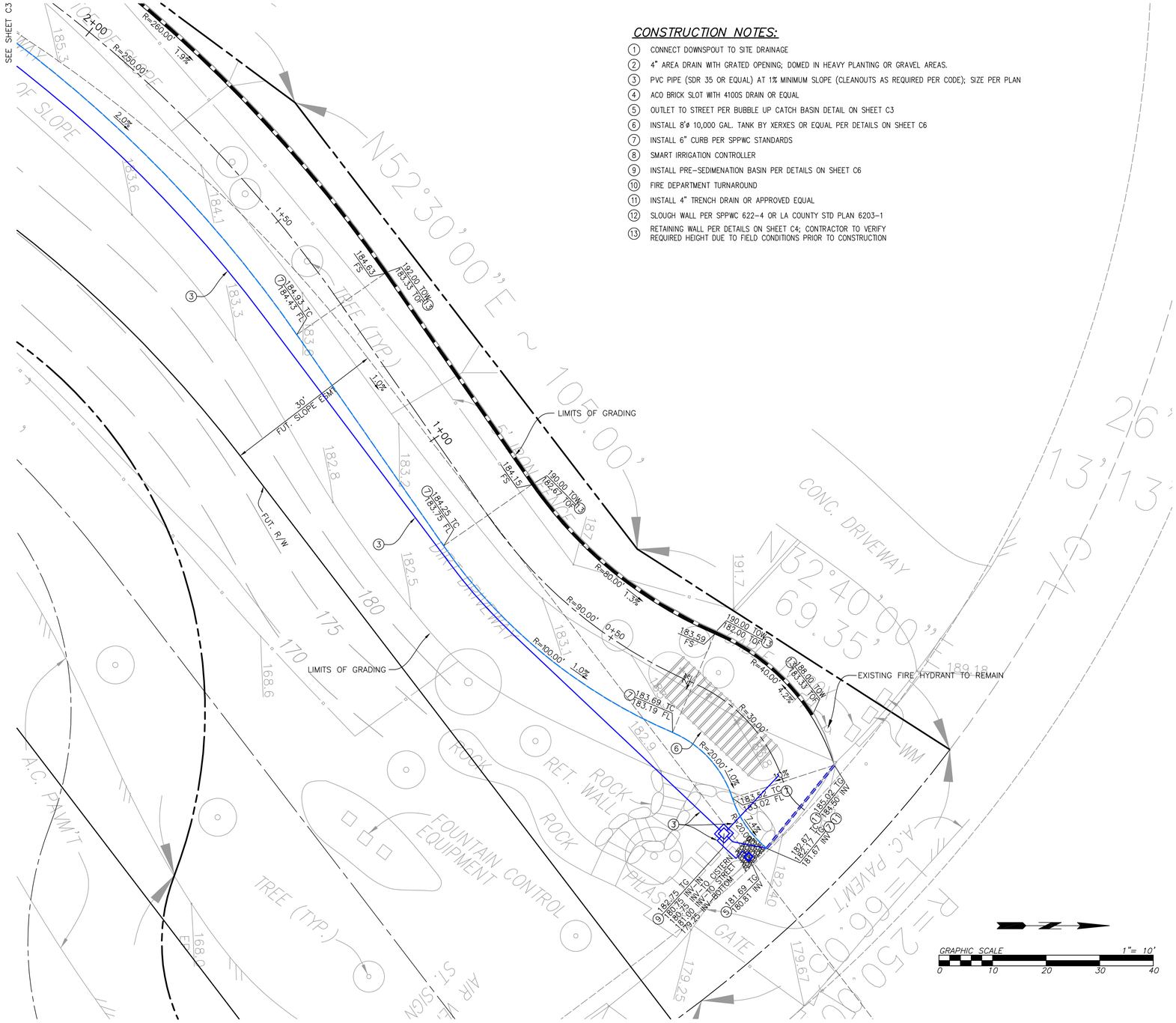
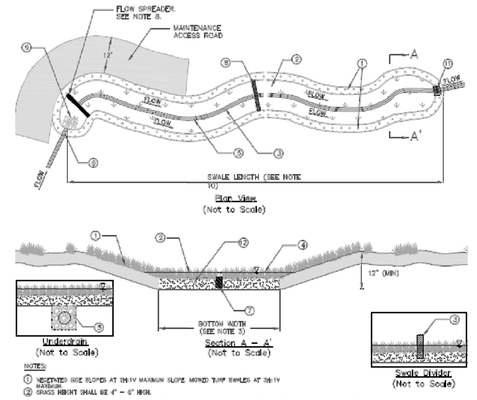


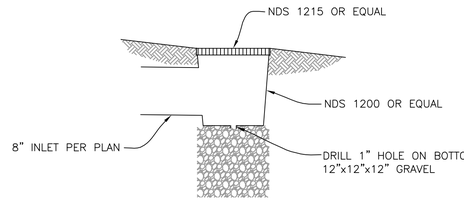
VEG-4: Vegetated Swales



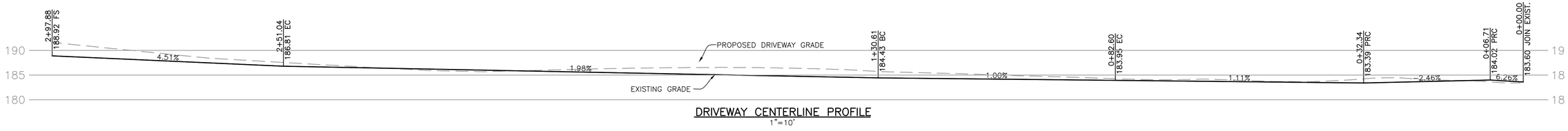
NOTES:

1. VEGETATED SIDE SLOPES AT 3H:1V MAXIMUM SLOPE. MOWED TURF SWALES AT 3H:1V MAXIMUM.
2. GRASS HEIGHT SHALL BE 4" – 6" MIN.
3. SWALE DIVIDERS REQUIRED FOR BOTTOM WIDTHS > 10'. MINIMUM REQUIRED BOTTOM WIDTH IS 2' EXCLUDING WIDTH OF LOW FLOW CHANNEL. MAXIMUM BOTTOM WIDTH WITH DIVIDER IS 10'.
4. DEPTH OF FLOW FOR WATER QUALITY TREATMENT MUST NOT EXCEED TWO-THIRDS OF THE GRASS HEIGHT AND NOT GREATER THAN 4" (MOWED/GENTLY MOWED) OR 9" (UNMOWED/VERY MOWED).
5. 6" PERFORATED UNDERDRAIN IN 8" DEEP COARSE AGGREGATE AND CONNECTED TO STORM DRAIN. REQUIRED FOR SLOPES < 1.50% OR AS NEEDED.
6. INLET PIPE WITH INLET PROTECTION.
7. IF NO UNDERDRAIN, LOW FLOW DRAIN SHALL EXTEND ENTIRE LENGTH OF SWALE AND SHALL HAVE A DEPTH OF 6" MINIMUM AND WIDTH NO MORE THAN 1/3 SWALE BOTTOM WIDTH. ANCHORED FLATE FLOW SPREADER IF USED, SHALL HAVE 1-INCH(ES) MAX TOP WIDTH – 1/4 OF SWALE WIDTH OR MORE TO ALLOW PERPENDICULAR EXIT OF LOW FLOWS.
8. INSTALL CHECK DAMS OR GRADE CONTROL STRUCTURES FOR SLOPES > 5% AT 50' MAXIMUM SPACING TO ACHIEVE A MAXIMUM EFFECTIVE LONGITUDINAL SLOPE OF 5%. FLOW SPREADERS SHALL BE PROVIDED AT INLET AND AT THE BASE OF EACH CHECK DAM. SEE ROUTE 7-3.
9. INSTALL ENERGY DESIPATOR AT THE INLET OF VEGETATED SWALE.
10. SWALE LENGTH SHALL BE 100' OR LENGTH REQUIRED TO PROVIDE 10 MINUTES RESIDENCE TIME, WHICH EVER IS GREATER.
11. INSTALL APPROPRIATE OUTLET STRUCTURE ACCOMODATE LOW FLOW CHANNEL AND/OR UNDERDRAIN (IF PRESENT)
12. AMEND SOILS WITH 2" OF COMPOST TILLED INTO 6" OF NATIVE SOIL UNLESS NATIVE SOIL ORGANIC CONTENT > 10%

Figure E-11. Vegetated Swale Schematic



BUBBLE UP CATCH BASIN DETAIL
NOT TO SCALE



DRIVEWAY CENTERLINE PROFILE
1"=10'

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PRECISE GRADING PLAN

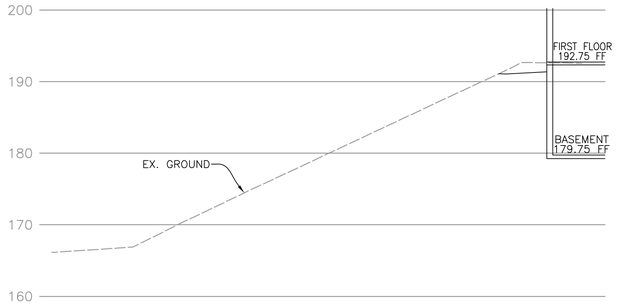
24600 THOUSAND PEAKS RD.
CALABASAS, CA 91302

Issues & Revisions

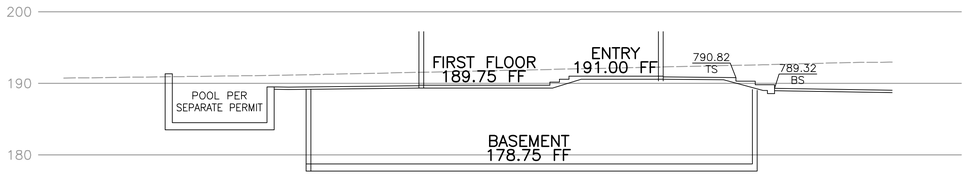
Sheet name
PRECISE GRADING PLAN

Project # 16127
File name
Drawn by
Approved by

Sheet #
C3



SECTION A–A



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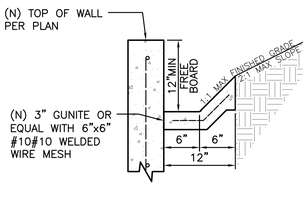
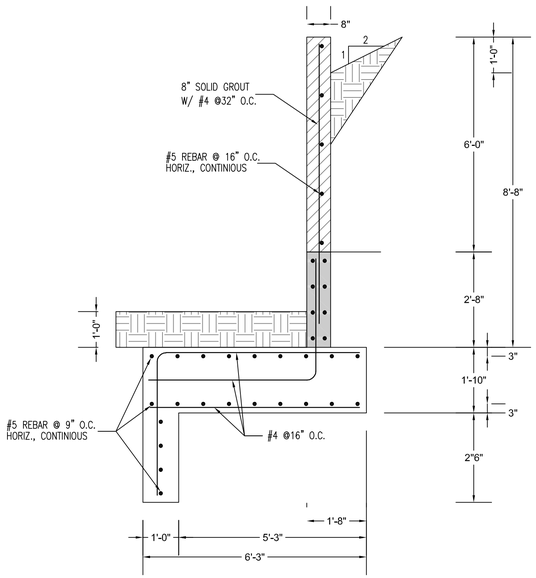
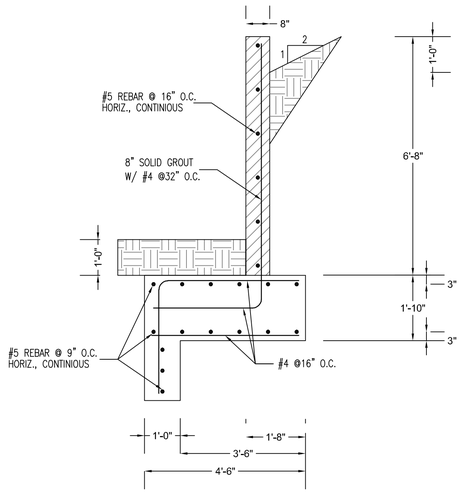


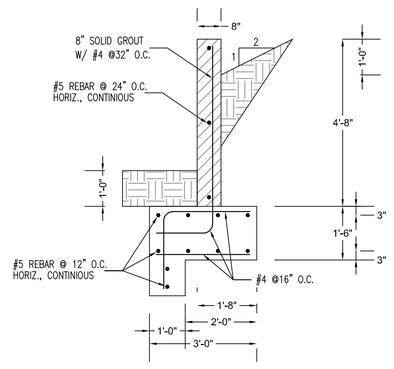
DETAIL "A"
TOP OF WALL DRAINAGE SWALE
SCALE 1"=1'



TYPE A – 8' RETAINING WALL
N.T.S.



TYPE A – 6' RETAINING WALL
N.T.S.



TYPE A – 4' RETAINING WALL
N.T.S.

GENERAL MATERIAL SPECIFICATIONS

I. CONCRETE
- A. Masonry Wall Footings – concrete shall attain a minimum compressive strength of 2,500 psi in 28 days.
- B. Reinforced Concrete Wall & Footing – Concrete shall attain a minimum compressive strength of 2,500 psi in 28 days.

II. GROUT
- A. Fine Grout
  1. To be used in spaces less than 2 inches in any dimension.
  2. 1 part Portland cement and 2 ¼ to 3 parts sand to which 1/10 part hydrated lime may be added.
- B. Coarse Grout
  1. To be used in spaces 2 inches or longer in all horizontal directions.
  2. 1 part Portland cement, 2 to 3 parts sand and 1 ¾to 2 parts ¾"(No. 4) concrete aggregate.
- C. Grout shall attain a minimum compressive strength of 2,000 psi in 28 days.

III. MORTAR
- A. Class D (1 part Portland cement and 2 ½ parts sand) or Class E (1 part Portland cement and 3 parts sand) to which ¼ to ½ part hydrated lime putty has been added.
- B. Mortar shall attain a minimum compressive strength of 2000 psi in 28 days)

IV. MASONRY UNITS
- GRADE N–1, ASTM C90, f' m = 1,500 psi

V. REINFORCING STEEL A.
- Fs = 24,000 psi
- Fy= 60,000 psi

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PRECISE GRADING PLAN

24600 THOUSAND PEAKS RD.
CALABASAS, CA 91302

Issues & Revisions

Sheet name
SITE SECTIONS & DETAILS

Project # 16127
File name
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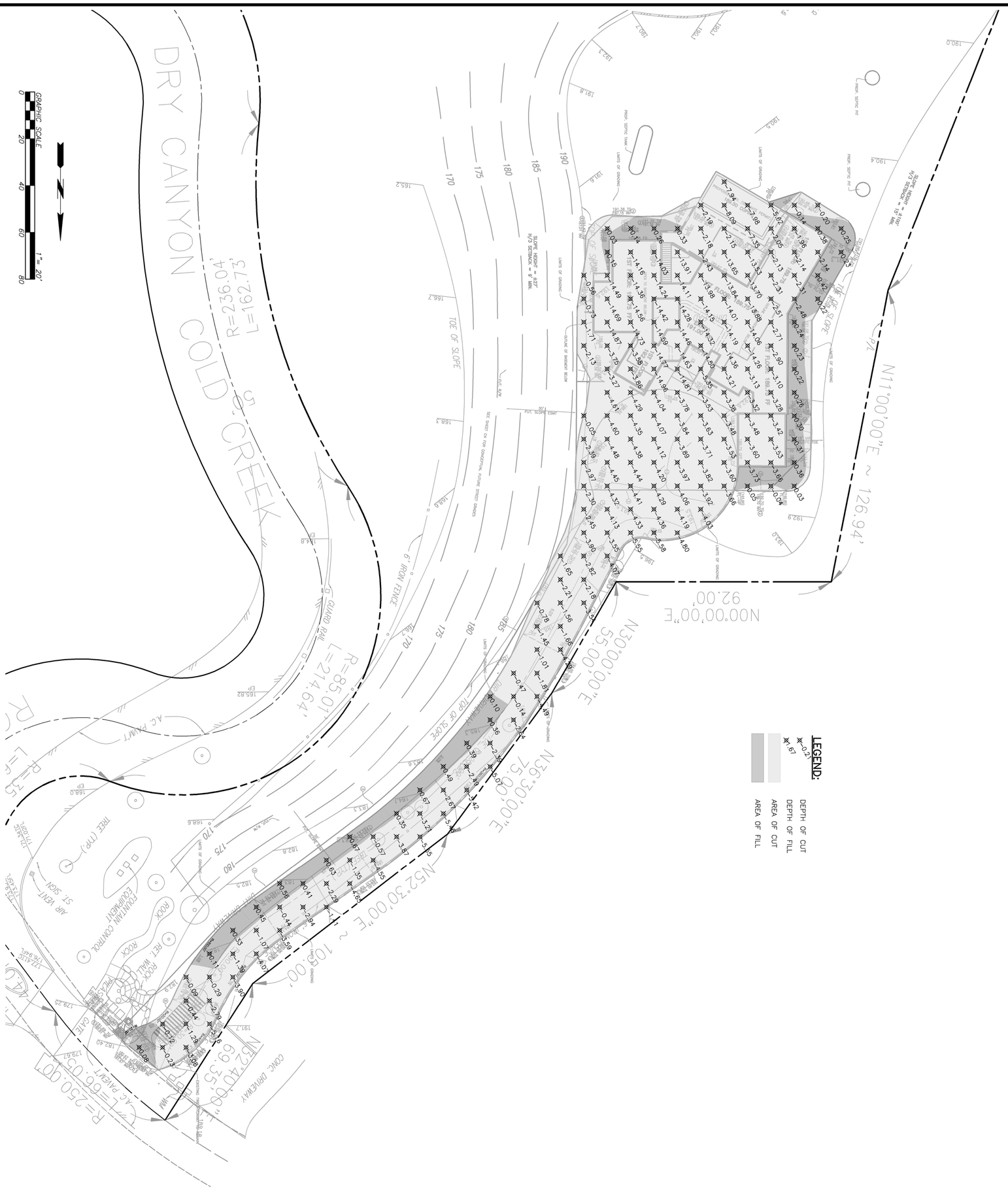
C4



Sheet #
C5

Project #
16127

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Sheet name
PRECISE GRADING PLAN

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RUNOFF MANAGEMENT PLAN

24600 THOUSAND PEAKS RD.
CALABASAS, CA 91302

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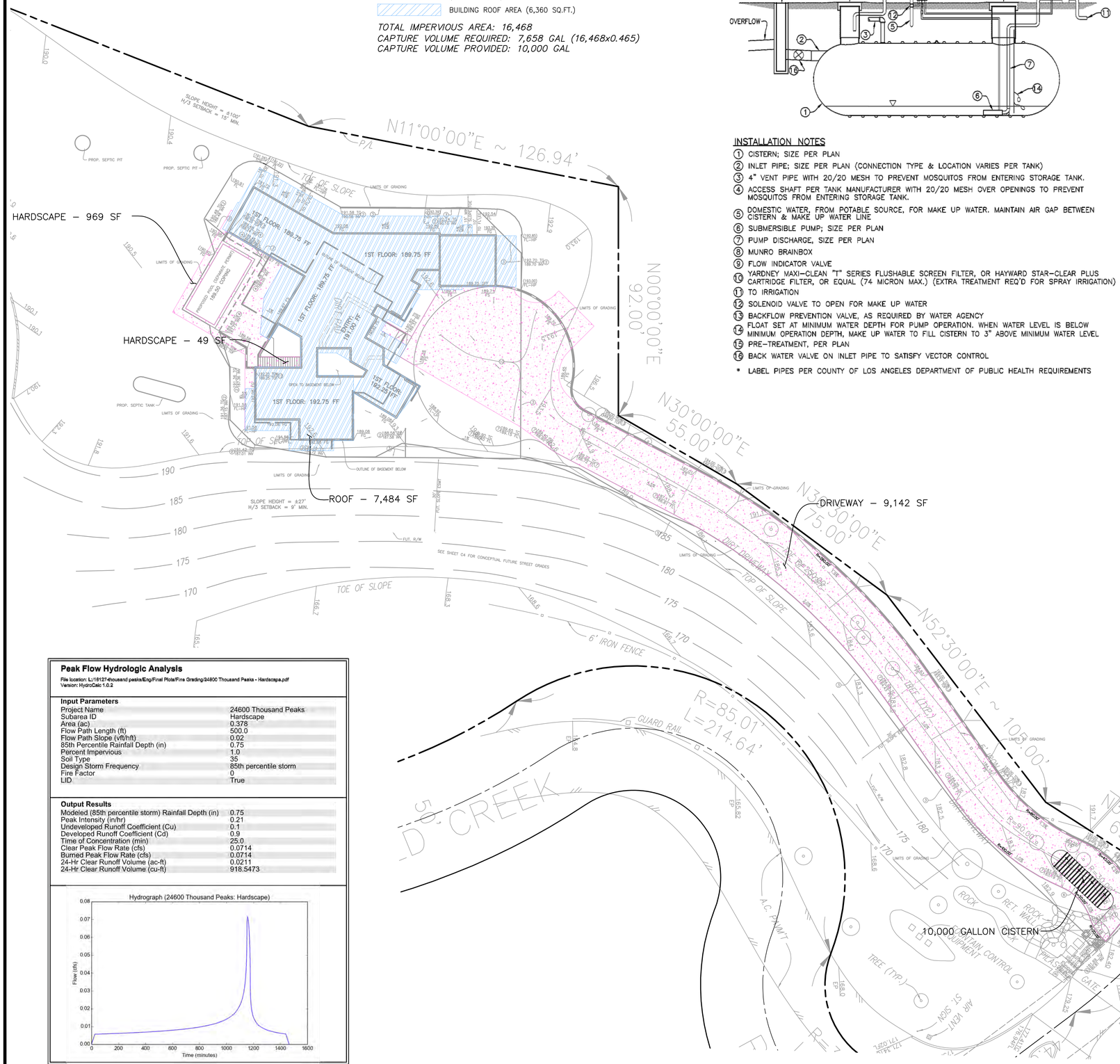
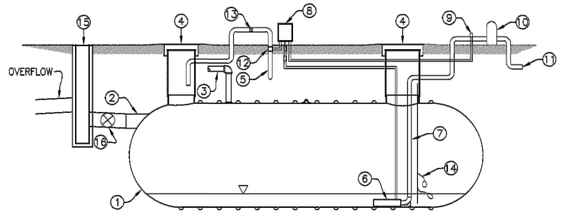
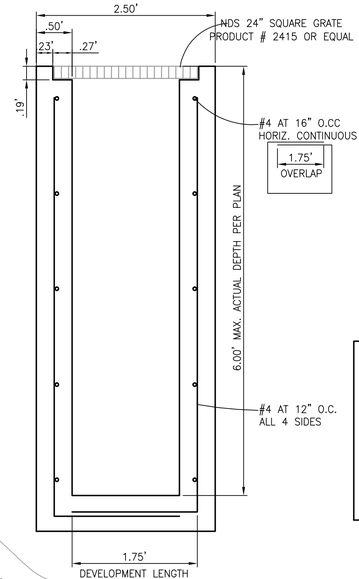




INSTALLATION NOTES

1. CISTERN; SIZE PER PLAN
2. INLET PIPE; SIZE PER PLAN (CONNECTION TYPE & LOCATION VARIES PER TANK)
3. 4" VENT PIPE WITH 20/20 MESH TO PREVENT MOSQUITOS FROM ENTERING STORAGE TANK.
4. ACCESS SHAFT PER TANK MANUFACTURER WITH 20/20 MESH OVER OPENINGS TO PREVENT MOSQUITOS FROM ENTERING STORAGE TANK.
5. DOMESTIC WATER, FROM POTABLE SOURCE, FOR MAKE UP WATER. MAINTAIN AIR GAP BETWEEN CISTERN & MAKE UP WATER LINE
6. SUBMERSIBLE PUMP; SIZE PER PLAN
7. PUMP DISCHARGE, SIZE PER PLAN
8. MUNRO BRAINBOX
9. FLOW INDICATOR VALVE
10. YARDNEY MAXI-CLEAN "T" SERIES FLUSHABLE SCREEN FILTER, OR HAYWARD STAR-CLEAR PLUS CARTRIDGE FILTER, OR EQUAL (74 MICRON MAX.) (EXTRA TREATMENT REQ'D FOR SPRAY IRRIGATION)
11. TO IRRIGATION
12. SOLENOID VALVE TO OPEN FOR MAKE UP WATER
13. BACKFLOW PREVENTION VALVE, AS REQUIRED BY WATER AGENCY
14. FLOAT SET AT MINIMUM WATER DEPTH FOR PUMP OPERATION. WHEN WATER LEVEL IS BELOW MINIMUM OPERATION DEPTH, MAKE UP WATER TO FILL CISTERN TO 3" ABOVE MINIMUM WATER LEVEL
15. PRE-TREATMENT, PER PLAN
16. BACK WATER VALVE ON INLET PIPE TO SATISFY VECTOR CONTROL

* LABEL PIPES PER COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC HEALTH REQUIREMENTS



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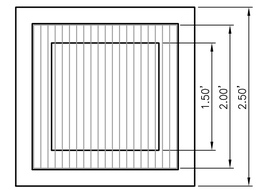


TOP VIEW

CAST IN PLACE DROP INLET STRUCTURE

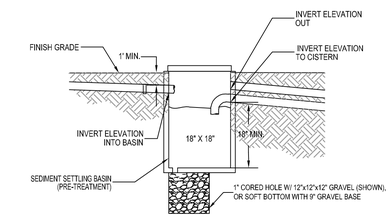
SCALE: 1"=1'

GENERAL MATERIAL SPECIFICATIONS

CONCRETE
REINFORCED CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI IN 28 DAYS. GUNITE OR POURED CONCRETE ARE ACCEPTABLE

REINFORCING STEEL
FS = 24,000 PSI
FY= 60,000 PSI
MAINTAIN CODE DEVELOPMENT LENGTHS

PIPE PENETRATIONS SHOULD EITHER BE SLEEVED OR CORED TO AVOID REINFORCEMENT



SEDIMENT BASIN DETAIL

N.T.S.

GRAPHIC SCALE 1"= 20'

0 20 40 60 80

Peak Flow Hydrologic Analysis

File location: L:/16127-thousand peaks/Eng/Final Plots/Fire Grading/24600 Thousand Peaks - Hardscape.pdf
Version: HydroCalc 1.0.2

Input Parameters	
Project Name	24600 Thousand Peaks
Subarea ID	Hardscape
Area (ac)	0.378
Flow Path Length (ft)	500.0
Flow Path Slope (vft/hft)	0.02
85th Percentile Rainfall Depth (in)	0.75
Percent Impervious	1.0
Soil Type	35
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results	
Modeled (85th percentile storm) Rainfall Depth (in)	0.75
Peak Intensity (in/hr)	0.21
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	25.0
Clear Peak Flow Rate (cfs)	0.0714
Burned Peak Flow Rate (cfs)	0.0714
24-Hr Clear Runoff Volume (ac-ft)	0.0211
24-Hr Clear Runoff Volume (cu-ft)	918.5473

FORMA ENGINEERING INC.
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Phone: (818) 832-1710 Fax: (818) 832-1740
PREPARED UNDER THE SUPERVISION OF:
WILLIAM M. WHITE, P.E. R.C.E. 62111 DATE

RUNOFF MANAGEMENT PLAN

24600 THOUSAND PEAKS RD.
CALABASAS, CA 91302

Issues & Revisions

Sheet name
PRECISE GRADING PLAN

Project # 16127
File name
Drawn by
Approved by
Sheet # C6

Landscape Plans

APPENDIX C

24600 THOUSAND PEAKS ROAD

FUEL MODIFICATION (FM# 6381) & NATIVE TREE REPLACEMENT PLANTING PROGRAM

SHEET INDEX:

PROJECT DESCRIPTION

LEGAL DESCRIPTION:

APN 4455-052-002

LOT 1, TRACT 36172, IN THE CITY OF CALABASAS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON MAP FILED IN BOOK 57 PAGE 17 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY.

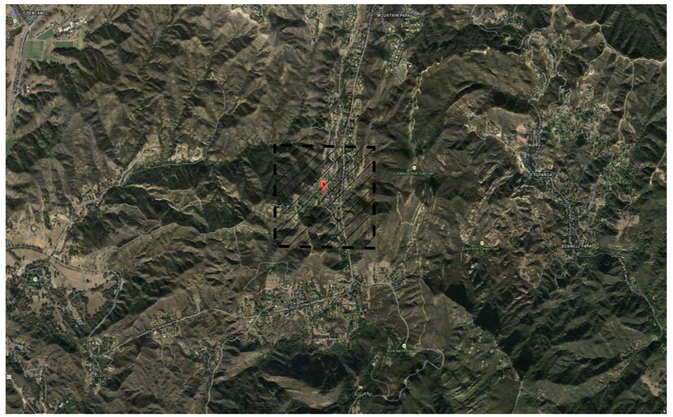
AREA OF PROPERTY: 479,160 SF
SQ. FOOTAGE OF HOUSE/COVERED PATIOS: 8290 SF

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

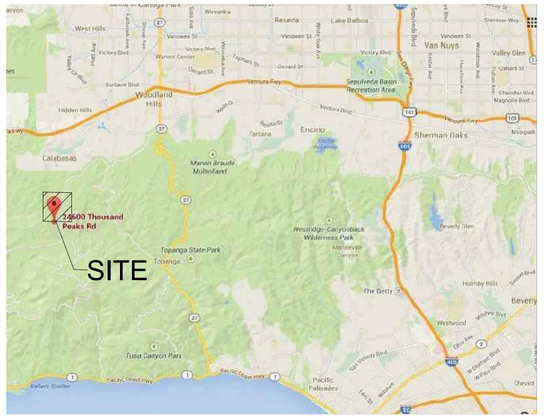
CONTACT INFORMATION:

OWNER
THOUSAND PEAKS LLC
13114 PONTOON PLACE
BRENTWOOD, CA 90049

LANDSCAPE ARCHITECT
GAUDET DESIGN GROUP
DIRK GAUDET
322 TEJON PLACE
PALOS VERDES ESTATES, CA 90274
(310) 828-4908



AERIAL MAP



VICINITY MAP

LOCATION MAP

DIG AL ERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

Gaudet Design Group
Landscape Architecture
322 Tejon Place
Palos Verdes Estates, California 90274
Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

TITLE SHEET

ISSUE

1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
4	09-06-18	BIOLOGY COMMENTS
5	11-08-18	BIOLOGY COMMENTS
6	11-10-18	PLNCHK COMMENTS
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14	01-11-21	PLNCHK COMMENTS
15	05-11-21	TREE REDUCTION
16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

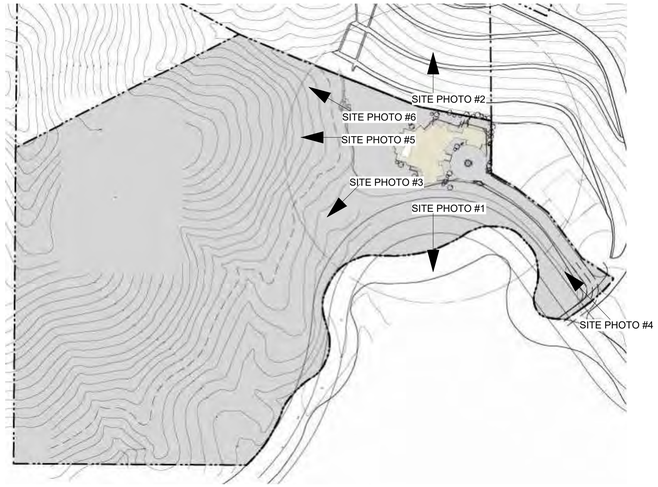
PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 1 of 14

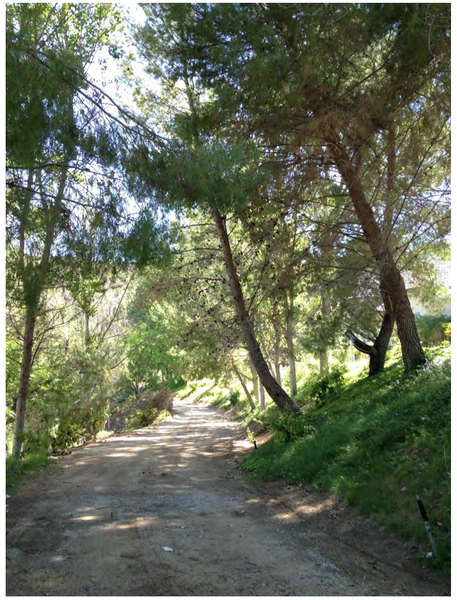
L-0.0

SITE PHOTO #1

SITE PHOTO #2



SITE PHOTO #3



SITE PHOTO #4

SITE PHOTO #5

SITE PHOTO #6

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PROJECT

24600 THOUSAND PEAKS RD
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SITE PHOTOGRAPHS

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SHEET 2 of 14

L-1.0

Long Term Maintenance Agreement

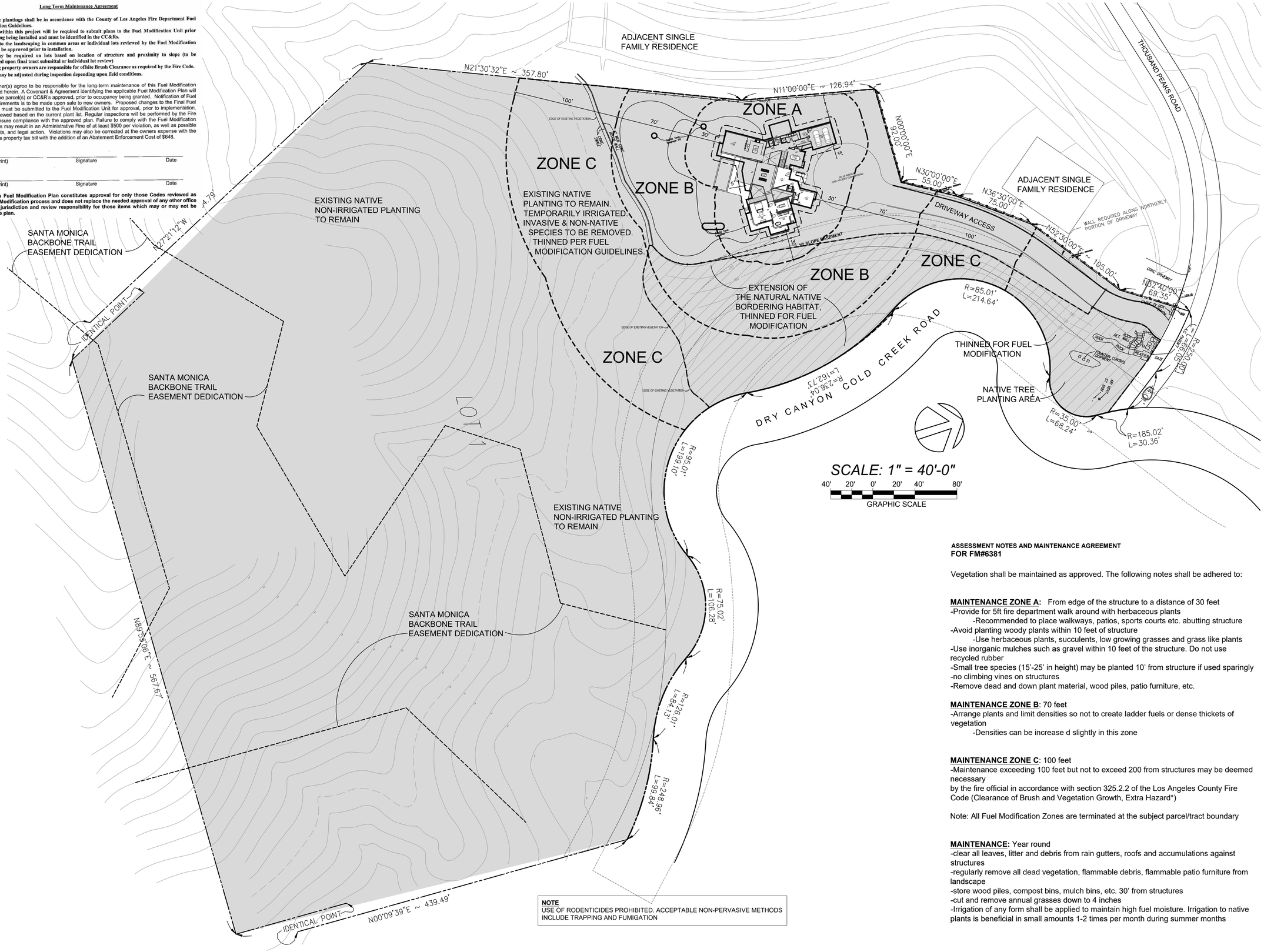
- **All future plantings shall be in accordance with the County of Los Angeles Fire Department Fuel Modification Guidelines.**
- **All Lots within this project will be required to submit plans to the Fuel Modification Unit prior landscaping being installed and must be identified in the CC&Rs.**
- **Changes to the landscaping in common areas or individual lots reviewed by the Fuel Modification Unit shall be approved prior to installation.**
- **Walls may be required on lots based on location of structure and proximity to slope (to be determined upon final tract submittal or individual lot review)**
- **Adjoining property owners are responsible for offsite Brush Clearance as required by the Fire Code.**
- **Zone C may be adjusted during inspection depending upon field conditions.**

The property owner(s) agree to be responsible for the long-term maintenance of this Fuel Modification plan, as described herein. A Covenant & Agreement identifying the applicable Fuel Modification Plan will be recorded on the parcel(s) or CC&R's approved, prior to occupancy being granted. Notification of Fuel Modification requirements is to be made upon sale to new owners. Proposed changes to the Final Fuel Modification plan must be submitted to the Fuel Modification Unit for approval, prior to implementation. Plans will be reviewed based on the current plant list. Regular inspections will be performed by the Fire Department to ensure compliance with the approved plan. Failure to comply with the Fuel Modification Plan requirements may result in an Administrative Fine of at least $500 per violation, as well as possible liens, assessments, and legal action. Violations may also be corrected at the owners expense with the cost placed on the property tax bill with the addition of an Abatement Enforcement Cost of $648.

Name (Print) _____ Signature _____ Date _____

Name (Print) _____ Signature _____ Date _____

Approval of this Fuel Modification Plan constitutes approval for only those Codes reviewed as part of the Fuel Modification process and does not replace the needed approval of any other office or agency with jurisdiction and review responsibility for those items which may or may not be illustrated on the plan.



NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

ASSESSMENT NOTES AND MAINTENANCE AGREEMENT
FOR FM#6381

Vegetation shall be maintained as approved. The following notes shall be adhered to:

MAINTENANCE ZONE A: From edge of the structure to a distance of 30 feet
-Provide for 5ft fire department walk around with herbaceous plants
-Recommended to place walkways, patios, sports courts etc. abutting structure
-Avoid planting woody plants within 10 feet of structure
-Use herbaceous plants, succulents, low growing grasses and grass like plants
-Use inorganic mulches such as gravel within 10 feet of the structure. Do not use recycled rubber
-Small tree species (15'-25' in height) may be planted 10' from structure if used sparingly
-no climbing vines on structures
-Remove dead and down plant material, wood piles, patio furniture, etc.

MAINTENANCE ZONE B: 70 feet
-Arrange plants and limit densities so not to create ladder fuels or dense thickets of vegetation
-Densities can be increase d slightly in this zone

MAINTENANCE ZONE C: 100 feet
-Maintenance exceeding 100 feet but not to exceed 200 from structures may be deemed necessary
by the fire official in accordance with section 325.2.2 of the Los Angeles County Fire Code (Clearance of Brush and Vegetation Growth, Extra Hazard*)

Note: All Fuel Modification Zones are terminated at the subject parcel/tract boundary

MAINTENANCE: Year round
-clear all leaves, litter and debris from rain gutters, roofs and accumulations against structures
-regularly remove all dead vegetation, flammable debris, flammable patio furniture from landscape
-store wood piles, compost bins, mulch bins, etc. 30' from structures
-cut and remove annual grasses down to 4 inches
-Irrigation of any form shall be applied to maintain high fuel moisture. Irrigation to native plants is beneficial in small amounts 1-2 times per month during summer months

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FUEL MODIFICATION

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PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 3 of 14

L-1.1

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
1. ALL TREE SYMBOLS WITH DASHED-LINE CIRCLES ARE TO REMAIN.
2. ALL TREE SYMBOLS WITH SOLID LINE CIRCLES ARE TO BE REMOVED.

EXISTING ON-SITE TREES TO REMAIN

SYMBOL	PLANT NAME	QUANT.
	EXISTING POPULUS FREMONTII TO REMAIN	11
	EXISTING QUERCUS AGRIFOLIA TO REMAIN	32
	EXISTING SALIX LAEVIGATA TO REMAIN	3

NOTE:
1. FOR NATIVE TREES THAT WILL BE RETAINED, CHECK FOR MISSING OR WORN TAGS AND APPLY DURABLE TAG WITH APPROPRIATE NUMBERS. THESE WILL NEED TO BE TAGGED IN THE FIELD.
2. INSTALL PROTECTIVE FENCING AT 15-FT FROM TRUNK OR 5-FT FROM CANOPY, WHICHEVER DISTANCE IS MORE.
3. WORK WITHIN FENCING WILL BE SUPERVISED BY ARBORIST OF RECORD OR BIOLOGIST OF RECORD (AOR OR BOR) TO PRESERVE FOLIAGE AND ROOTS. FENCING IS TO BE REINSTALLED AFTER WORK COMPLETES AND RETAINED THROUGH ALL CONSTRUCTION. SEE 'BEST MANAGEMENT...TRENCHING' ON SHEET L-3.1.

EXISTING TREES TO BE REMOVED

SYMBOL	PLANT NAME	QUANT.
	PINUS HALEPENSIS ALEPPO PINE	26
	KOELREUTERIA BIPINNATA CHINESE FLAME TREE	1
	CUPRESS SARGENTII SARGENT CYPRESS	1
	SCHINUS MOLLE PERUVIAN PEPPER	7
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	1 DEAD
	POPULUS FREMONTII WESTERN COTTONWOOD	17 +2 DEAD
	PISTACIA CHINESIS CHINESE PISTACHE	2
	QUERCUS AGRIFOLIA COAST LIVE OAK (*1 UNDER-SIZED)	2
	TAMARIX PARVIFLORA TAMARISK	1

NOTE: SEE REMOVAL INSTRUCTIONS ON THE LEFT.

EXISTING INVASIVE SPECIES TO BE REMOVED

SYMBOL	PLANT NAME	QUANT.
	SCHINUS MOLLE PERUVIAN PEPPER (FROM BIOLOGICAL ASSESSMENT FIGURE 5)	7
1	CORTADERIA SELLOANA PAMPAS GRASS	4
2	SCHINUS MOLLE PERUVIAN PEPPER (FROM NTRPP FIGURE 4)	6
3	SCHINUS TEREBINTHIFOLIUS BRAZILIAN PEPPERTREE	2
4	SPARTIUM JUNCEUM SPANISH BROOM GROUPING	2
5	TAMARIX RAMOSISSIMA SALT CEDAR	1
6	AILANTHUS ALTISSIMA TREE OF HEAVEN GROUPING	1

NOTE: SEE REMOVAL INSTRUCTIONS ON THE LEFT.

REMOVAL OF NON-NATIVE / INVASIVE SPECIES
1. REMOVE ALL NON-NATIVE AND INVASIVE PLANT SPECIES FROM THE RE-VEGETATED NATIVE AREAS OF ZONES B & C, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING OBSERVED SPECIES:
- -SCHINUS MOLLE
- -CENTAUREA MELITENSIS
- -SONCHUS ASPER
- -HIRSCHFELDIA INCANA
- -SALSOLA TRAGUS
- - ACACIA SPECIES
- -SPARTIUM JUNCEUM
- -LYSIMACHIA ARVENSIS
- -AILANTHUS ALTISSIMA
- -TAMARIX RAMOSISSIMA
- -PINUS HALEPENSIS
- -AGROSTIS VIRIDIS
- -BROMUS MADRITENSIS SSP. RUBENS
- -BROMUS DIANDRUS
- -PIPTATHERUM MILEACEUM

2. USE TREE REMOVAL METHODS THAT PRESERVE BATS AND BIRDS THAT SEQUESTER IN FOLIAGE.
-BRING DOWN TREES OR STRUCTURES IN A CONTROLLED MANNER USING HEAVY MACHINERY. IN ORDER TO ENSURE THE OPTIMUM WARNING FOR ANY ROOSTING BATS AOR SMALL BIRDS THAT MAY STILL BE PRESENT, THE TREES OR STRUCTURES SHALL BE NUDGED LIGHTLY TWO OTO THREE TIMES, WITH A PAUSE OF APPROXIMATELY 30 SECONDS BETWEEEN EACH NUDGE TO ALLOW BATS AND BIRDS TO BECOME ACTIVE. TREES OR STRUCTURES MAY THEN BE PUSHED OR PULLED TO THE GROUND SLOWLY. FELLED TREES SHALL REMAIN IN PLACE FOR 48 HOURS TO ALLOW SMALL BIRDS AND BATS TO ESCAPE.

3. FOR MOST INVASIVE PLANTS, SPECIFIC MANUAL REMOVAL WITH SHOVELS INCLUDING ROOTS IS BEST. TRANSPORT ALL INVASIVE PLANT PARTS IN CLOSED CONTAINERS TO A LANDFILL. DO NOT MULCH, AS MANY OF THESE CAN REGROWN FROM PLANT PARTS. FOR CERTAIN RECALCITRANT INVASIVE PLANTS, CHEMICAL MAY BE USED AS SPECIFIED IN THE NTRPP.

INSTRUCTIONS PER SPECIFIC INVASIVE PLANTS ARE THE FOLLOWING:

A.1. CORTADERIA SELLOANA (PAMPAS GRASS): MECHANICAL-ESTABLISHED CLUMPS SHOULD BE REMOVED USING PULASKIS, MATTOCKS, OR SHOVELS. TO PREVENT RESPROUTING, THE ENTIRE CROWN AND TOP SECTION OF THE ROOTS MUST BE REMOVED. A WEED SHIP CAN EXPOSE THE BASE OF THE PLAN, ALLOWING BETTER ACCESS FOR REMOVAL OF THE CROWN, AND MAKE DISPOSAL OF THE DETACHED PLANT MORE MANAGEABLE.

B.2. SCHINUS MOLLE (PERUVIAN PEPPER TREE): CUT STUMP-REMOVE THE TREE WITH A CHAINSAW TO A HEIGHT AS CLOSE TO THE EXISTING GRADE AS POSSIBLE. THIS SHOULD BE DONE DURING THE GROWING SEASON BEFORE THE TREE HAS BEGUN TO FLOWER, GENERALLY LATE SUMMER OR AUTUMN. IMMEDIATELY APPLY UNDILUTED GARLON 3A OR 40% OF CONCENTRATED ROUNDUP USING A PAINTBRUSH TO THE CUT STUMP. ALTERNATIVELY, DRILL HOLES IN THE STEMS AND POUR THE HERBICIDE INTO THE HOLES.

C.3. SCHINUS TEREBINTHIFOLIUS (BRAZILIAN PEPPER TREE): CUT STUMP - REMOVE THE TREE WITH A CHAINSAW TO A HEIGHT AS CLOSE TO THE EXISTING GRADE AS POSSIBLE. THIS SHOULD BE DONE DURING THE GROWING SEASON BEFORE THE TREE HAS BEGUN TO FLOWER, GENERALLY LATE SUMMER OR AUTUMN.

D.4. SPARTIUM JUNCUEM (SPANISH BROOM): CUT STUMP - REMOVE THE SHRUB TO A HEIGHT AS CLOSE TO THE EXISTING GRADE AS POSSIBLE. IMMEDIATELY APPLY UNDILUTED GARLON 3A OR 40% OF CONCENTRATED ROUNDUP USING A PAINTBRUSH TO THE CUT STUMP. THESE ACTIVITIES SHOULD BE AVOIDED IN THE WINTER. ALTERNATIVELY PULL OUT BY THE ROOTOS WITH A WEED WRENCH.

E.5. TAMARIX RAMOSISSIMA (SALT CEDAR): CUT STUMP - REMOVE THE TREE WITH A CHAINSAW TO A HEIGHT AS CLOSE TOT HE EXISTING GRADE AS POSSIBLE. IMMEDIATELY APPLY CONCENTRATED ROUNDUP USING A PAINTBRUSH TO THE CUT STUMP. THESE ACTIVITIES SHOULD BE AVOIDED UNDER DROUGHT CONDITIONS. ALTERNATIVELY, DRILL HOLES IN THE STEMS AND POUR THE HERBICIDE INTO THE HOLES.

EDGE OF EXISTING VEGETATION
EXISTING WALL
NOTE: NON-NATIVES THAT HAVE ESTABLISHED WITHIN THE NATIVE VEGETATION SHALL ALSO BE REMOVED. (INCLUDING ACACIA REDOLENS)
(N) 32' RADIUS FIRE ACCESS TURNAROUND
30' SLOPE EASEMENT
TPZ
EDGE OF EXISTING VEGETATION
NOTE: NON-NATIVES THAT HAVE ESTABLISHED WITHIN THE NATIVE VEGETATION SHALL ALSO BE REMOVED. (INCLUDING ACACIA REDOLENS)

SCALE: 1" = 20'-0"
20' 10' 0' 10' 20' 40'
GRAPHIC SCALE

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PROJECT

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EXISTING PLANT DISPOSITION PLAN

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PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
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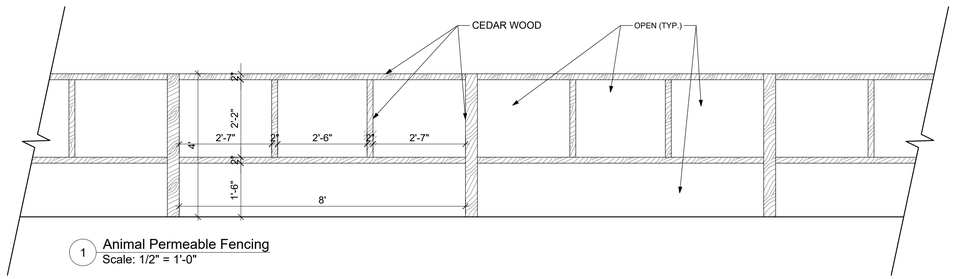
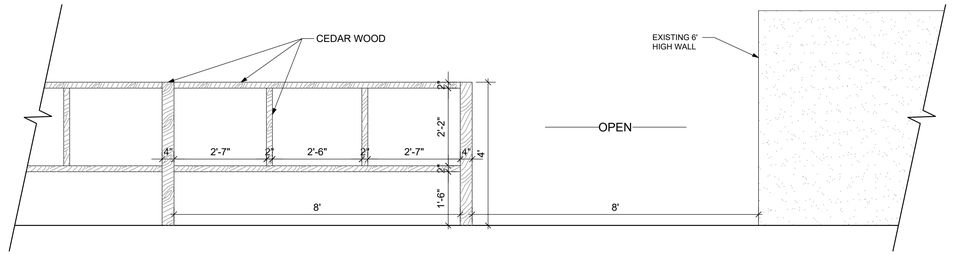
L-1.2



1 Animal Permeable Fencing
Scale: 1/2" = 1'-0"



2 Animal Permeable Fencing with Opening
Scale: 1/2" = 1'-0"

22.44.1310.I Zone B - Fencing that is **wildlife permeable** may extend no further than the outer extent of Fuel Modification Zone B (100 feet from structures that require fuel modification).

22.44.1310.I Zone A - Fencing that is **non-wildlife permeable** may surround the immediate development and extend no further than the outer extent of Fuel Modification Zone A (typically 20 feet from structures that require fuel modification), and shall be solely for safety purposes. Fencing shall be no more than six feet in height.

Definitions
"Wildlife-permeable fencing" means fencing that can be easily bypassed by all species of wildlife found within the Santa Monica Mountains, including but not limited to deer, coyotes, bobcats, mountain lions, ground rodents, amphibians, reptiles and birds, and shall be subject to the following standards:

A. Fences shall be split-rail or flat-board with no more than three horizontal rails or boards.

B. The bottom edge of the bottom horizontal rail or board shall be no lower than 18 inches from the ground.

C. There shall be a minimum two-foot gap between each rail or board.

D. Except where a different height is stated, the top edge of the topmost rail or board shall be no higher than 48 inches from the ground.

E. Fence material shall be of wood or an alternative material that gives the appearance of wood, such as wood composite or recycled material or some other similar material that gives the appearance of wood.

F. Fence posts shall not be hollow at the top or have holes drilled into them near the top.

G. Fences shall not be barbed.

H. The top of the fence shall not contain spikes of any manner.

4' HIGH ANIMAL PERMEABLE FENCE
N11°00'00"E ~ 126.94'
8' WIDE OPEN.
EXISTING 6' HIGH WALL TO REMAIN
4' HIGH ANIMAL PERMEABLE FENCE
N00°00'00"E 92.00'
CONC. SWALE
8" WIDE CONC. BLOCK WALL
Septic Tank Seepage Pit
EXISTING FENCE TO BE REMOVED
(N) 32' RADIUS FIRE ACCESS TURNAROUND
EXISTING FENCE ON NEIGHBOR'S PROPERTY. NO FENCE NEEDED.
N30°00'00"E 55.00'
RETAINING WALL REQUIRED (SEE SECTION)
N36°30'00"E 75.00'
DRIVEWAY ACCESS
EXISTING 6' HIGH WALL TO REMAIN
Septic Tank Location
30' SLOPE EASEMENT
8' WIDE OPENING
4' HIGH ANIMAL PERMEABLE FENCE
6' IRON FENCE
EXISTING FENCE TO BE REMOVED
R=85.01'
L=214.64'
N52°30'00"E ~ 105.00'
EXISTING FENCE ON NEIGHBOR'S PROPERTY. NO FENCE NEEDED.
CONC. DRIVEWAY
N32°40'00" 69.35'
CABLE TV BOX
WM
A.C. PAVING
ROCK RET. WALL
ROCK
ROCK
PILASTER
GATE
FOUNTAIN CONTROL EQUIPMENT
AIR VENT
SY CANYON COLD CREEK ROAD
R=236.04'
L=162.73'
ZONE A
ZONE B
ZONE C
185
180
175
170

SCALE: 1" = 20'-0"
20' 10' 0' 10' 20' 40'
GRAPHIC SCALE

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PHASE

Fuel Modification & Native Tree Replacement Planting Program

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CHECKED BY:	DG

SHEET 5 of 14

L-1.3

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

MITIGATION TREE PLANTING

28 EXISTING MITIGATION TREES ON-SITE

9 QUERCUS AGRIFOLIA. 1 GAL (ON-SITE)
7 PLATANUS RACEMOSA. 1 GAL (ON-SITE)
5 POPULUS TRICHOCARPA. 1 GAL (ON-SITE)
8 SAMBUCUS NIGRA SSP CAERULEA. 1 GAL (ON-SITE)
19 HETEROMELES ARBUTIFOLIA. 1 GAL (ON-SITE)

129 NATIVE TREES PLANTED BY AN OFF-SITE MITIGATION PROVIDER, COORDINATED WITH THE LOS ANGELES COUNTY (<1 YEAR OLD SEEDLING SIZE)

205 TOTAL MITIGATION TREES REQUIRED

NOTE: FOR EACH MITIGATION OAK, PLANT AN ACORN OF THE SAME SPECIES (QUERCUS AGRIFOLIA) AND AMEND THE SOIL WITH OAK LEAF MULCH OR MULCH FROM NATIVE PLANTS OF THE SANTA MONICA MOUNTAINS WITHIN THE IRRIGATION CIRCLE. MULCH TO BE 4 INCHES DEEP AND TO SPREAD TO A 15' RADIUS FROM THE TRUNK. NO MULCH OR SOIL SHOULD CONTACT THE TRUNK. THE SLOPE OF DIRT SHALL BE AWAY FROM THE TRUNK.

OBSERVED EXISTING NATIVE PLANT SPECIES TO REMAIN ON SITE

Adenostoma fasciculatum	Keckiella cordifolia
Artemisia californica	Lonicera subspicata
Baccharis pilularis	Malacothamnus fasciculatus
Ceanothus species	Malosma laurina
Cercocarpus betuloides	Marah macrocarpa
Claytonia perfoliata	Populus fremontii
Eriogonum fasciculatum	Pseudognaphalium species
Eriophyllum confertiflorum	Rhamnus crocea
Helianthus annus	Rhus integrifolia
Heteromeles arbutifolia	Rhus ovata
Hypericum species	Salvia mellifera
Isocoma menziesii	Solanum xanti
	Toxicoscordion fremontii

GUIDELINES FOR IRRIGATION & MITIGATION OF NATIVE PLANTS IN LANDSCAPES FOR THE SANTA MONICA MOUNTAINS

IRRIGATION
INITIALLY, IRRIGATION IS REQUIRED TO ESTABLISH NATIVE PLANTS. AFTER HEALTHY ESTABLISHMENT, IRRIGATION MAY OCCUR IN TIMES OF DROUGHT, ABOUT ONCE A MONTH IN THE SUMMER FOR PLANTS OTHER THAN OAKS.

AN IRRIGATION SYSTEM NEEDS TO BE INSTALLED ACCORDING TO THE APPROVED FUEL MODIFICATION PLAN, USUALLY FOR A 100-FOOT HORIZONTAL DISTANCE AROUND ANY STRUCTURES (OR UP TO PARCEL BOUNDARIES); IRRIGATION IS REQUIRED TO MAINTAIN PLANT HEALTH. IT NEEDS TO BE IN PLACE AND SUFFICIENT FOR FIRE PROTECTION AND TESTED TWICE A YEAR, BEFORE AND FOLLOWING FIRE SEASON, AND REPAIRED AT THOSE TESTING TIMES.

NATIVE PLANT IRRIGATION REGIMES:

OAK TREE IRRIGATION AND MAINTENANCE:
ARRANGE SOIL AROUND THE BASE OF TREES TO SLOPE AWAY SO THAT RAINFALL DRAINS AWAY FROM THE TRUNK; AVOID PONDING AT THE BASE OF THE TRUNK. LEAVE 6- TO 10-FEET AROUND THE TRUNK CLEARED OF NON-NATIVES AND WITHOUT IRRIGATION. PROTECTIVE NATIVE PLANT MULCH CAN COVER THIS AREA AND PROTECT THE ROOTS. OAK LEAF MULCH IS PREFERRED. IRRIGATION CAN BE DONE WITH HOSES ONCE A MONTH AT SIX FEET FROM THE TRUNK IN THE NORMAL RAINFALL MONTHS, OCTOBER-MARCH, UNTIL TREE IS ESTABLISHED (SEVERAL YEARS), AND THEN ONLY ONCE OR TWICE IN SUMMER IN TIMES OF SEVERE DROUGHT. AFTER ESTABLISHMENT, ONLY RAINFALL SHOULD IRRIGATE OAKS. NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE OAKS MAY BE IRRIGATED ONCE IN MID-SUMMER USING A DRIP IRRIGATION SOAKER HOSE ALONG THE DOWNSLOPE PERIPHERY OF THE CANOPY DRIP LINE. THIS WILL USUALLY BE ALONG HALF OF THE CANOPY DRIP LINE. IRRIGATE UNTIL MOISTURE REACHES SIX-INCH DEPTH.
TEMPORARY IRRIGATION SYSTEMS SHALL BE REMOVED WHEN OAKS ARE ESTABLISHED.

NATIVE PLANT ZONE IRRIGATION AND MAINTENANCE:
PLANTS IN THESE ZONES ARE WATERED LIKE OAKS (BUT TYPICALLY AT 3-FEET OR MORE FROM THE TRUNKS AT EDGES OF A PLANT BASIN) UNTIL ESTABLISHED, ONCE A MONTH OCTOBER-MARCH, AND THEN ONLY ONCE OR TWICE IN SUMMER UNTIL ESTABLISHED (SEVERAL YEARS). USUALLY, ONLY RAINFALL SHOULD IRRIGATE NATIVE PLANTS AFTER ESTABLISHMENT, AND NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE SHRUBS MAY BE IRRIGATED AS NEEDED IN SUMMER.
TEMPORARY IRRIGATION SYSTEM SHALL BE REMOVED ONCE NATIVE PLANTS ARE ESTABLISHED.

DO NOT REMOVE IRRIGATION AROUND STRUCTURES IN ZONES A AND B, BECAUSE IT IS REQUIRED FOR FIRE SAFETY. OBSERVE THE IRRIGATION REGIME FOR NATIVE PLANTS IN THE LANDSCAPE AND THE ENVIRONMENT OF THE SANTA MONICA MOUNTAINS.

MITIGATION:
REMOVALS AND ENCROACHMENTS OF PROTECTED OAKS (AND OTHER NATIVE TREES) MAY ENTAIL PLANTING IN THE LANDSCAPE. FOLLOW IRRIGATION REGIMES ABOVE FOR NATIVE MITIGATION PLANTS. THE PLAN MUST FOLLOW LIP MITIGATION REQUIREMENTS FOR NATIVE TREES: HTTP://PLANNING.LACOUNTY.GOV/ASSETS/UPL/PROJECT/COASTAL_ADOPTED-LIP-MAPS.PDF.

SEE SECTION 22.44.1920 K, PP. 527-530, OF THE LIP FOR TREE MITIGATION REQUIREMENTS (INCLUDES ENCROACHMENTS INTO PROTECTED ZONES).

FOR OFF-SITE MITIGATION, PLANTINGS SHOULD BE IN PERMANENTLY PROTECTED AREAS SUCH AS GOVERNMENT LAND OR LAND PROTECTED BY A CONSERVATION EASEMENT OR OWNED BY A LAND CONSERVATION MANAGEMENT GROUP.

EXISTING TREES TO REMAIN

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
	EXISTING SALIX LAEVIGATA TO REMAIN	3	---	EXISTING	LOW PF 0.1	B
	EXISTING POPULUS FREMONTII TO REMAIN	11	---	EXISTING	MED PF 0.4	B
	EXISTING QUERCUS AGRIFOLIA TO REMAIN	32	---	EXISTING	LOW PF 0.1	B - 30

TREE LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
DV	DODONAEA VISCOSA 'PURPUREA' PURPLE HOPSEED BUSH	3	24" BOX	DETAIL 'A' SHEET L-2.4	MED PF 0.4	A/B
	HETEROMELES ARBUTIFOLIA TOYON	19	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	7	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	3	36" BOX	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	POPULUS TRICHOCARPA BLACK COTTONWOOD	5	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	MED PF 0.4	A/B/C
	QUERCUS AGRIFOLIA COAST LIVE OAK PLANT ACORN OF THE SAME SPECIES WITHIN THE IRRIGATION CIRCLE OF EACH OAK (NOTE: DO NOT PLANT UNDERSTORY WITHIN 15-FT OF AN OAK TRUNK. THE UNDERSTORY SHALL BE OAK LEAF MULCH)	9	<1 Y.O. SEEDLING SOURCED FROM SANTA MONICA MTNS	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B - 30
	QUERCUS AGRIFOLIA COAST LIVE OAK PLANT ACORN OF THE SAME SPECIES WITHIN THE IRRIGATION CIRCLE OF EACH OAK (NOTE: DO NOT PLANT UNDERSTORY WITHIN 15-FT OF AN OAK TRUNK. THE UNDERSTORY SHALL BE OAK LEAF MULCH)	1	24" BOX MULTI-TRUNK	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B - 30
	SAMBUCUS NIGRA SSP CAERULEA ELDERBERRY	8	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C

SHRUB LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
AA	AGAVE AMERICANA CENTURY PLANT	13	15 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW VERY LOW PF 0.1	A/B
AC	ARTEMISIA CALIFORNICA CALIFORNIA SAGEBRUSH	15	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	C
AF	ADENTOSTOMA FASCICULATUM CHAMISE	23	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	C
AH	ALYOGYNE HUEGELII BLUE HIBISCUS	19	15 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
BP	BACCHARIS PILULARIS DWARF COYOTE BUSH	51	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B/C
CE	CEANOTHUS OLIGANTHUS HAIRY-LEAF CEANOTHUS	52	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
CG	COREOPSIS GIGANTEA SEA DAHLIA	11	5 GAL. @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
CO	CEANOTHUS OLIGANTHUS HAIRY-LEAF CEANOTHUS	52	5 GAL @ 60" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
EC	EPILOBIUM CANUM V. CANUM CALIFORNIA FUCHSIA	6	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
EG	ELYMUS GLAUCUS WESTERN RYE GRASS	51	1 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
JP	JUNCUS PATENS RUSH	86	5 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B-15
L	LOMANDRA LONGIFOLIA BREEZE DWARF MAT RUSH	6	5 GAL. @ 24" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
MP	MAHONIA PINNATA BARBERRY	25	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
MU	MUHLENBERGIA RIGENS DEER GRASS	36	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B-10
NP	NASSELLA PULCHRA PURPLE NEEDLE GRASS	42	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	A/B/C
PD	PHORMIUM 'DAZZLER' NEW ZEALAND FLAX	34	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.4	MEDIUM PF 0.4	A/B
RC	ROMNEYA COULTERI MATILIJA POPPY	42	5 GAL @ 48" OC	**DETAIL** 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	B
RH	RHAMNUS CALIFORNICA COFFEEBERRY	10	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	B

GROUNDCOVER LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	SPACE	REFERENCE	WATER NEEDS	ZONE
	PEA GRAVEL FIREFIGHTER ACCESS PATH- MIN. 5' WIDE 3" THICK LAYER	CCQ	---	---	---	---	---
	EXISTING NATIVE: IRRIGATED SLOPE PLANTING TO REMAIN. REMOVE INVASIVE & NON-NATIVE SPECIES. TO BE EVALUATED IN DURING ON-SITE FIRE DEPARTMENT INSPECTION)	(3218 SF)	---	---	---	---	---
	AGROSTIS PALLENS NATIVE BENTGRASS	CCQ	SOD	---	---	LOW PF 0.3	A/B
	BUFFALO 'VERDE' GRASS (SODDED TURF)	3747 SF	SOD	---	---	MEDIUM PF 0.4	A/B
	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	267 SF	1 GAL	24" OC	---	MEDIUM PF 0.4	A/B
*	*LOCAL NATIVE SEED MIX: ACMISPON GLABER POA SECUNDA NASELLA PULCHRA HORDEUM B. CALIFORN. LUPINUS SUCCULENTUS	CCQ	APPLY@ A RATE OF 40-50 LBS LIVE SEED PER ACRE	---	---	LOW PF 0.2	B/C
*	*SANTA MONICA MOUNTAIN MIX BY S&S SEEDS: ACMISPON GLABER, BROMUS CARINATUS, BROMUS CARINATUS CUCAMONGA, CAMISSONIOPSIS CHEIRANTHIFOLIA, CLARKIA PURPUREA, ERIOGONUM CINERUM, ERIOPHYLLUM CONFERTIFLORUM, ESCHSCHOLZIA CALIFORNICA, LUPINUS SUCCULENTUS, MELICA IMPERFECTA, MIMULUS AURANTIACUS LONGIFLORUS, PENSTEMON SPECTABILIS, STIPA LEPIDA, STIPA PULCHRA, VERBENA LASIOSTACHYS	CCQ	APPLY@ A RATE OF 40-50 LBS LIVE SEED PER ACRE	---	NOTE: 1. PHYSICALLY CONDITION THE SLOPE BY WEEDING, CONDITIONING POCKETS FOR THE SEEDS AND/OR NATIVE PLANT MULCH, THEN SEEDING. 2. MOW AFTER SEED SET WHEN SEEDS DRY. 3. SEEDING WILL FOLLOW WEEDING. WEEDING WILL BE NEEDED UNTIL MOST OF THE PLANTS ARE NATIVE.	LOW PF 0.2	B/C
	LOCAL NATIVE SEED MIX: ACMISPON GLABER, ARTEMISIA CALIFORNICA** BROMUS CARINATUS, CLARKIA PURPUREA ELYMUS CONDENSATUS, ENCELIA FARINOSA,** ERIGONUM FASCICULATUM, ERIGONUM FAS. VAR FASCICULATUM** ERIOPHYLLUM CONFERTIFLORUM, LUPINUS SUCCULENTUS, PENSTEMON, HETEROPYLLUS, SALVIA LEUCOPHYLLA, SALVIA APIANA** SALVIA MELLIFERA** SOLIDAGO VELUTINA SSP CALIFORNICA**	CCQ	APPLY@ A RATE OF 40-50 LBS LIVE SEED PER ACRE	---	1. PHYSICALLY CONDITION THE SLOPE BY WEEDING, CONDITIONING POCKETS FOR THE SEEDS AND/OR NATIVE PLANT MULCH, THEN SEEDING. 2. MOW AFTER SEED SET WHEN SEEDS DRY; 3. SEEDING WILL FOLLOW WEEDING. WEEDING WILL BE NEEDED UNTIL MOST OF THE PLANTS ARE NATIVE. 4. WOODY PLANT SPECIES MAY REQUIRE SELECTIVE THINNING POST GERMINATION.	LOW PF 0.2	C
	OAK LEAF MULCH 3" MINIMUM LAYER	CCQ	---	---	---	---	---

CCQ: CONTRACTOR TO COMPUTE QUANTITY
*WILL REQUIRE ANNUAL MOWING TO 3" MAX HEIGHT
**WOODY SPECIES. MAY REQUIRE SELECTIVE THINNING POST GERMINATION

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PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

PLANTING LEGEND & NOTES

ISSUE

1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
4	09-06-18	BIOLOGY COMMENTS
5	11-08-18	BIOLOGY COMMENTS
6	11-10-18	PLNCHK COMMENTS
7	04-17-19	PLNCHK COMMENTS
8	07-16-19	PLNCHK COMMENTS
9	09-18-19	PLNCHK COMMENTS
10	02-17-20	PLNCHK COMMENTS
11	05-26-20	PLNCHK COMMENTS
12	06-01-20	FM COMMENTS
13	06-03-20	FM COMMENTS
14	01-11-21	PLNCHK COMMENTS
15	05-11-21	TREE REDUCTION
16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 6 of 14

L-2.0

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
1. SEE SHEET L-2.0 FOR PLANTING LEGEND AND NOTES.
2. SEE SHEET L-2.3 FOR PLANTING INSTRUCTIONS.
3. SEE SHEETS L-3.0 TO L-3.3 FOR IRRIGATION INSTRUCTIONS

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PROJECT

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APN: 4455-052-002

SHEET TITLE

PLANTING PLAN

ISSUE		
1	08-11-15	FUEL MODIFICATION
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PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
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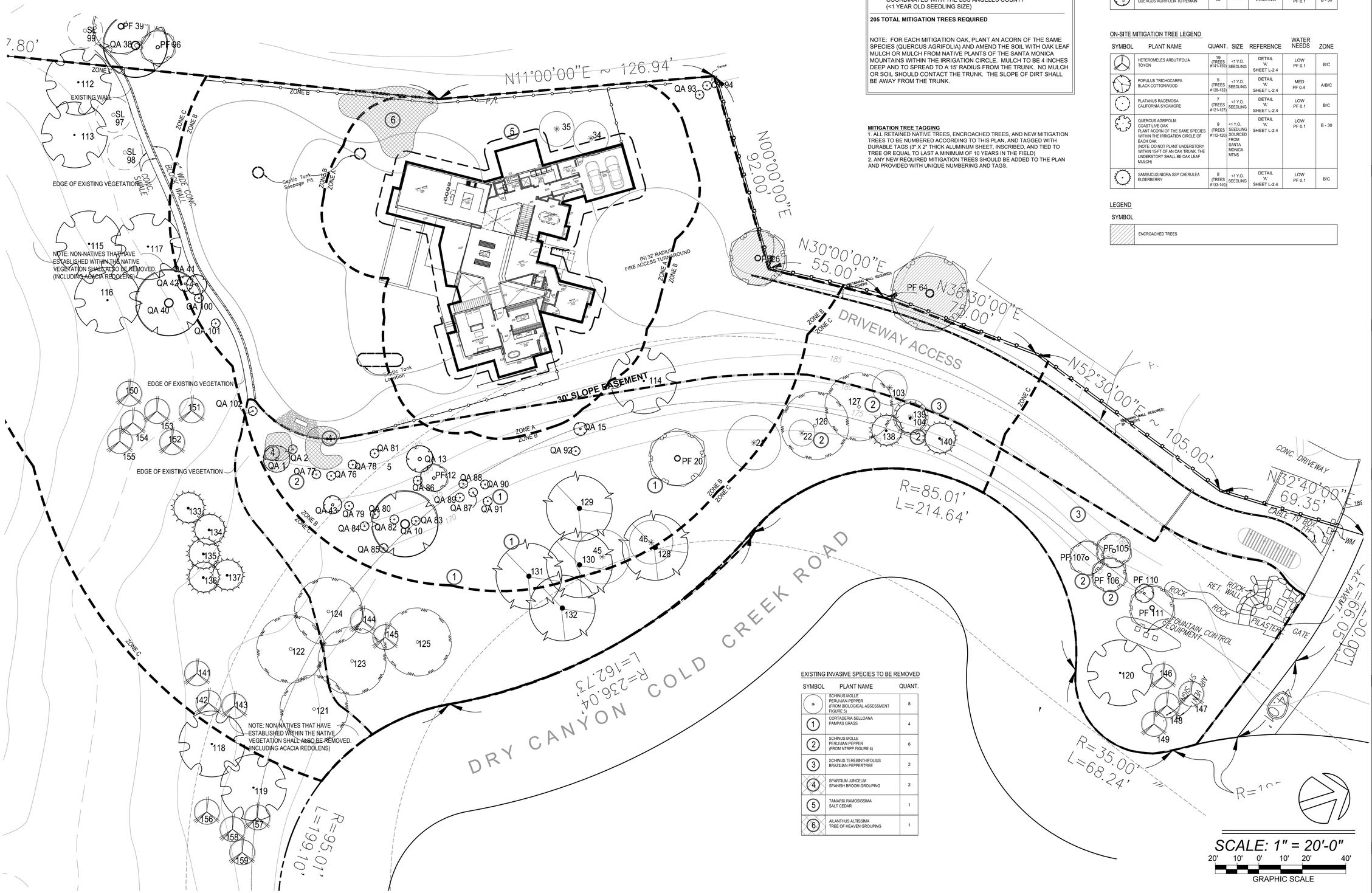
SHEET 7 of 14

L-2.1

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
SEE SHEET L-2.2 FOR THE REQUIREMENTS OF THE MITIGATION PLANS AND ANNUAL REPORTING.



MITIGATION TREE PLANTING

28 EXISTING MITIGATION TREES ON-SITE

9 QUERCUS AGRIFOLIA. 1 GAL (ON-SITE)
7 PLATANUS RACEMOSA. 1 GAL (ON-SITE)
5 POPULUS TRICHOCARPA. 1 GAL (ON-SITE)
8 SAMBUCUS NIGRA SSP CAERULEA. 1 GAL (ON-SITE)
19 HETEROMELES ARBUTIFOLIA. 1 GAL (ON-SITE)

129 NATIVE TREES PLANTED BY AN OFF-SITE MITIGATION PROVIDER, COORDINATED WITH THE LOS ANGELES COUNTY (<1 YEAR OLD SEEDLING SIZE)

205 TOTAL MITIGATION TREES REQUIRED

NOTE: FOR EACH MITIGATION OAK, PLANT AN ACORN OF THE SAME SPECIES (QUERCUS AGRIFOLIA) AND AMEND THE SOIL WITH OAK LEAF MULCH OR MULCH FROM NATIVE PLANTS OF THE SANTA MONICA MOUNTAINS WITHIN THE IRRIGATION CIRCLE. MULCH TO BE 4 INCHES DEEP AND TO SPREAD TO A 15' RADIUS FROM THE TRUNK. NO MULCH OR SOIL SHOULD CONTACT THE TRUNK. THE SLOPE OF DIRT SHALL BE AWAY FROM THE TRUNK.

MITIGATION TREE TAGGING
1. ALL RETAINED NATIVE TREES, ENCROACHED TREES, AND NEW MITIGATION TREES TO BE NUMBERED ACCORDING TO THIS PLAN, AND TAGGED WITH DURABLE TAGS (3" X 2" THICK ALUMINUM SHEET, INSCRIBED, AND TIED TO TREE OR EQUAL TO LAST A MINIMUM OF 10 YEARS IN THE FIELD)
2. ANY NEW REQUIRED MITIGATION TREES SHOULD BE ADDED TO THE PLAN AND PROVIDED WITH UNIQUE NUMBERING AND TAGS.

EXISTING INVASIVE SPECIES TO BE REMOVED

SYMBOL	PLANT NAME	QUANT.
*	SCHINUS MOLLE PERUVIAN PEPPER (FROM BIOLOGICAL ASSESSMENT FIGURE 5)	8
1	CORTADERIA SELLOANA PAMPAS GRASS	4
2	SCHINUS MOLLE PERUVIAN PEPPER (FROM NTRPP FIGURE 4)	6
3	SCHINUS TEREBINTHIFOLIUS BRAZILIAN PEPPERTREE	2
4	SPARTIUM JUNCEUM SPANISH BROOM GROUPING	2
5	TAMARIX RAMOSISSIMA SALT CEDAR	1
6	AILANTHUS ALTISSIMA TREE OF HEAVEN GROUPING	1

EXISTING TREES TO REMAIN

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
	EXISTING SALIX LAEVIGATA TO REMAIN	3	---	EXISTING	LOW PF 0.1	B
	EXISTING POPULUS FREMONTII TO REMAIN	11	---	EXISTING	MED PF 0.4	B
	EXISTING QUERCUS AGRIFOLIA TO REMAIN	32	---	EXISTING	LOW PF 0.1	B - 30

ON-SITE MITIGATION TREE LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
	HETEROMELES ARBUTIFOLIA TOYON	19 (TREES #141-159)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	POPULUS TRICHOCARPA BLACK COTTONWOOD	5 (TREES #128-132)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	MED PF 0.4	A/B/C
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	7 (TREES #121-127)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	QUERCUS AGRIFOLIA COAST LIVE OAK PLANT ACORN OF THE SAME SPECIES WITHIN THE IRRIGATION CIRCLE OF EACH OAK (NOTE: DO NOT PLANT UNDERSTORY WITHIN 15-FT OF AN OAK TRUNK. THE UNDERSTORY SHALL BE OAK LEAF MULCH)	9 (TREES #113-140)	<1 Y.O. SEEDLING SOURCED FROM SANTA MONICA MTNS	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B - 30
	SAMBUCUS NIGRA SSP CAERULEA ELDERBERRY	8 (TREES #133-140)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C

LEGEND

SYMBOL	
	ENCROACHED TREES

SCALE: 1" = 20'-0"
20' 10' 0' 10' 20' 40'
GRAPHIC SCALE

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ON-SITE TREE MITIGATION PLAN

ISSUE

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PHASE

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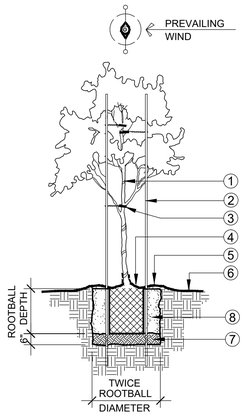
SHEET 8 of 14

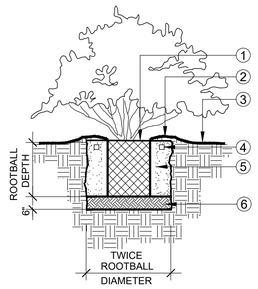
L-2.1B



DETAIL
NOT TO SCALE

① TREE TRUNK
② 2" DIA. x 12' LONG MIN. LODGE POLE PINE STAKES: ONE STAKE FOR 5 GAL., TWO STAKES FOR 15 GAL. AND LARGER TREES.
③ RUBBER TIES WRAP ONCE AROUND STAKE AND PROVIDE 2 TIES FOR 5 GAL. & 3 TIES FOR 15 GAL. AND LARGER TREES.
④ TREE ROOTBALL: 5 & 15 GAL 1" ABOVE GRADE, 24" BOX & LARGER 3" ABOVE GRADE. TAPER ROOTBALL TO GRADE
⑤ 4" HIGH WATER RETENSION BASIN. FORM FROM PLANT PIT EXCAVATION. MAY BE RAKED OUT PRIOR TO OTHER WORK AS DIRECTED BY LANDSCAPE ARCHITECT
⑥ FINISH GRADE
⑦ 6" ZONE OF OVER-EXCAVATED AND RE-COMPACTED NATIVE SOIL
⑧ PREPARED BACKFILL PER SPECIFICATIONS

Ⓐ STANDARD TRUNK TREE PLANTING AND STAKING



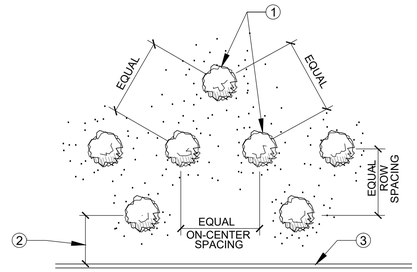
DETAIL
NOT TO SCALE

① ROOTBALL CROWN SHALL BE 1" ABOVE FINISH GRADE AVOID PLANTING SHRUBS DIRECTLY IN FRONT OF IRRIGATION SPRAY HEADS PROVIDE CLEARANCE WHEN POSSIBLE
② 3" HIGH WATER RETENTION BASIN. FORM FROM PLANT PIT EXCAVATION. MAY BE RAKED OUT PRIOR TO OTHER WORK AS DIRECTED BY LANDSCAPE ARCHITECT
③ FINISH GRADE
④ FERTILIZER TABLETS (FOR NON-NATIVES IN ZONE A ONLY) (AGRIFORM 21 GRAM TABLETS)
-3 TABLETS PER 1 GAL. SHRUB
-5 TABLETS PER 5 GAL. SHRUB
-9 TABLETS PER 15 GAL. SHRUB
⑤ PREPARED BACKFILL PER SPECIFICATIONS
⑥ 6" ZONE OF OVER-EXCAVATED AND RE-COMPACTED NATIVE SOIL

Ⓑ SHRUB/SMALL MULTI-TRUNK TREE PLANTING

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

① TRIANGULAR SPACE PLANT MATERIAL PER SPACING INDICATED IN THE PLANTING LEGEND.
② 1/2 ON-CENTER SPACING.
③ PAVING, CURB, BUILDING, OR HEADER.



DETAIL
NOT TO SCALE

Ⓒ SHRUB SPACING

1. REMOVE ALL INVASIVE SPECIES. SEE SEPARATE PLAN.
2. THINNING OF EXISTING VEGETATION WITHIN ZONES 'B' AND 'C' TO INCLUDE;
   A. REMOVAL OF NON-NATIVE VEGETATION
   B. REMOVAL OF DEAD OR DYING VEGETATION, AND
   C. REMOVAL OF OVERCROWDED VEGETATION
3. NATIVE TREES SHALL HAVE MAINTAINED, PROTECTIVE, TEMPORARY FENCING DURING PROJECT CONSTRUCTION AND LANDSCAPE CONSTRUCTION.
4. INSTALL TEMPORARY IRRIGATION, TO BE REMOVED AFTER PLANTS HAVE ESTABLISHED. SEE IRRIGATION PLAN.
5. THE USE OF INSECTICIDES, HERBICIDES, ANTI-COAGULANT RODENTICIDES OR ANY TOXIC CHEMICAL SUBSTANCE WHICH HAS THE POTENTIAL TO SIGNIFICANTLY DEGRADE BIOLOGICAL RESOURCES IN THE SANTA MONICA MOUNTAINS IS STRICTLY PROHIBITED. FOR RODENT CONTROL USE TRAPPINGS, FUMIGATION, AND/OR OTHER NON-PERVASIVE METHODS.
6. PLANTINGS WITHIN THE RE-VEGETATION AREAS (ZONES B AND C), WERE SELECTED FROM THE NATIVE SPECIES OBSERVED IN THE PROJECT AREA. PLANTS ARE LOCATED WITHIN A 30' SQUARE GRID PATTERN. PLANTS ARE ARRANGED IN A STAGGERED PATTERN SPACES 7.5' AND 15' APART. ADJUST PLANTINGS AS REQUIRED. KEEP NEW PLANTINGS A MINIMUM OF 7.5; FROM EDGE OF WALLS, PROPERTY LINES, AND EDGE OF EXISTING VEGETATION.
7. NATIVE PLANT MATERIAL THINNED FROM ZONE C SHALL BE CHOPPED UP AND USED AS MULCH IN LANDSCAPE AREA AND AROUND NATIVE PLANTS.
8. REMOVE ALL INVASIVE PLANT SPECIES FROM ALL FUEL MODIFICATION ZONES. ALL PLANTS SHALL BE COLLECTED AND TAKEN TO THE LANDFILL AND DISPOSED OF.

9A. ALL PLANTING AREAS WITHIN THE RE-VEGETATION AREAS SHALL BE PREPARED BY INCORPORATING ARBUSCALAR MYCORRHIZAL (AM) FUNGI INTO THE SOIL TO A DEPTH OF 3". AFTER MIXING AM IN THE SOIL REMOVE ALL DEBRIS MEASURING 2" IN DIAMETER OR LARGER. LEVEL AND SMOOTH SOIL, DO NOT COMPACT SOIL. WHEN PLANTING BACKFILL PLANTING HOLE WITH A MIXTURE OF EQUAL AMOUNTS OF AM AND NATIVE SOIL. AFTER PLANTING APPLY A MIN. OF 2" LAYER OF WELL ROOTED MULCH CONSISTING OF DEBRIS THINNED FROM NATIVE VEGETATION AND WELL ROOTED ORGANIC MATTER AROUND THE BASE OF EACH PLANT AT A DISTANCE OF 1.5' RADIUS FROM THE PLANT.

9B. WHEN PLANTING CONTAINER PLANTS, ENSUE SOIL SLOPES AWAY FROM THE TRUNK FOR A DISTANCE OF APPROXIMATELY 3'.

9C. FOLLOWING PLANTING WITHIN RE-VEGETATION AREA, UNIFORMLY APPLY A NATIVE SEED MIX THROUGHOUT FUEL NATIVE RE-VEGETATION AREA. APPLY SEED IN THE EARLY FALL AT A RATE OF 40-50 LBS PER ACRES. LIGHTLY RAKE SEED INTO THE GROUND TO INSURE CONTACT WITH THE SOIL. APPLY SEED UP TO, BUT NOT WITHIN PLANT WATER BASINS.

9D. ZONE C 'THINNING AREA': THIS ZONE MAY CONSIST OF MODIFIED EXISTING NATIVE PLANTS, ADEQUATELY SPACED FROM NEWLY INSTALLED NATIVE SHRUBS AND TREES,OR BOTH. THINNING OF EXISTING NATIVE PLANS SHALL COMPLY WITH THE FIRE DEPARTMENT'S ZONE 'C ' NATIVE BRUSH THINNING GUIDELINES INCLUDING THE REMOVAL OF THE LOWER $\frac{1}{3}$ OF LARGE SHRUB CANOPIES AND THE REMOVAL OF ALL DEAD WOOD BRANCHES. REMOVE ALL TREE BRANCHES GROWING WITHIN 6' OF THE GROUND. THIN OUT SHRUB CANOPIES, BUT DO NOT CUT OFF TRUNKS OF NON-SPROUTING SPECIES THAT ONLY HAVE A SINGLE TRUNK. MULTI-TURNKED SPECIES MAY HAVE SOME TRUNKS OFF. THE GOAL IS TO ACHIEVE A CHECKERBOARD OF NATIVE PLANT CLUMPS SPACES 15' FROM ONE ANOTHER. PRUNE ALTERNATE CLUMPS IN 2-3 YEAR CYCLES.

10. THE INITIAL PLANT ESTABLISHMENT PERIOD SHALL BE A MINIMUM OF 90 DAYS, WHICH BEGINS AFTER ACCEPTANCE OF THE PROJECT. DURING THIS TIME THE CONTRACTOR SHALL REPLACE ALL DEAD PLANTS AT THEIR OWN EXPENSE. WITHIN 5 YEARS OF PLANTING, LANDSCAPE PLANTS MUST COVER AT LEAST 90 PER CENT OF EACH PLANT GRID.
11. ALL NEWLY INSTALLED NATIVE PLANTS SHALL BE WATERED WITH A TEMPORARY IRRIGATION SYSTEM. REFER TO IRRIGATION PLANS AND DETAILS. NOTE ZONE 'C' THINNED AREA OUTSIDE OF THE RE-VEGETATION ZONE IS NOT TO BE IRRIGATED.
12. PLANT ESTABLISHMENT AND WEEDING:
    -WEEDING FOR 1-5 YEARS: SELECTIVELY WEED AND REMOVE ALL NON-NATIVE PLANTS AND PARTS (INCLUDING ROOTS) FROM THE RE-VEGETATION ZONE. WEED TWICE A YEAR, ONCE IN THE SPRING BEFORE WEED SEED-SET, AND ONCE IN THE EARLY FALL, BEFORE BEGINNING OF RAINY SEASON.
    -AFTER 18 MONTHS: PLANTS SHOULD BE ESTABLISHED. WATER AND WEED AS NECESSARY

GENERAL NOTES FOR RE-VEGETATION

LANDSCAPE PLANTING SPECIFICATIONS

1. GENERAL

A. The Landscape Contractor shall furnish all labor, equipment, materials and services for the complete installation as described by the landscape planting and irrigation drawings and in these specifications.

B. Any deviation from the plan or specifications is to have a prior written approval by the Owner or his representative.

C. All materials and workmanship shall be of highest quality. Work shall meet the requirements of all governing codes, ordinances, laws, etc., relating to the work.

D. Samples and/or photographs of all materials shall be submitted to the Landscape Architect for written approval prior to installation. The Landscape Architect & Owner reserves the right to reject unsatisfactory material before and after planting. Acceptable replacements will be required prior to final acceptance.

F. Until all work is completed and accepted by the Owner, the Landscape Contractor shall assume all risks and bear all losses to his materials and equipment.

G. During the course of the contract (including maintenance period), the Landscape Contractor shall provide and maintain public liability and property damage insurance. The minimum amount of public liability insurance shall be $1,000,000 for each person injured. The minimum amount of property damage insurance shall be $1,000,000 for any single property damage claim.

H. The Landscape Contractor shall repair work damaged by him or make payment for each repair. Should the Landscape Contractor have his work damaged by another Contractor, he is to make arrangements with the other Contractor for the Contractor's repair or that Contractor's payment for the repair.

I. Quantities given for plant materials specified for "on-center" spacing are shown for convenience only and are subordinate to the spacing given. Contractor is to supply a sufficient quantity of plants to fulfill the spacing requirements.

2. WEED CONTROL

A. The Landscape Contractor is to remove all weeds and/or unwanted grasses (including the roots) existing in the landscape areas.

B. All landscape areas of Zone A are to receive the pre-emergent herbicide Surflan per manufacturer's instructions. Application of this herbicide shall be done by personnel licensed to handle agricultural chemicals.

Do NOT use any herbicide or chemicals in the native plant areas (Fuel Modification Zones B,C, and beyond C.

Most weeds in this area shall be extracted including roots by manual methods, and all plant parts shall be taken to a landfill in closed containers.

Instructions per specific invasive plants are the following:

a. Cortaderia selloana (Pampas Grass): Mechanical-Established clumps should be removed using pulaskis, mattocks, or shovels. To prevent resprouting, the entire crown and top section of the roots must be removed. A weed ship can expose the base of the plan, allowing better access for removal of the crown, and make disposal of the detached plant more manageable.

b. Schinus molle (Peruvian Pepper Tree): Cut Stump-Remove the tree with a chainsaw to a height as close to the existing grade as possible. This should be done during the growing season before the tree has begun to flower, generally late summer or autumn. Immediately apply undiluted Garlon 3A or 40% of concentrated Roundup using a paintbrush to the cut stump.

c. Schinus terebinthifolius (Brazilian Pepper Tree): Cut Stump - Remove the tree with a chainsaw to a height as close to the existing grade as possible. This should be done during the growing season before the tree has begun to flower, generally late summer or autumn.

d. Spartium juncuem (Spanish Broom): Cut Stump - Remove the shrub to a height as close to the existing grade as possible. Immediately apply undiluted Garlon 3A or 40% of concentrated Roundup using a paintbrush to the cut stump. These activities should be avoided in the winter.

e. Tamarix ramosissima (Salt Cedar): Cut Stump - Remove the tree with a chainsaw to a height as close tot he existing grade as possible. immediately apply concentrated Roundup using a paintbrush to the cut stump. These activities should be avoided under drought conditions.

C. Chemical use to be restricted to the removal of specified invasive plants. All applications of chemicals to be performed by a Licensed Chemical Applicator. All plant parts shall be taken to a landfill in closed containers.

3. SOIL CONDITIONING AND GRADING

A. All ornamental landscape areas are to receive an even application (2 yrd. per 1,000 sq.ft.) of Kellog 'Soil Amender' uniformly into the top 12" soil.

B. All native plant areas (Zone B, Zone C, beyond C) to receive chopped native plant mulch, which can come from chopping up thinnings of Zone C on the western side. Thinning may begin when construction begins. Non-natives shall be removed during thinning of Zone C and NOT included in chopped native mulch. Send all non-native plant parts t a landfill in closed containers.

C. All rock or unbroken soil clods over 1" in diameter brought to the surface are to be removed from the site.

4. PLANTING

A. Ornamental plants are to have a planting pit two (2) times the diameter of the rootball and 4" below its depth. The plant pit is to be backfilled (after positioning of plant) with the following:
1/2 SITE SOIL
1/2 GROMULCH SOIL AMENDMENT

B. Native plants are to have a planting pit two (2) times the diameter of the rootball and 4" below its depth. The plant pit is to be backfilled (after positioning of plant) with the following:
1/2 SITE SOIL
1/2 CHOPPED NATIVE PLANT MULCH

C. Groundcovers are to be planted so that after settling, the crown of the plant is even with finish grade, roots fully covered with soil and firmed.

D. Plants grown on vine stakes are to have the stakes removed. Plants are to be attached to walls/fences with transparent, glue-on fasteners.

E. Watering of plants is to take place immediately after planting.

F. Mulch all ornamental shrub and ground cover areas with a 3" layer Premium Forest Mulch. Free of leaves and small twigs. Provided by C&M Topsoil Landscape Centers. 818.899.5485 or approved equal. Keep mulch 6" away from plant trunk.

Mulch all native plant areas with chopped native plant mulch. Keep mulch 6" away from plant trunk. (Chop and use trimming from the native chaparral thinning area as mulch)

G. Staking of trees is to be per details.

H. All applications are given for bidding purposes only. After construction, but prior to planting contractor must have soil tested for agricultural analysis (at least (2) soil samples of final grade at site), and submit the results to the Landscape Architect for interpretation and recommendations.

5. PLANTS

A. All plant material must be vigorous, healthy, free from disease, not root bound and labeled. Soil in the container should be moist. All trees must show a tapering trunk, have multiple roots in all directions, preferably feathered (except palm trees) with multiple branches. Do not prune any plants unless directed by Landscape Architect.

B. Before planting first determine true surface of rootball: located where the first main root branches form the trunk. Remove container soil to find true rootball. Loosen any circling roots on the outside edge of the root ball after removing the plant from its container.

6. CLEAN UP

A. At the completion of all planting operations, the premises are to be left neat and clean. All surplus materials, nursery tags and waste are to be removed from the site.

7. MAINTENANCE

A. The Landscape Contractor is to maintain all landscape areas for a period of ninety (90) calendar days from the date of completion, established by the Owner or his representative. All areas are to be kept well watered, free of weeds, unwanted grasses and trash during this period.

B. An application of Tri-C (6.2.4) fertilizer is to be made at 30-day intervals to ornamental plantings during the maintenance period, at the rate of 10 pounds per 1,000 sq.ft.

C. Maintenance is to include control and treatment of all plant disease and plant pests encountered during this period. Application of chemicals is to be performed by a Licensed Chemical Applicator.

D. The irrigation system is to be checked for coverage at each watering. Malfunctions, such as dirty heads, clogged emitters, adjustment of heads, etc., are to be corrected on the spot. More serious defects are to be reported immediately to the Owner for correction by the Landscape Contractor.

8. GUARANTEE

A. All plant material (other than flatted material) less than 24" Box size shall be guaranteed for a period of 3 months. All palms & 24" Box material and larger material shall be guaranteed for a period of one year. Guarantee period commences from the time of final inspection and acceptance by the Owner. Plants used for replacement shall be the same kind and size as originally planted. They are to be planted following the original plans and specifications.

End of Specifications

Gaudet Design Group
Landscape Architecture
322 Tejon Place
Palos Verdes Estates, California 90274
Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

PLANTING DETAILS

ISSUE

1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
4	09-06-18	BIOLOGY COMMENTS
5	11-08-18	BIOLOGY COMMENTS
6	11-10-18	PLNCHK COMMENTS
7	04-17-19	PLNCHK COMMENTS
8	07-16-19	PLNCHK COMMENTS
9	09-18-19	PLNCHK COMMENTS
10	02-17-20	PLNCHK COMMENTS
11	05-26-20	PLNCHK COMMENTS
12	06-01-20	FM COMMENTS
13	06-03-20	FM COMMENTS
14	01-11-21	PLNCHK COMMENTS
15	05-11-21	TREE REDUCTION
16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

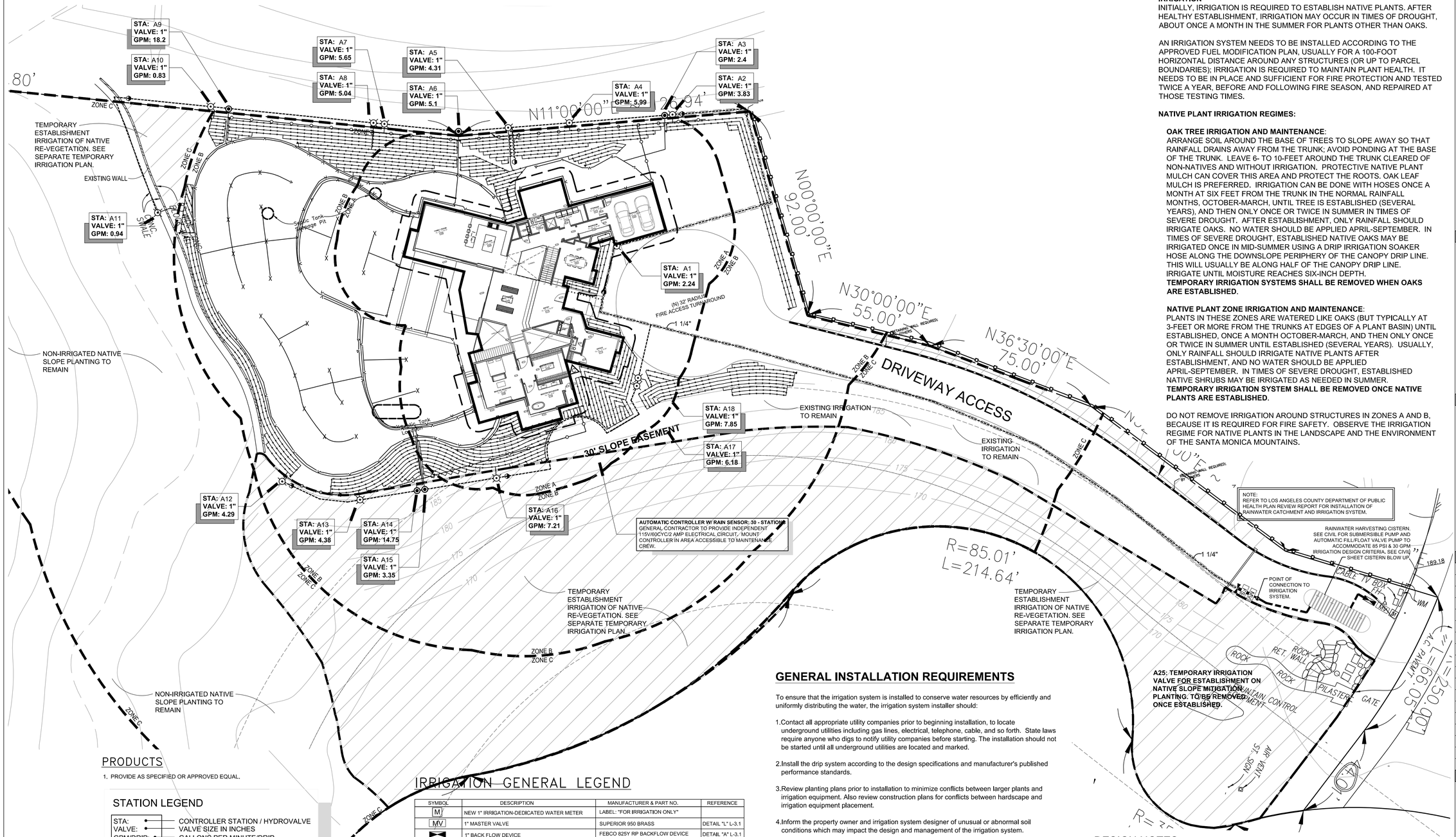
PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 9 of 14

L-2.4

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
SEE L-3.1 FOR RAINWATER HARVESTED IRRIGATION INSTALLATION REQUIREMENTS



PRODUCTS

1. PROVIDE AS SPECIFIED OR APPROVED EQUAL.

STATION LEGEND

STA: — CONTROLLER STATION / HYDROVALVE
VALVE: — VALVE SIZE IN INCHES
GPM/DRIP: — GALLONS PER MINUTE/DRIP

IRRIGATION HEAD LEGEND

SYMBOL	MANUFACTURER	NOZZLE	GPM	RADIUS	BODY	DETAIL
▽	HUNTER	90 DEG MP 1000	.20	8' - 15'	PROS-4	DETAIL F L-3.1
⋁	HUNTER	180 DEG MP 1000	.40	8' - 15'	PROS-4	DETAIL F L-3.1
╳	HUNTER	360 DEG MP 1000	.75	8' - 15'	PROS-4	DETAIL F L-3.1
▽	HUNTER	90 DEG PRO ADJ 6A	.37	6'-8'	PROS-6	DETAIL F L-3.1
⋁	HUNTER	180 DEG PRO ADJ 6A	.60	6'-8'	PROS-6	DETAIL F L-3.1

IRRIGATION GENERAL LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER & PART NO.	REFERENCE
M	NEW 1" IRRIGATION-DEDICATED WATER METER	LABEL: "FOR IRRIGATION ONLY"	
MV	1" MASTER VALVE	SUPERIOR 950 BRASS	DETAIL "L" L-3.1
	1" BACK FLOW DEVICE	FEBCO 825Y RP BACKFLOW DEVICE	DETAIL "A" L-3.1
	POINT OF CONNECTION (FIELD VERIFY)		
C	30 STA. IRRIGATION CONTROLLER - WALL MOUNT	HUNTER IC-600-SS WITH (4) 6-STATION MODULE ICM-600 AND (1) SOLAR SYNC (ET/RAIN SENSOR) SOLARSYNC-SEN	DETAIL "B" L-3.1
	HOSE BIB	CHAMPION	DETAIL "C" L-3.1
	1" REMOTE CONTROL VALVES CONNECT TO MAINLINE	HUNTER PGV-101	DETAIL "D" L-3.1
	DRIP LINE CONTROL VALVE, CONNECT TO CISTERN AUTOMATIC FILL/FLOAT VALVE	HUNTER ICZ-101 DRIP ZONE CONTROL KIT	DETAIL "E" L-3.1
	DRIP LINE	HUNTER PLD -10-18 WITH FLUSH CAP 4" BELOW GRADE	DETAIL "G,H,I" L-3.1
	TREE DRIP LINE "LOOP" W/ END FLUSH CAPS	HUNTER PLD -10-18 WITH FLUSH CAP 1" BELOW GRADE	DETAIL "G,H,I" L-3.1
	PRESSURE SUPPLY LINE USING SCH 40 PVC	1-1/2" SCH. 40 PVC	DETAIL "J" L-3.1
	LATERAL LINE & SIZE	1" SCH. 40 PVC	DETAIL "J" L-3.1
	IRRIGATION SLEEVE	CL 200	DETAIL "K" L-3.1

GENERAL INSTALLATION REQUIREMENTS

To ensure that the irrigation system is installed to conserve water resources by efficiently and uniformly distributing the water, the irrigation system installer should:

1. Contact all appropriate utility companies prior to beginning installation, to locate underground utilities including gas lines, electrical, telephone, cable, and so forth. State laws require anyone who digs to notify utility companies before starting. The installation should not be started until all underground utilities are located and marked.

2. Install the drip system according to the design specifications and manufacturer's published performance standards.

3. Review planting plans prior to installation to minimize conflicts between larger plants and irrigation equipment. Also review construction plans for conflicts between hardscape and irrigation equipment placement.

4. Inform the property owner and irrigation system designer of unusual or abnormal soil conditions which may impact the design and management of the irrigation system.

5. Test the irrigation system to verify that it meets the design criteria.

6. Explain to the property owner or his/her agent the location and operation of all components of the system.

7. Provide the property owner or his/her agent with a copy of the controller program you have set and recommendations for operation of the system for maximum water conservation.

8. Provide the property owner or his/her agent with keys, tools, warranties and operating instructions for all equipment.

9. Furnish the owner of the system an *as-built* record set of drawings. Within this set of drawings, describe the system layout and components including all changes from the original design.

10. Install Air Relief Valve in 6" circular, plastic vault box at high point at all drip irrigation circuits.

11. Add 'Micro Mist' irrigation as necessary for annual color planting.

GUIDELINES FOR IRRIGATION & MITIGATION OF NATIVE PLANTS IN LANDSCAPES FOR THE SANTA MONICA MOUNTAINS (TO BE FOLLOWED OUTSIDE OF FUEL MOD ZONE A)

IRRIGATION
INITIALLY, IRRIGATION IS REQUIRED TO ESTABLISH NATIVE PLANTS. AFTER HEALTHY ESTABLISHMENT, IRRIGATION MAY OCCUR IN TIMES OF DROUGHT, ABOUT ONCE A MONTH IN THE SUMMER FOR PLANTS OTHER THAN OAKS.

AN IRRIGATION SYSTEM NEEDS TO BE INSTALLED ACCORDING TO THE APPROVED FUEL MODIFICATION PLAN, USUALLY FOR A 100-FOOT HORIZONTAL DISTANCE AROUND ANY STRUCTURES (OR UP TO PARCEL BOUNDARIES); IRRIGATION IS REQUIRED TO MAINTAIN PLANT HEALTH. IT NEEDS TO BE IN PLACE AND SUFFICIENT FOR FIRE PROTECTION AND TESTED TWICE A YEAR, BEFORE AND FOLLOWING FIRE SEASON, AND REPAIRED AT THOSE TESTING TIMES.

NATIVE PLANT IRRIGATION REGIMES:

OAK TREE IRRIGATION AND MAINTENANCE:
ARRANGE SOIL AROUND THE BASE OF TREES TO SLOPE AWAY SO THAT RAINFALL DRAINS AWAY FROM THE TRUNK; AVOID PONDING AT THE BASE OF THE TRUNK. LEAVE 6- TO 10-FEET AROUND THE TRUNK CLEARED OF NON-NATIVES AND WITHOUT IRRIGATION. PROTECTIVE NATIVE PLANT MULCH CAN COVER THIS AREA AND PROTECT THE ROOTS. OAK LEAF MULCH IS PREFERRED. IRRIGATION CAN BE DONE WITH HOSES ONCE A MONTH AT SIX FEET FROM THE TRUNK IN THE NORMAL RAINFALL MONTHS, OCTOBER-MARCH, UNTIL TREE IS ESTABLISHED (SEVERAL YEARS), AND THEN ONLY ONCE OR TWICE IN SUMMER IN TIMES OF SEVERE DROUGHT. AFTER ESTABLISHMENT, ONLY RAINFALL SHOULD IRRIGATE OAKS. NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE OAKS MAY BE IRRIGATED ONCE IN MID-SUMMER USING A DRIP IRRIGATION SOAKER HOSE ALONG THE DOWNSLOPE PERIPHERY OF THE CANOPY DRIP LINE. THIS WILL USUALLY BE ALONG HALF OF THE CANOPY DRIP LINE. IRRIGATE UNTIL MOISTURE REACHES SIX-INCH DEPTH.
TEMPORARY IRRIGATION SYSTEMS SHALL BE REMOVED WHEN OAKS ARE ESTABLISHED.

NATIVE PLANT ZONE IRRIGATION AND MAINTENANCE:
PLANTS IN THESE ZONES ARE WATERED LIKE OAKS (BUT TYPICALLY AT 3-FEET OR MORE FROM THE TRUNKS AT EDGES OF A PLANT BASIN) UNTIL ESTABLISHED, ONCE A MONTH OCTOBER-MARCH, AND THEN ONLY ONCE OR TWICE IN SUMMER UNTIL ESTABLISHED (SEVERAL YEARS). USUALLY, ONLY RAINFALL SHOULD IRRIGATE NATIVE PLANTS AFTER ESTABLISHMENT, AND NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE SHRUBS MAY BE IRRIGATED AS NEEDED IN SUMMER.
TEMPORARY IRRIGATION SYSTEM SHALL BE REMOVED ONCE NATIVE PLANTS ARE ESTABLISHED.

DO NOT REMOVE IRRIGATION AROUND STRUCTURES IN ZONES A AND B, BECAUSE IT IS REQUIRED FOR FIRE SAFETY. OBSERVE THE IRRIGATION REGIME FOR NATIVE PLANTS IN THE LANDSCAPE AND THE ENVIRONMENT OF THE SANTA MONICA MOUNTAINS.

DESIGN NOTES

1. IRRIGATION VALVES, MAIN-LINE & LATERAL LINE LAYOUT IS DIAGRAMMATIC. ACTUAL INSTALLATION WILL VARY. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IF DISCREPANCIES EXIST.
2. SYSTEM DESIGNED FOR MAX. 20 GPM @ 85 PSI.
3. PLACE ALL VALVES IN SHRUB PLANTING AREAS WHERE POSSIBLE.
4. ALL 24-VOLT WIRING SHALL BE #14 UPUL DIRECT-BURIAL, SOLID COPPER.
5. ALL PIPE AND WIRING UNDER PAVED SURFACE SHALL BE IN CLASS 200 PVC SLEEVES, WHETHER OR NOT SHOWN (SEE PIPE SIZE SCHEDULING BELOW).

PIPE SIZING SCHEDULE

GPM	SIZE	SLEEVE SIZE	NO. OF WIRE
0-4	1/2"	2"	0-7
5-8	3/4"	2"	0-7
8-13	1"	2"	8-14
14-23	1-1/4"	2-1/2"	15-20
24-32	1-1/2"	2-1/2"	
33-53	2"	3"	
54-74	2-1/2"	6"	

SCALE: 1" = 20'-0"
20' 10' 0' 10' 20' 40'
GRAPHIC SCALE

Gaudet Design Group
Landscape Architecture
322 Tejon Place
Palos Verdes Estates, California 90274
Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

IRRIGATION PLAN

ISSUE		
1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
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PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
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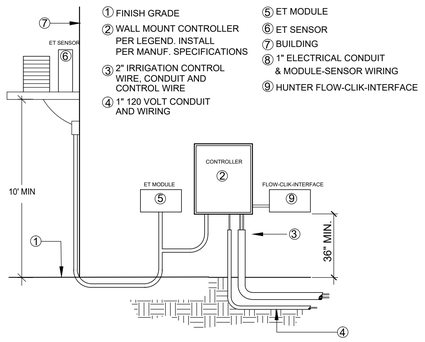
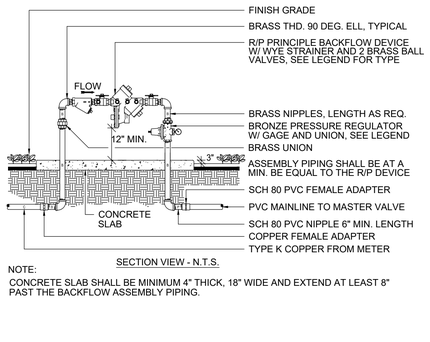
SHEET 10 of 14

L-3.0



① FINISH GRADE
② WALL MOUNT CONTROLLER PER LEGEND. INSTALL PER MANUF. SPECIFICATIONS
③ 2" IRRIGATION CONTROL WIRE, CONDUIT AND CONTROL WIRE
④ 1" 120 VOLT CONDUIT AND WIRING
⑤ ET MODULE
⑥ ET SENSOR
⑦ BUILDING
⑧ 1" ELECTRICAL CONDUIT & MODULE-SENSOR WIRING
⑨ HUNTER FLOW-CLIK-INTERFACE

A CONTROLLER



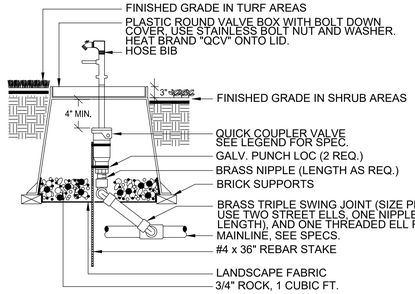
FINISH GRADE
BRASS THD. 90 DEG. ELL, TYPICAL
R/P PRINCIPLE BACKFLOW DEVICE W/ WYE STRAINER AND 2 BRASS BALL VALVES, SEE LEGEND FOR TYPE
BRASS NIPPLES, LENGTH AS REQ.
BRONZE PRESSURE REGULATOR W/ GAGE AND UNION, SEE LEGEND
BRASS UNION
ASSEMBLY PIPING SHALL BE AT A MIN. BE EQUAL TO THE R/P DEVICE
SCH 80 PVC FEMALE ADAPTER
PVC MAINLINE TO MASTER VALVE
SCH 80 PVC NIPPLE 6" MIN. LENGTH
COPPER FEMALE ADAPTER
TYPE K COPPER FROM METER

SECTION VIEW - N.T.S.

NOTE:
CONCRETE SLAB SHALL BE MINIMUM 4" THICK, 18" WIDE AND EXTEND AT LEAST 8" PAST THE BACKFLOW ASSEMBLY PIPING.

B BACKFLOW DEVICE

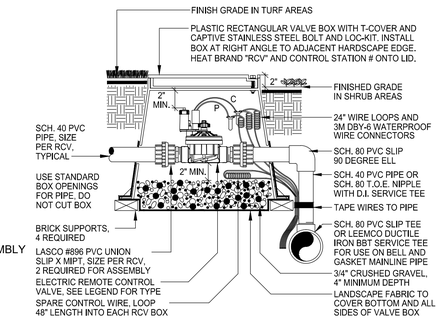
SECTION VIEW - N.T.S.



FINISHED GRADE IN TURF AREAS
PLASTIC ROUND VALVE BOX WITH BOLT DOWN COVER. USE STAINLESS BOLT NUT AND WASHER. HEAT BRAND "QCV" ONTO LID.
HOSE BIB
FINISHED GRADE IN SHRUB AREAS
QUICK COUPLER VALVE SEE LEGEND FOR SPEC.
GALV. PUNCH LOC (2 REQ.)
BRASS NIPPLE (LENGTH AS REQ.)
BRICK SUPPORTS
BRASS TRIPLE SWING JOINT (SIZE PER QCV) USE TWO STREET ELLS, ONE NIPPLE (6" MIN. LENGTH), AND ONE THREADED ELL FOR ASSEMBLY
MAINLINE, SEE SPECS.
#4 x 36" REBAR STAKE
LANDSCAPE FABRIC
3/4" ROCK, 1 CUBIC FT.

NOTE:
USE TEFLON TAPE ON ALL THREADED FITTINGS TYPICAL.

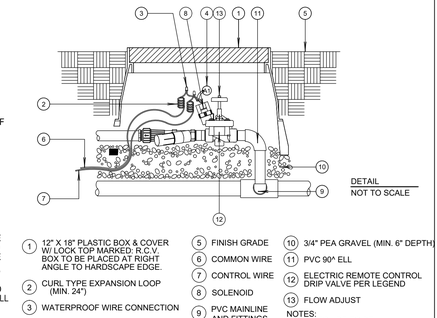
C HOSE BIB



FINISH GRADE IN TURF AREAS
PLASTIC RECTANGULAR VALVE BOX WITH T-COVER AND CAPTIVE STAINLESS STEEL BOLT AND LOC-KIT. INSTALL BOX AT RIGHT ANGLE TO ADJACENT HARDSCAPE EDGE. HEAT BRAND "RCV" AND CONTROL STATION # ONTO LID.
FINISHED GRADE IN SHRUB AREAS
SCH. 40 PVC PIPE, SIZE PER RCV, TYPICAL
24" WIRE LOOPS AND 3M DBY-6 WATERPROOF WIRE CONNECTORS
SCH. 80 PVC SLIP 90 DEGREE ELL
USE STANDARD BOX OPENINGS FOR PIPE. DO NOT CUT BOX
SCH. 40 PVC PIPE OR SCH. 80 T.O.E. NIPPLE WITH D.I. SERVICE TEE
TAPE WIRES TO PIPE
BRICK SUPPORTS, 4 REQUIRED
SCH. 80 PVC SLIP TEE OR LEEMCO DUCTILE IRON BST SERVICE TEE FOR USE ON BELL AND GASKET MAINLINE PIPE
LASCO #896 PVC UNION SLIP X MIPT, SIZE PER RCV, 2 REQUIRED FOR ASSEMBLY
3/4" CRUSHED GRAVEL, 4" MINIMUM DEPTH
ELECTRIC REMOTE CONTROL VALVE, SEE LEGEND FOR TYPE
LANDSCAPE FABRIC TO COVER BOTTOM AND ALL SIDES OF VALVE BOX
SPARE CONTROL WIRE, LOOP 48" LENGTH INTO EACH RCV BOX

SECTION VIEW - N.T.S.

D REMOTE CONTROL VALVE

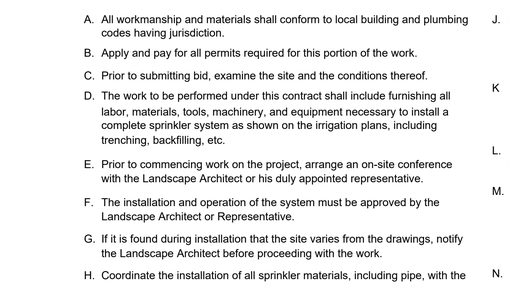


DETAIL
NOT TO SCALE

1. 12" X 18" PLASTIC BOX & COVER W/ LOCK TOP MARKED: R.C.V. BOX TO BE PLACED AT RIGHT ANGLE TO HARDSCAPE EDGE.
2. CURL TYPE EXPANSION LOOP (MIN. 24")
3. WATERPROOF WIRE CONNECTION
4. CHRISTY'S ID. TAG (STND.) SECURE TO SOLENOID WIRES.
5. FINISH GRADE
6. COMMON WIRE
7. CONTROL WIRE
8. SOLENOID
9. PVC MAINLINE AND FITTINGS SEE LEGEND
10. 3/4" PEA GRAVEL (MIN. 6" DEPTH)
11. PVC 90° ELL
12. ELECTRIC REMOTE CONTROL DRIP VALVE PER LEGEND
13. FLOW ADJUST

NOTES:
1. VALVES ARE TO BE INSTALLED IN SHRUB AREAS UNLESS OTHERWISE NOTED.

E DRIP VALVE ASSEMBLY

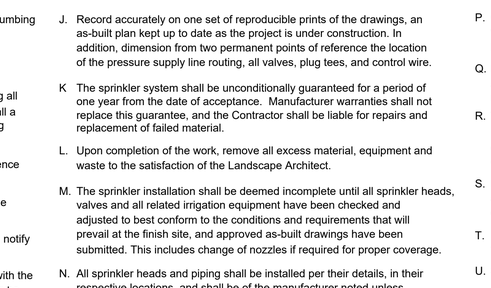


INSTALL SPRINKLER HEAD FLUSH WITH FINISHED GRADE IN TURF AREAS
POP-UP SPRINKLER HEAD, SPRAY OR ROTOR SEE LEGEND FOR SPECIFICATION
INSTALL SPRINKLER HEAD 1/2" ABOVE FINISHED GRADE IN SHRUB AND GROUND COVERS AREAS
UNDISTURBED SOIL
PRE-ASSEMBLED TRIPLE SWING JOINT, HUNTER SJ SERIES (OR APPROVED EQUAL) LAY LENGTH TO BE 6" MINIMUM SIZE AS PER SPRINKLER OUTLET
SCH 40 PVC SxSxT TEE FITTING LATERAL x SPRINKLER INLET SIZE
LATERAL LINE, SEE SPECIFICATIONS FOR TYPE AND DEPTH REQUIRED

NOTE:
INSTALL SPRINKLER HEADS 6" FROM PAVING EDGE IN GROUND COVER AREAS.
INSTALL SPRINKLER HEADS 4" FROM PAVING EDGE IN TURF AREAS.
INSTALL SPRINKLER HEADS PLUMB. ADJUST SPRAYS OR NOZZLE STREAM TO COVER LANDSCAPE AREA WITHOUT OVER SPRAY ONTO PAVING, FENCES, WALLS OR BUILDINGS.

SECTION VIEW - N.T.S.

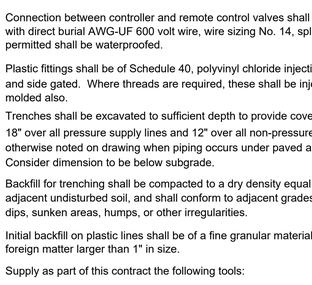
F ROTATOR / SPRAY HEAD



DRIPLINE BLANK LATERAL POLY CONNECTION FITTINGS TO DRIPLINE LATERALS
DRIPLINE BLANK LATERAL
PVC HEADER SIZE PER PLAN MIN. SIZE 3/4"
PVC HEADER MIN. 3/4" SIZE
FLUSH VALVE
IRRIGATION RCV
CONNECTION TO PVC LATERAL SEE LEGEND FOR TYPE
IN-LINE TUBING IN ROWS 24" INCHES ON CENTER ON LEVEL GROUND.

INSTALL DRIP FLUSH VALVE PER DETAIL AT THE END OF EACH TUBING SECTION PER PLAN

G DRIP LINE LAYOUT



MULCH TOP DRESSING
INSTALLED AFTER TUBING INSTALLATION
DRIP TUBING
AMMENDED SOIL BRING SOIL LEVEL TO 2.5" BELOW FINISHED GRADE PRIOR TO DRIP TUBING INSTALLATION
WIRE STAKE

SECTION VIEW - N.T.S.

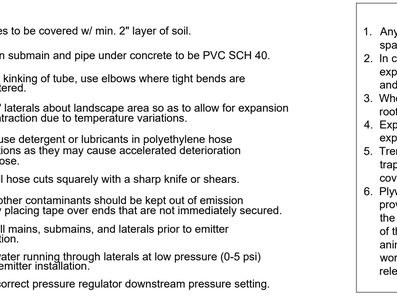
RECOMMENDED INSTALLATION:

TO INSURE EVEN PARALLEL AND LEVEL TUBING ROWS IT IS RECOMMENDED THAT THE SOIL LEVEL IN THE PLANTER AREAS BE BROUGHT TO 2.5" BELOW FINISHED GRADE AND PROPERLY COMPACTED AS PER THE LANDSCAPED DRAWINGS PRIOR TO THE INSTALLATION OF THE TUBING.

INSTALL TUBING AS INDICATED ON THESE DRAWINGS AND SECURE TO GRADE USING WIRE HOOP STAKES AT 5 FEET ON CENTER SPACING.

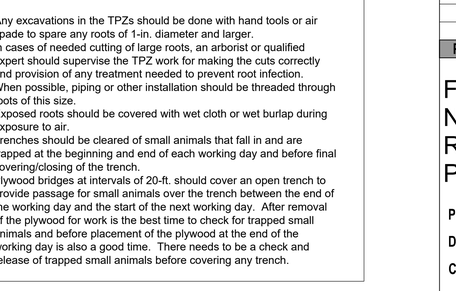
BACKFILL FINAL 2.5" OF BARK MULCH OVER THE TUBING AFTER INSTALLATION OF THE TUBING AND OBSERVATION BY THE OWNER'S AUTHORIZED REPRESENTATIVE.

H DRIP LINE INSTALLATION



9" WIRE STAKE INSTALLED FIVE (3) FEET ON CENTER
FINISHED GRADE
DRIP TUBING, TYPICAL BOTH SIDES OF TEE SEE LEGEND FOR SPECIFICATION
AGRIFIRM RSTW 600 RISER SWIVEL TEE
KING BROTHERS FLEXIBLE NIPPLE, #FVN-500-8 MIPT x MIPT, 6" LENGTH)
SCH. 40 PVC TEE SxSxT, LINE SIZE BY 1/2"
PVC LATERAL LINE

I DRIP LINE CONNECTION



FINISH GRADE
CLEAN COMPACTED BACKFILL
LATERAL LINES, SEE SPECS.
CONTROL WIRES, SEE SPECS.
UNDISTURBED SOIL
PRESSURE MAINLINE, SEE SPECIFICATIONS

DIMENSION	A	B	C
1/2" TO 2-1/2" IN SIZE	18"	12"	4"
3" TO 6" IN SIZE	24"		4"

J PIPE INSTALLATION

SAND BACKFILL COMPACTED TO THE DENSITY OF EXISTING SOIL
LATERAL LINES IN SCH 40 SLEEVE
CONTROL WIRES IN SCH 40 SLEEVE
UNDISTURBED SOIL
PRESSURE MAINLINE IN SCH 40 SLEEVE

PVC SLEEVES TO BE TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE CARRIED.

DETAIL ALSO FOR PIPE INSTALLED IN ROCK SOIL.

DIMENSION	A	B	C	D
1/2" TO 4" IN SIZE	36"	24"	24"	4"

K SLEEVE INSTALLATION

RAINWATER HARVESTED IRRIGATION INSTALLATION REQUIREMENTS

1. All water conveyance pipelines shall be identified with continuous pipeline identification tape and with direction of normal flow attached to the pipe and secured every 5 feet. Labeling shall read as follow: "CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK" - purple tape with black uppercase letterings; "POTABLE WATER" - blue or green tape with white letterings; "CAUTION: NONPOTABLE WATER, DO NOT DRINK." yellow tape with black uppercase letterings. (2016 California Plumbing Code: Chapter 6, Section 601.3, 601.3.2 and Chapter 16, Section 1602.8)

2. All water valves shall be labeled with approved identification tags distinguishing between: "POTABLE WATER" - blue or green with white letterings; "CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK" - purple with black uppercase letterings and "NONPOTABLE WATER, DO NOT DRINK" - yellow with black uppercase letterings for valves that are fed from the protected source. (2016 California Plumbing Code: Chapter 6, Section 601.3 and 601.3.2 and Chapter 16, Section 1602.8)

3. If purple pipe is used, additional identification tape is needed to differentiate rainwater harvested water from recycled water, i.e. "CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK". Any other pipe material shall have the same identification tape attached to the pipe depending on which is being supplied. (2016 California Plumbing Code: Chapter 6, Section 601.3, 601.3.2 and Chapter 16, Section 1602.8)

4. During construction, the flushing of the lines and testing of the irrigation system shall be by means of a dedicated and protected domestic feed; an approved and dedicated backflow prevention assembly will be required to safeguard the potable water supplying the landscape irrigation system. (2016 California Plumbing Code: Chapter 6, Section. 603.5.6)

5. Rainwater tanks shall be permanently marked with the capacity and the language: "NONPOTABLE RAINWATER." Where openings are provided to allow a person to enter the tank, the opening shall be marked: "DANGER-CONFINED SPACE." (2016 California Plumbing Code: Chapter16, Section 1602.9.5.7)

6. New domestic water mains and supply lines shall be installed at least four (4) feet from, and one (1) foot vertically above any parallel conveying storm drainage. (California Administrative Code Title 22; Division 4; Chapter 16; Article 4; Section 64572(b) Water Main Separation)

7. Ensure all alternate water captured on the premises remains directly on the premises and not distributed off-site from the parcel boundary. Cistern rainwater capture system proposed for on-site. (2016 California Plumbing Code: Chapter 2; Chapter 15, Section 1502.4; Chapter 16, Section 1601.1)

8. Drain lines for the purpose of cistern / pipe maintenance shall be air gapped to the sewer line, provide details. All discharges from cistern via flushing, backwashing, and/or overflow line shall be to onsite infiltration, bio-swale, or permeable areas for percolation only. Discharging of liquid content from the cistern into the public storm water system or offsite is not permitted.

9. Prior to final construction approval, a cross connection inspection and separation test shall be performed on both the potable and the alternative water system. The potable and alternative water system shall be isolated from each other and independently inspected and tested to ensure there is no cross connection. The irrigation systems must be 100% functionality to show compliance. (2016 California Plumbing Code: Chapter 16, Section 1602.11.2.2)

10. Backflow prevention assemblies installed at the service connections and internally shall be tested upon installation and the results forwarded to either the water department or this Department depending where the backflow prevention assembly is installed, i.e. meter or internal protection (non-testable backflow prevention devices exempted). (2016 California Plumbing Code: Chapter 6, Section 603.4.2)

11. All water conveyance piping shall be inspected by a representative from this Program prior to back filling for confirmation of proper identification and separation requirements.

Call the Department of Public Health when scheduling pre-construction meetings as well as when construction begins and pipelines are being installed. Inspection of the water lines prior to backfilling is required. During construction, all pipelines shall be inspected by this Program in conjunction with the local building and safety department and / or local water department or district for pipe line identification and separation prior to backfilling or closing up walls to avoid re-excavation or re-exposure of those lines for inspection.

12. Provide contact information on the "on site water supervisor" having the responsibility for the maintenance of the project. The water supervisor shall be responsible for installation, operation, and maintenance of the rainwater cistern supply and potable water systems. The water supervisor shall also prevent potential hazards, implement these guidelines and coordinate future inspections with the cross-connection control program of the both the city's water purveyor and this Department. (2016 California Plumbing Code: Chapter 16, Section 1601.4.1)

13. Provide an operation and maintenance manual for the rainwater system that shall be supplied to the building owner by the system designer or installer. (2016 California Plumbing Code: Chapter 16, Section 1601.5) The operation and maintenance manual shall include the following:
a) Diagram(s) of the entire system and the location of system components.
b) Instructions on operating and maintaining the system.
c) Details on startup, shutdown, and deactivation the system for maintenance, repair, or other purposes.
d) Applicable testing, inspection, and maintenance frequencies in accordance with Section 1601.5 of CA Uniform Plumbing Code.
e) A method of contacting the installer and/or manufacturer(s)
f) Directions to the owner or occupant that the manual shall remain with the building throughout the life cycled of the structure. At the time of the final inspection, an operation and maintenance manual shall be provided. Directions shall indicate the manual is to remain with the building throughout the life of the system and upon change of ownership; the new owner shall be notified the structure contains a cistern system.

LANDSCAPE IRRIGATION SPECIFICATIONS

1. GENERAL

A. All workmanship and materials shall conform to local building and plumbing codes having jurisdiction.

B. Apply and pay for all permits required for this portion of the work.

C. Prior to submitting bid, examine the site and the conditions thereof.

D. The work to be performed under this contract shall include furnishing all labor, materials, tools, machinery, and equipment necessary to install a complete sprinkler system as shown on the irrigation plans, including trenching, backfilling, etc.

E. Prior to commencing work on the project, arrange an on-site conference with the Landscape Architect or his duly appointed representative.

F. The installation and operation of the system must be approved by the Landscape Architect or Representative.

G. If it is found during installation that the site varies from the drawings, notify the Landscape Architect before proceeding with the work.

H. Coordinate the installation of all sprinkler materials, including pipe, with the landscape drawings to avoid interfering with the planting of trees shrubs, or other planting.

I. It is the intent of these drawings and specifications to indicate a complete sprinkler system installed and ready for use without further cost.

J. Record accurately on one set of reproducible prints of the drawings, an as-built plan kept up to date as the project is under construction. In addition, dimension from two permanent points of reference the location of the pressure supply line routing, all valves, plug tees, and control wire.

K The sprinkler system shall be unconditionally guaranteed for a period of one year from the date of acceptance. Manufacturer warranties shall not replace this guarantee, and the Contractor shall be liable for repairs and replacement of failed material.

L. Upon completion of the work, remove all excess material, equipment and waste to the satisfaction of the Landscape Architect.

M. The sprinkler installation shall be deemed incomplete until all sprinkler heads, valves and all related irrigation equipment have been checked and adjusted to best conform to the conditions and requirements that will prevail at the finish site, and approved as-built drawings have been submitted. This includes change of nozzles if required for proper coverage.

N. All sprinkler heads and piping shall be installed per their details, in their respective locations, and shall be of the manufacturer noted unless otherwise approved.

O. All material required for the project shall be as indicated in the legend and installed according to same or as recommended by manufacturer.

P. Connection between controller and remote control valves shall be made with direct burial AWG-UF 600 volt wire, wire sizing No. 14, splices where permitted shall be waterproofed.

Q. Plastic fittings shall be of Schedule 40, polyvinyl chloride injection molded and side gated. Where threads are required, these shall be injection molded also.

R. Trenches shall be excavated to sufficient depth to provide coverage of 18" over all pressure supply lines and 12" over all non-pressure lines unless otherwise noted on drawing when piping occurs under paved areas. Consider dimension to be below subgrade.

S. Backfill for trenching shall be compacted to a dry density equal to the adjacent undisturbed soil, and shall conform to adjacent grades without dips, sunken areas, humps, or other irregularities.

T. Initial backfill on plastic lines shall be of a fine granular material with no foreign matter larger than 1" in size.

U. Supply as part of this contract the following tools:

1. Two keys for the controller.
2. One controller chart for the controller supplied. This chart shall be a reduced drawing of the actual as-built system, with each station indicated in a different color. Chart shall be hermetically sealed between two pieces of plastic, 20 mils. each.

End of Specifications

GENERAL DRIP IRRIGATION NOTES

1. Drip lines to be covered w/ min. 2" layer of soil.
2. Irrigation submain and pipe under concrete to be PVC SCH 40.
3. Prevent kinking of tube, use elbows where tight bends are encountered.
4. "Snake" laterals about landscape area so as to allow for expansion and contraction due to temperature variations.
5. Do not use detergent or lubricants in polyethylene hose connections as they may cause accelerated deterioration of the hose.
6. Make all hose cuts squarely with a sharp knife or shears.
7. Dirt or other contaminants should be kept out of emission lines by placing tape over ends that are not immediately secured.
8. Flush all mains, submains, and laterals prior to emitter installation.
9. Have water running through laterals at low pressure (0-5 psi) during emitter installation.
10. Verify correct pressure regulator downstream pressure setting.
11. Before operation, open tubing (laterals) end caps, turn on water and allow it to flow freely for several minutes to flush lines clean. Do not bury tubing until emitters are placed correctly around or beside each plant.
12. Place all valve boxes in shrub planting away from main entries.

BEST MANAGEMENT PRACTICES: TRENCHING

1. Any excavations in the TPZs should be done with hand tools or air spade to spare any roots of 1-in. diameter and larger.
2. In cases of needed cutting of large roots, an arborist or qualified expert should supervise the TPZ work for making the cuts correctly and provision of any treatment needed to prevent root infection.
3. When possible, piping or other installation should be threaded through roots of this size.
4. Exposed roots should be covered with wet cloth or wet burlap during exposure to air.
5. Trenches should be cleared of small animals that fall in and are trapped at the beginning and end of each working day and before final covering/closing of the trench.
6. Plywood bridges at intervals of 20-ft. should cover an open trench to provide passage for small animals over the trench between the end of the working day and the start of the next working day. After removal of the plywood for work is the best time to check for trapped small animals and before placement of the plywood at the end of the working day is also a good time. There needs to be a check and release of trapped small animals before covering any trench.

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

Gaudet Design Group
Landscape Architecture
322 Tejon Place
Palos Verdes Estates, California 90274
Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

IRRIGATION DETAILS

ISSUE		
1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
4	09-06-18	BIOLOGY COMMENTS
5	11-08-18	BIOLOGY COMMENTS
6	11-10-18	PLNCHK COMMENTS
7	04-17-19	PLNCHK COMMENTS
8	07-16-19	PLNCHK COMMENTS
9	09-18-19	PLNCHK COMMENTS
10	02-17-20	PLNCHK COMMENTS
11	05-26-20	PLNCHK COMMENTS
12	06-01-20	FM COMMENTS
13	06-03-20	FM COMMENTS
14	01-11-21	PLNCHK COMMENTS
15	05-11-21	TREE REDUCTION
16	09-07-21	PLNCHK COMMENTS

PHASE

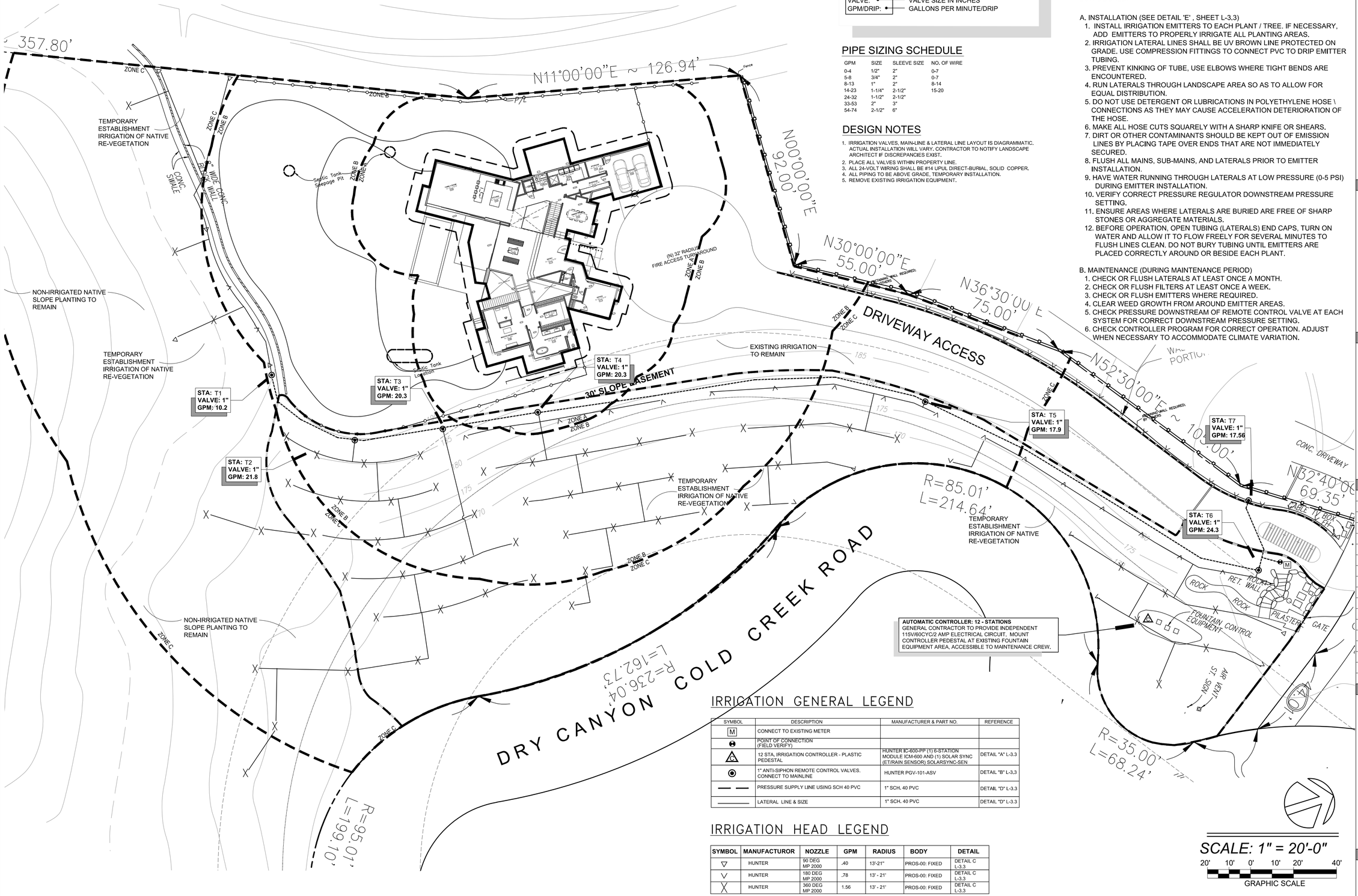
Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 11 of 14

L-3.1

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION



PRODUCTS

1. PROVIDE AS SPECIFIED OR APPROVED EQUAL.

STATION LEGEND

STA: — CONTROLLER STATION / HYDROVALVE
VALVE: — VALVE SIZE IN INCHES
GPM/DRIP: — GALLONS PER MINUTE/DRIP

PIPE SIZING SCHEDULE

GPM	SIZE	SLEEVE SIZE	NO. OF WIRE
0-4	1/2"	2"	0-7
5-8	3/4"	2"	0-7
8-13	1"	2"	8-14
14-23	1-1/4"	2-1/2"	15-20
24-32	1-1/2"	2-1/2"	
33-53	2"	3"	
54-74	2-1/2"	6"	

DESIGN NOTES

1. IRRIGATION VALVES, MAIN-LINE & LATERAL LINE LAYOUT IS DIAGRAMMATIC. ACTUAL INSTALLATION WILL VARY. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IF DISCREPANCIES EXIST.
2. PLACE ALL VALVES WITHIN PROPERTY LINE.
3. ALL 24-VOLT WIRING SHALL BE #14 UPUL DIRECT-BURIAL, SOLID COPPER.
4. ALL PIPING TO BE ABOVE GRADE, TEMPORARY INSTALLATION.
5. REMOVE EXISTING IRRIGATION EQUIPMENT.

TEMPORARY ESTABLISHMENT IRRIGATION

ALL NEWLY INSTALLED NATIVE RE-VEGETATION PLANTS SHALL BE IRRIGATED WITH INDIVIDUAL HUNTER IRRIGATION POINT SOURCE DRIP EMITTERS. ADD VALVES AS NEEDED FOR NATIVE RE-VEGETATION TEMPORARY IRRIGATION. PIPE SHALL BE UV-RATED AND INSTALLED ABOVE GROUND. REMOVE APPROXIMATELY 5 YEARS AFTER TIME OF PLANTING, AFTER PLANTS HAVE ESTABLISHED.

A. INSTALLATION (SEE DETAIL 'E' , SHEET L-3.3)
1. INSTALL IRRIGATION EMITTERS TO EACH PLANT / TREE. IF NECESSARY, ADD EMITTERS TO PROPERLY IRRIGATE ALL PLANTING AREAS.
2. IRRIGATION LATERAL LINES SHALL BE UV BROWN LINE PROTECTED ON GRADE. USE COMPRESSION FITTINGS TO CONNECT PVC TO DRIP EMITTER TUBING.
3. PREVENT KINKING OF TUBE, USE ELBOWS WHERE TIGHT BENDS ARE ENCOUNTERED.
4. RUN LATERALS THROUGH LANDSCAPE AREA SO AS TO ALLOW FOR EQUAL DISTRIBUTION.
5. DO NOT USE DETERGENT OR LUBRICATIONS IN POLYETHYLENE HOSE \ CONNECTIONS AS THEY MAY CAUSE ACCELERATION DETERIORATION OF THE HOSE.
6. MAKE ALL HOSE CUTS SQUARELY WITH A SHARP KNIFE OR SHEARS.
7. DIRT OR OTHER CONTAMINANTS SHOULD BE KEPT OUT OF EMISSION LINES BY PLACING TAPE OVER ENDS THAT ARE NOT IMMEDIATELY SECURED.
8. FLUSH ALL MAINS, SUB-MAINS, AND LATERALS PRIOR TO EMITTER INSTALLATION.
9. HAVE WATER RUNNING THROUGH LATERALS AT LOW PRESSURE (0-5 PSI) DURING EMITTER INSTALLATION.
10. VERIFY CORRECT PRESSURE REGULATOR DOWNSTREAM PRESSURE SETTING.
11. ENSURE AREAS WHERE LATERALS ARE BURIED ARE FREE OF SHARP STONES OR AGGREGATE MATERIALS.
12. BEFORE OPERATION, OPEN TUBING (LATERALS) END CAPS, TURN ON WATER AND ALLOW IT TO FLOW FREELY FOR SEVERAL MINUTES TO FLUSH LINES CLEAN. DO NOT BURY TUBING UNTIL EMITTERS ARE PLACED CORRECTLY AROUND OR BESIDE EACH PLANT.

B. MAINTENANCE (DURING MAINTENANCE PERIOD)
1. CHECK OR FLUSH LATERALS AT LEAST ONCE A MONTH.
2. CHECK OR FLUSH FILTERS AT LEAST ONCE A WEEK.
3. CHECK OR FLUSH EMITTERS WHERE REQUIRED.
4. CLEAR WEED GROWTH FROM AROUND EMITTER AREAS.
5. CHECK PRESSURE DOWNSTREAM OF REMOTE CONTROL VALVE AT EACH SYSTEM FOR CORRECT DOWNSTREAM PRESSURE SETTING.
6. CHECK CONTROLLER PROGRAM FOR CORRECT OPERATION. ADJUST WHEN NECESSARY TO ACCOMMODATE CLIMATE VARIATION.

AUTOMATIC CONTROLLER: 12 - STATIONS
GENERAL CONTRACTOR TO PROVIDE INDEPENDENT 115V/60CYC/2 AMP ELECTRICAL CIRCUIT. MOUNT CONTROLLER PEDESTAL AT EXISTING FOUNTAIN EQUIPMENT AREA, ACCESSIBLE TO MAINTENANCE CREW.

IRRIGATION GENERAL LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER & PART NO.	REFERENCE
M	CONNECT TO EXISTING METER		
	POINT OF CONNECTION (FIELD VERIFY)		
C	12 STA, IRRIGATION CONTROLLER - PLASTIC PEDESTAL	HUNTER IC-600-PP (1) 6-STATION MODULE ICM-600 AND (1) SOLAR SYNC (ETRAIN SENSOR) SOLARSYNC-SEN	DETAIL "A" L-3.3
	1" ANTI-SIPHON REMOTE CONTROL VALVES. CONNECT TO MAINLINE	HUNTER PGV-101-ASV	DETAIL "B" L-3.3
— —	PRESSURE SUPPLY LINE USING SCH 40 PVC	1" SCH. 40 PVC	DETAIL "D" L-3.3
———	LATERAL LINE & SIZE	1" SCH. 40 PVC	DETAIL "D" L-3.3

IRRIGATION HEAD LEGEND

SYMBOL	MANUFACTUROR	NOZZLE	GPM	RADIUS	BODY	DETAIL
▽	HUNTER	90 DEG MP 2000	.40	13'-21"	PROS-00: FIXED	DETAIL C L-3.3
V	HUNTER	180 DEG MP 2000	,78	13' - 21'	PROS-00: FIXED	DETAIL C L-3.3
X	HUNTER	360 DEG MP 2000	1.56	13' - 21'	PROS-00: FIXED	DETAIL C L-3.3

SCALE: 1" = 20'-0"
20' 10' 0' 10' 20' 40'
GRAPHIC SCALE

Gaudet Design Group
Landscape Architecture
322 Tejon Place
Palos Verdes Estates, California 90274
Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

TEMPORARY IRRIGATION PLAN

ISSUE		
1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
4	09-06-18	BIOLOGY COMMENTS
5	11-08-18	BIOLOGY COMMENTS
6	11-10-18	PLNCHK COMMENTS
7	04-17-19	PLNCHK COMMENTS
8	07-16-19	PLNCHK COMMENTS
9	09-18-19	PLNCHK COMMENTS
10	02-17-20	PLNCHK COMMENTS
11	05-26-20	PLNCHK COMMENTS
12	06-01-20	FM COMMENTS
13	06-03-20	FM COMMENTS
14	01-11-21	PLNCHK COMMENTS
15	05-11-21	TREE REDUCTION
16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 12 of 14

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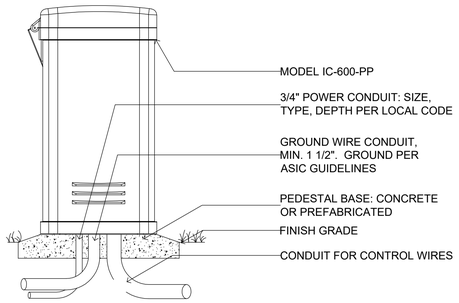
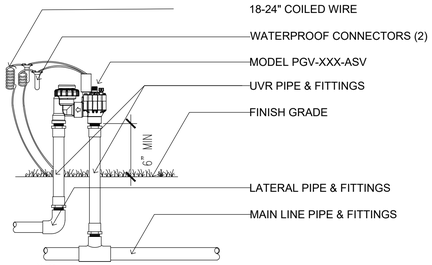
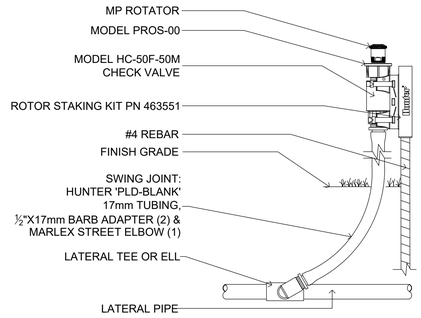


A CONTROLLER

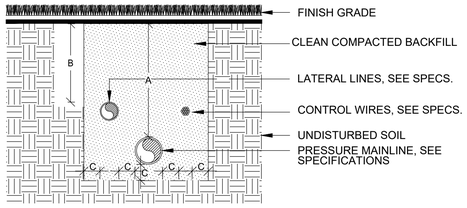


NOTE
ANTI-SIPHON VALVES SHOULD BE INSTALLED 6-12" ABOVE THE HIGHEST SPRINKLER HEAD WITHIN THE ZONE, OR, ACCORDING TO LOCAL CODE.

B REMOTE CONTROL VALVE ASSEMBLY

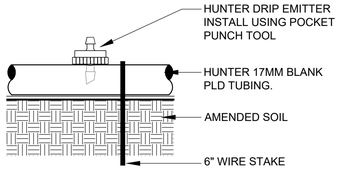


C ROTATOR SPRAY HEAD ON FIXED RISER



DIMENSION	A	B	C
1/2" TO 2-1/2" IN SIZE	18"	12"	4"
3" TO 6" IN SIZE	24"		4"

D PIPE INSTALLATION



NOTE:
UV-RATED ABOVE GROUND LATERAL AND MAINLINES TO BE USED IN THE TEMPORARY IRRIGATION ZONES. TO BE ABANDONED AFTER NATIVE PLANTS ARE ESTABLISHED.

E POINT-SOURCE DRIP: RE-VEGETATION ZONE

LANDSCAPE IRRIGATION SPECIFICATIONS

1. GENERAL

A. All workmanship and materials shall conform to local building and plumbing codes having jurisdiction.

B. Apply and pay for all permits required for this portion of the work.

C. Prior to submitting bid, examine the site and the conditions thereof.

D. The work to be performed under this contract shall include furnishing all labor, materials, tools, machinery, and equipment necessary to install a complete sprinkler system as shown on the irrigation plans, including trenching, backfilling, etc.

E. Prior to commencing work on the project, arrange an on-site conference with the Landscape Architect or his duly appointed representative.

F. The installation and operation of the system must be approved by the Landscape Architect or Representative.

G. If it is found during installation that the site varies from the drawings, notify the Landscape Architect before proceeding with the work.

H. Coordinate the installation of all sprinkler materials, including pipe, with the landscape drawings to avoid interfering with the planting of trees shrubs, or other planting.

I. It is the intent of these drawings and specifications to indicate a complete sprinkler system installed and ready for use without further cost.

J. Record accurately on one set of reproducible prints of the drawings, an as-built plan kept up to date as the project is under construction. In addition, dimension from two permanent points of reference the location of the pressure supply line routing, all valves, plug tees, and control wire.

K The sprinkler system shall be unconditionally guaranteed for a period of one year from the date of acceptance. Manufacturer warranties shall not replace this guarantee, and the Contractor shall be liable for repairs and replacement of failed material.

L. Upon completion of the work, remove all excess material, equipment and waste to the satisfaction of the Landscape Architect.

M. The sprinkler installation shall be deemed incomplete until all sprinkler heads, valves and all related irrigation equipment have been checked and adjusted to best conform to the conditions and requirements that will prevail at the finish site, and approved as-built drawings have been submitted. This includes change of nozzles if required for proper coverage.

N. All sprinkler heads and piping shall be installed per their details, in their respective locations, and shall be of the manufacturer noted unless otherwise approved.

O. All material required for the project shall be as indicated in the legend and installed according to same or as recommended by manufacturer.

P. Connection between controller and remote control valves shall be made with direct burial AWG-UF 600 volt wire, wire sizing No. 14, splices where permitted shall be waterproofed.

Q. Plastic fittings shall be of Schedule 40, polyvinyl chloride injection molded and side gated. Where threads are required, these shall be injection molded also.

R. Trenches shall be excavated to sufficient depth to provide coverage of 18" over all pressure supply lines and 12" over all non-pressure lines unless otherwise noted on drawing when piping occurs under paved areas. Consider dimension to be below subgrade.

S. Backfill for trenching shall be compacted to a dry density equal to the adjacent undisturbed soil, and shall conform to adjacent grades without dips, sunken areas, humps, or other irregularities.

T. Initial backfill on plastic lines shall be of a fine granular material with no foreign matter larger than 1" in size.

U. Supply as part of this contract the following tools:

1. Two keys for the controller.
2. One controller chart for the controller supplied. This chart shall be a reduced drawing of the actual as-built system, with each station indicated in a different color. Chart shall be hermetically sealed between two pieces of plastic, 20 mils. each.

End of Specifications

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

Gaudet Design Group
Landscape Architecture
322 Tejon Place
Palos Verdes Estates, California 90274
Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

TEMPORARY IRRIGATION DETAILS

ISSUE		
1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
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16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

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NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

LIGHTING LEGEND

FIXTURE	SYM.	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMP	FINISH	QUANTITY	NOTES
E-1		HORIZONTAL SHIELD WASH LIGHT	SPJ LIGHTING	SPJ-CL8	2700K LED	MATTE BRONZE	13	MOUNT ON SPJ PERMA POST
E-2		BOLLARD PATH LIGHT	SPJ LIGHTING	SPJ-CC24-2REC	2 WATT LED	MATTE BRONZE	17	RECESSED ILLUMINATION POINTING DOWN
E-3		ARCHITECTURAL SCONCE	SPJ LIGHTING	SPJ-LW-7-DOWNLT	6 WATT LED	MATTE BRONZE	11	MOUNTED ON HOUSE
E-4		POOL/SPA LIGHT	PENTAIR	AMERLITE 16 COLOR	12 VOLT LED		2	
E-5	T#	TRANSFORMER	SPJ LIGHTING	T1: MTP600-SS			1	PHOTO CELL & TIMER
		LOW VOLT WIRE						12 GUAGE DIRECT BURIAL

LIGHTING NOTES

LOW VOLTAGE LANDSCAPE LIGHTING INSTALLATION NOTES & SPECS:

GENERAL:
SCOPE OF WORK: THE SUPPLY AND INSTALLATION OF A 12-VOLT LANDSCAPE LIGHTING SYSTEM WHICH INCLUDES THE FIXTURES SPECIFIED ON THE FIXTURE SCHEDULE AS WELL AS THE INSTALLATION OF LOW VOLTAGE TRANSFORMERS AND DIRECT BURIAL CABLE NECESSARY TO COMPLETE THE PLAN AS SHOWN. THIS LIGHTING PLAN IS DIAGRAMMATIC AND IS INTENDED TO SHOW GENERAL FIXTURE LOCATION AND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR NECESSARY LINE (120-VOLT) AND LOW (12-VOLT) WORK TO COMPLETE THE LIGHTING DESIGN AS SHOWN.

STANDARDS:
ALL WORK PERFORMED IS TO COMPLY WITH THE UNIFORM BUILDING CODE, CALIFORNIA ELECTRICAL CODE TITLE 8, AND ALL APPLICABLE LOCAL CODES AND ORDINANCES. THE CONTRACTOR SHALL POSSES ALL NECESSARY LICENSES TO COMPLETE THE DESCRIBED WORK AND SHALL DETERMINE THE NECESSARY PANELS, BREAKERS, CONDUIT, WIRE, WIRING DEVICES, INVOLVED WITH THIS INSTALLATION. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS AND ACCESORIES TO COMPLETE THE INSTALLATION AS DESIGNED.

INSTALLATION:
THE CONTRACTOR IS TO VERIFY THE SITE, WALKWAYS, STAIRS, PLANTINGS, BUILDINGS, AND OTHER ELEMENTS, WHICH AFFECT THE INSTALLATION. THE CONTRACTOR SHALL VERIFY THE EXISTING ELECTRICAL SERVICE, DISTRIBUTING AND PANEL LOCATIONS. IHE CONTRACTOR SHALL DETERMINE THE NECESSARY PANELS, BREAKERS, CONDUIT, WIRE, WIRING DEVICES INVOLVED WITH THIS INSTALLATION AS DESIGNED. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS AND ACCESSORIES TO COMPLETE THE INSTALLATION AS DESIGNED.

DIRECT BURIAL CABLE:
CABLING SHOWN ON THE PLANS IS FOR GROUPING ONLY. CABLE TO BE CIRCUITED AND SIZED TO PROVIDE A MINIMUM OF 10.5 VOLTS AND A MAXIMUM OF 12-VOLTS TO ALL LIGHTING FIXTURES.THE MINIMUM ALLOWABLE CABLE SIZE FOR DIRECT BURIAL IS 12-GAUGE MULTI-STRANDS. INSTALL CABLE ALONG THE EDGE OF HARDSCAPE AND MOW STRIPS WHENEVER POSSIBLE. MINIMUM CABLE DEPTH IS 12-GAUGE MULTISTRANDS. INSTALL CABLE ALONG THE EDGE OF HARDSCAPE AND MOW STRIPS WHENEVER POSSIBLE. MINIMUM CABLE DEPTH IS 8". THE CONTRACTOR SHALL INSTALL 1" PVC CHASE LINE SLEEVES WITH SWEEP CORNERS FOR ANY CABLE RUN UNDER HARDSCAPE OR DIFFICULT TO ACCESS AREAS SUCH AS AT GRADE AND HIGH IMPACT AREAS SUCH AS COLOR PLANTERS THAT RECEIVE SEASONAL COLOR CHANGES. LEAVE 24" LOOPS AT ALL FIXTURE LOCATIONS FOR FINAL ADJUSTMENT. ALL WIRE JUNCTIONS SHALL BE WATERPROOF WITH CAULK FILLED WIRE NUTS OR MANUFACTURER APPROVED CONNECTIONS DESIGN FOR DIRECT BURIAL, OR APPROVED EQUIVALENT. ONLY FULLY ENCASULATED WATERPROOF CONNECTORS RATED FOR DIRECT BURIAL WILL BE ACCEPTED. TAPED CONNECTIONS ARE NOT ACCEPTABLE.

TRANSFORMERS:
TRANSFORMERS SHALL BE SPJ, VISTA, FX, OR OTHER APPROVED EQUIVALENT. MAXIMUM LOAD SHALL NOT EXCEED 80% OF THE TRANSFORMER RATING (240-WATTS ON A 300-WATT TRANSFORMER). LOAD IS DETERMINED BY FIXTURE LAMP LOAD AND DISTANCE TO THE TRANSFORMER.

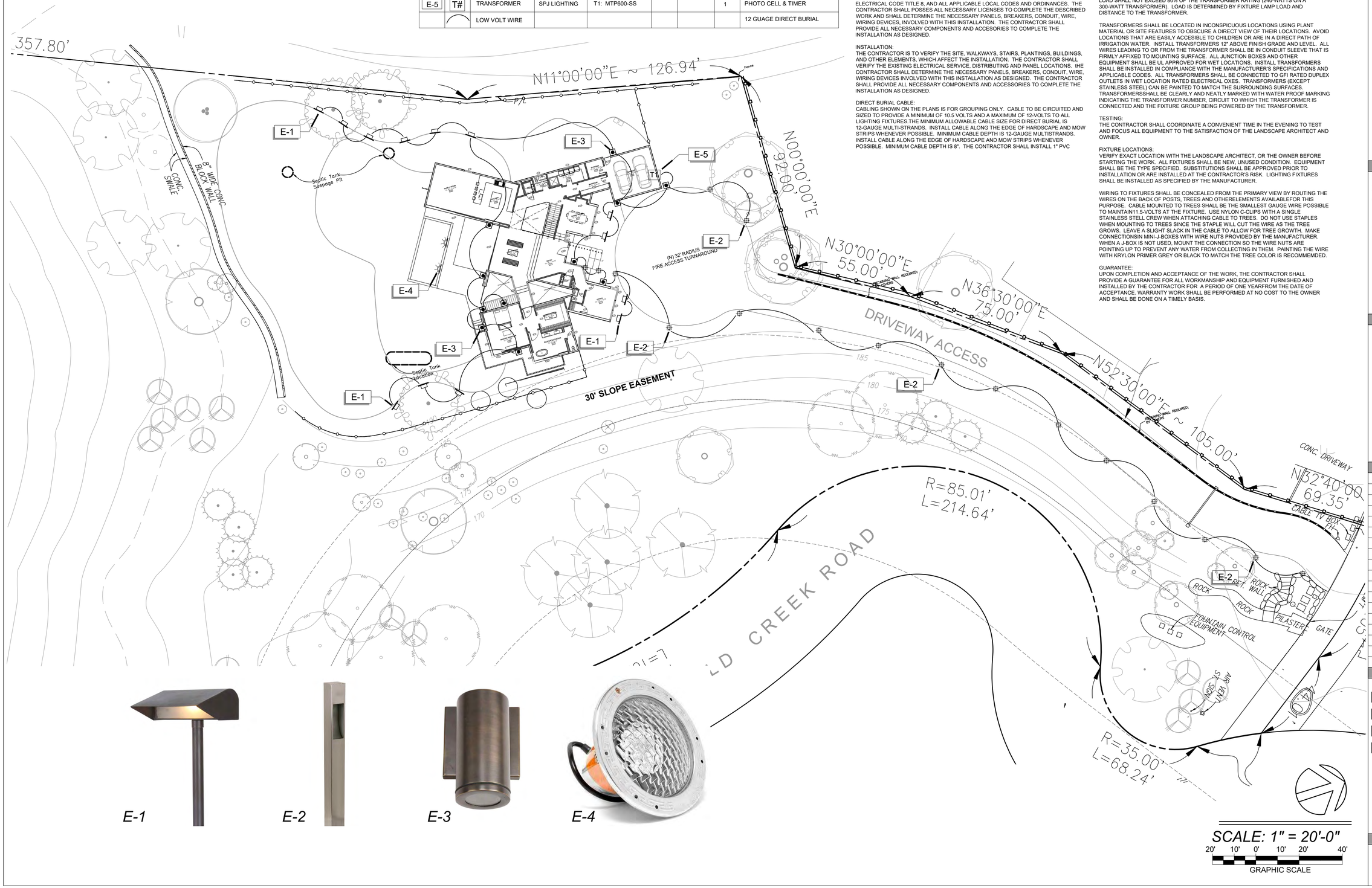
TRANSFORMERS SHALL BE LOCATED IN INCONSPICUOUS LOCATIONS USING PLANT MATERIAL OR SITE FEATURES TO OBSCURE A DIRECT VIEW OF THEIR LOCATIONS. AVOID LOCATIONS THAT ARE EASILY ACCESIBLE TO CHILDREN OR ARE IN A DIRECT PATH OF IRRIGATION WATER. INSTALL TRANSFORMERS 12" ABOVE FINISH GRADE AND LEVEL. ALL WIRES LEADING TO OR FROM THE TRANSFORMER SHALL BE IN CONDUIT SLEEVE THAT IS FIRMLY AFFIXED TO MOUNTING SURFACE. ALL JUNCTION BOXES AND OTHER EQUIPMENT SHALL BE UL APPROVED FOR WET LOCATIONS. INSTALL TRANSFORMERS SHALL BE INSTALLED IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND APPLICABLE CODES. ALL TRANSFORMERS SHALL BE CONNECTED TO GFI RATED DUPLEX OUTLETS IN WET LOCATION RATED ELECTRICAL OXES. TRANSFORMERS (EXCEPT STAINLESS STEEL) CAN BE PAINTED TO MATCH THE SURROUNDING SURFACES. TRANSFORMERSSHALL BE CLEARLY AND NEATLY MARKED WITH WATER PROOF MARKING INDICATING THE TRANSFORMER NUMBER, CIRCUIT TO WHICH THE TRANSFORMER IS CONNECTED AND THE FIXTURE GROUP BEING POWERED BY THE TRANSFORMER.

TESTING:
THE CONTRACTOR SHALL COORDINATE A CONVENIENT TIME IN THE EVENING TO TEST AND FOCUS ALL EQUIPMENT TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT AND OWNER.

FIXTURE LOCATIONS:
VERIFY EXACT LOCATION WITH THE LANDSCAPE ARCHITECT, OR THE OWNER BEFORE STARTING THE WORK. ALL FIXTURES SHALL BE NEW, UNUSED CONDITION. EQUIPMENT SHALL BE THE TYPE SPECIFIED. SUBSTITUTIONS SHALL BE APPROVED PRIOR TO INSTALLATION OR ARE INSTALLED AT THE CONTRACTOR'S RISK. LIGHTING FIXTURES SHALL BE INSTALLED AS SPECIFIED BY THE MANUFACTURER.

WIRING TO FIXTURES SHALL BE CONCEALED FROM THE PRIMARY VIEW BY ROUTING THE WIRES ON THE BACK OF POSTS, TREES AND OTHERELEMENTS AVAILABLEFOR THIS PURPOSE. CABLE MOUNTED TO TREES SHALL BE THE SMALLEST GAUGE WIRE POSSIBLE TO MAINTAIN11.5-VOLTS AT THE FIXTURE. USE NYLON C-CLIPS WITH A SINGLE STAINLESS STELL CREW WHEN ATTACHING CABLE TO TREES. DO NOT USE STAPLES WHEN MOUNTING TO TREES SINCE THE STAPLE WILL CUT THE WIRE AS THE TREE GROWS. LEAVE A SLIGHT SLACK IN THE CABLE TO ALLOW FOR TREE GROWTH. MAKE CONNECTIONSIN MINI-J-BOXES WITH WIRE NUTS PROVIDED BY THE MANUFACTURER. WHEN A J-BOX IS NOT USED, MOUNT THE CONNECTION SO THE WIRE NUTS ARE POINTING UP TO PREVENT ANY WATER FROM COLLECTING IN THEM. PAINTING THE WIRE WITH KRYLON PRIMER GREY OR BLACK TO MATCH THE TREE COLOR IS RECOMMEMDED.

GUARANTEE:
UPON COMPLETION AND ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL PROVIDE A GUARANTEE FOR ALL WORKMANSHIP AND EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR FOR A PERIOD OF ONE YEARFROM THE DATE OF ACCEPTANCE. WARRANTY WORK SHALL BE PERFORMED AT NO COST TO THE OWNER AND SHALL BE DONE ON A TIMELY BASIS.



E-1

E-2

E-3

E-4

SCALE: 1" = 20'-0"
20' 10' 0' 10' 20' 40'
GRAPHIC SCALE

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PROJECT

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SHEET TITLE

LANDSCAPE
LIGHTING PLAN

ISSUE		
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PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
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California Emissions Estimator Model (CalEEMod) Outputs

APPENDIX D

Thousand Peaks Residential

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	1.00	Dwelling Unit	0.67	10,803.00	3

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Thousand Peaks Residential - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - 0.67-acre disturbance area.10.803 sf

Construction Phase - No demo or prep.18 months. 10-day grading. 370 day building

Off-road Equipment -

Off-road Equipment - No crane

Off-road Equipment - No demo

Off-road Equipment - 0 concrete saw. Excavator

Off-road Equipment -

Off-road Equipment - no site prep

Trips and VMT - 8-10 cy capacity soil hauling trucks. Calabasas landfill approx. 10 miles

Grading - 3,658 cy export.

Woodstoves - no woodstove

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	370.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	10.00
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tblConstructionPhase	PhaseEndDate	11/10/2021	11/18/2022
tblConstructionPhase	PhaseEndDate	6/18/2021	6/6/2021
tblConstructionPhase	PhaseEndDate	6/23/2021	6/18/2021
tblConstructionPhase	PhaseEndDate	11/17/2021	11/24/2021
tblConstructionPhase	PhaseEndDate	6/21/2021	6/6/2021
tblConstructionPhase	PhaseStartDate	11/18/2021	11/24/2021
tblConstructionPhase	PhaseStartDate	6/24/2021	6/21/2021
tblConstructionPhase	PhaseStartDate	6/22/2021	6/7/2021

tblConstructionPhase	PhaseStartDate	11/11/2021	11/18/2021
tblConstructionPhase	PhaseStartDate	6/19/2021	6/7/2021
tblGrading	AcresOfGrading	0.00	0.67
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	3,658.00
tblLandUse	LandUseSquareFeet	1,800.00	10,803.00
tblLandUse	LotAcreage	0.32	0.67
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	457.00	892.00
tblWoodstoves	NumberCatalytic	0.05	0.00
tblWoodstoves	NumberNoncatalytic	0.05	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0816	0.5216	0.5152	8.9000e-004	9.5700e-003	0.0273	0.0369	3.5700e-003	0.0252	0.0287	0.0000	79.9757	79.9757	0.0206	0.0000	80.4898
2022	0.0575	0.5674	0.7138	9.8000e-004	0.0000	0.0328	0.0328	0.0000	0.0302	0.0302	0.0000	86.0195	86.0195	0.0278	0.0000	86.7150
Maximum	**0.0816**	**0.5674**	**0.7138**	**9.8000e-004**	**9.5700e-003**	**0.0328**	**0.0369**	**3.5700e-003**	**0.0302**	**0.0302**	**0.0000**	**86.0195**	**86.0195**	**0.0278**	**0.0000**	**86.7150**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0816	0.5216	0.5152	8.9000e-004	7.1900e-003	0.0273	0.0345	2.3900e-003	0.0252	0.0276	0.0000	79.9756	79.9756	0.0206	0.0000	80.4897
2022	0.0575	0.5674	0.7138	9.8000e-004	0.0000	0.0328	0.0328	0.0000	0.0302	0.0302	0.0000	86.0194	86.0194	0.0278	0.0000	86.7149
Maximum	**0.0816**	**0.5674**	**0.7138**	**9.8000e-004**	**7.1900e-003**	**0.0328**	**0.0345**	**2.3900e-003**	**0.0302**	**0.0302**	**0.0000**	**86.0194**	**86.0194**	**0.0278**	**0.0000**	**86.7149**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**24.87**	**0.00**	**3.42**	**33.05**	**0.00**	**2.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-7-2021	9-6-2021	0.2696	0.2696
2	9-7-2021	12-6-2021	0.2564	0.2564
3	12-7-2021	3-6-2022	0.1809	0.1809
4	3-7-2022	6-6-2022	0.1785	0.1785
5	6-7-2022	9-6-2022	0.1785	0.1785
6	9-7-2022	9-30-2022	0.0466	0.0466
		Highest	0.2696	0.2696

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0457	3.3000e-004	0.0136	1.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0393	0.2210	0.2603	2.0000e-005	1.0000e-005	0.2629
Energy	1.4000e-004	1.1900e-003	5.1000e-004	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	3.9319	3.9319	1.3000e-004	5.0000e-005	3.9493
Mobile	3.5300e-003	0.0195	0.0549	2.1000e-004	0.0174	1.7000e-004	0.0176	4.6700e-003	1.6000e-004	4.8300e-003	0.0000	19.1605	19.1605	9.6000e-004	0.0000	19.1844
Waste						0.0000	0.0000		0.0000	0.0000	0.2497	0.0000	0.2497	0.0148	0.0000	0.6186
Water						0.0000	0.0000		0.0000	0.0000	0.0207	0.4157	0.4364	2.1400e-003	5.0000e-005	0.5059
Total	**0.0493**	**0.0210**	**0.0690**	**2.3000e-004**	**0.0174**	**7.8000e-004**	**0.0182**	**4.6700e-003**	**7.7000e-004**	**5.4400e-003**	**0.3097**	**23.7291**	**24.0387**	**0.0180**	**1.1000e-004**	**24.5210**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0457	3.3000e-004	0.0136	1.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0393	0.2210	0.2603	2.0000e-005	1.0000e-005	0.2629
Energy	1.4000e-004	1.1900e-003	5.1000e-004	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	3.9319	3.9319	1.3000e-004	5.0000e-005	3.9493
Mobile	3.5300e-003	0.0195	0.0549	2.1000e-004	0.0174	1.7000e-004	0.0176	4.6700e-003	1.6000e-004	4.8300e-003	0.0000	19.1605	19.1605	9.6000e-004	0.0000	19.1844
Waste						0.0000	0.0000		0.0000	0.0000	0.2497	0.0000	0.2497	0.0148	0.0000	0.6186
Water						0.0000	0.0000		0.0000	0.0000	0.0207	0.4157	0.4364	2.1400e-003	5.0000e-005	0.5059
Total	**0.0493**	**0.0210**	**0.0690**	**2.3000e-004**	**0.0174**	**7.8000e-004**	**0.0182**	**4.6700e-003**	**7.7000e-004**	**5.4400e-003**	**0.3097**	**23.7291**	**24.0387**	**0.0180**	**1.1000e-004**	**24.5210**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/7/2021	6/6/2021	5	0	
2	Site Preparation	Site Preparation	6/7/2021	6/6/2021	5	1	
3	Grading	Grading	6/7/2021	6/18/2021	5	10	
4	Building Construction	Building Construction	6/21/2021	11/18/2022	5	370	
5	Paving	Paving	11/18/2021	11/24/2021	5	5	
6	Architectural Coating	Architectural Coating	11/24/2021	11/30/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.67

Acres of Paving: 0

Residential Indoor: 21,876; Residential Outdoor: 7,292; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Thousand Peaks Residential - Los Angeles-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	1	6.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	3.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	3.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	892.00	19.80	7.90	10.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	0.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

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

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

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

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

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

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

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

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.3300e-003	0.0000	4.3300e-003	2.1400e-003	0.0000	2.1400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9200e-003	0.0292	0.0318	5.0000e-005		1.5600e-003	1.5600e-003		1.4400e-003	1.4400e-003	0.0000	4.2265	4.2265	1.3700e-003	0.0000	4.2607
Total	**2.9200e-003**	**0.0292**	**0.0318**	**5.0000e-005**	**4.3300e-003**	**1.5600e-003**	**5.8900e-003**	**2.1400e-003**	**1.4400e-003**	**3.5800e-003**	**0.0000**	**4.2265**	**4.2265**	**1.3700e-003**	**0.0000**	**4.2607**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2500e-003	0.0822	0.0174	2.0000e-004	3.8400e-003	1.9000e-004	4.0300e-003	1.0500e-003	1.9000e-004	1.2400e-003	0.0000	19.1873	19.1873	1.5100e-003	0.0000	19.2251
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.4000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6625	0.6625	2.0000e-005	0.0000	0.6630
Total	**2.5200e-003**	**0.0824**	**0.0199**	**2.1000e-004**	**4.5800e-003**	**2.0000e-004**	**4.7700e-003**	**1.2500e-003**	**2.0000e-004**	**1.4400e-003**	**0.0000**	**19.8498**	**19.8498**	**1.5300e-003**	**0.0000**	**19.8881**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9500e-003	0.0000	1.9500e-003	9.6000e-004	0.0000	9.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9200e-003	0.0292	0.0318	5.0000e-005		1.5600e-003	1.5600e-003		1.4400e-003	1.4400e-003	0.0000	4.2265	4.2265	1.3700e-003	0.0000	4.2607
Total	**2.9200e-003**	**0.0292**	**0.0318**	**5.0000e-005**	**1.9500e-003**	**1.5600e-003**	**3.5100e-003**	**9.6000e-004**	**1.4400e-003**	**2.4000e-003**	**0.0000**	**4.2265**	**4.2265**	**1.3700e-003**	**0.0000**	**4.2607**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2500e-003	0.0822	0.0174	2.0000e-004	3.8400e-003	1.9000e-004	4.0300e-003	1.0500e-003	1.9000e-004	1.2400e-003	0.0000	19.1873	19.1873	1.5100e-003	0.0000	19.2251
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.2000e-004	2.4700e-003	1.0000e-005	7.4000e-004	1.0000e-005	7.4000e-004	2.0000e-004	1.0000e-005	2.0000e-004	0.0000	0.6625	0.6625	2.0000e-005	0.0000	0.6630
Total	**2.5200e-003**	**0.0824**	**0.0199**	**2.1000e-004**	**4.5800e-003**	**2.0000e-004**	**4.7700e-003**	**1.2500e-003**	**2.0000e-004**	**1.4400e-003**	**0.0000**	**19.8498**	**19.8498**	**1.5300e-003**	**0.0000**	**19.8881**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0398	0.3892	0.4391	6.0000e-004		0.0244	0.0244		0.0225	0.0225	0.0000	52.3167	52.3167	0.0169	0.0000	52.7397
Total	**0.0398**	**0.3892**	**0.4391**	**6.0000e-004**		**0.0244**	**0.0244**		**0.0225**	**0.0225**	**0.0000**	**52.3167**	**52.3167**	**0.0169**	**0.0000**	**52.7397**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0398	0.3892	0.4391	6.0000e-004		0.0244	0.0244		0.0225	0.0225	0.0000	52.3166	52.3166	0.0169	0.0000	52.7396
Total	**0.0398**	**0.3892**	**0.4391**	**6.0000e-004**		**0.0244**	**0.0244**		**0.0225**	**0.0225**	**0.0000**	**52.3166**	**52.3166**	**0.0169**	**0.0000**	**52.7396**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0575	0.5674	0.7138	9.8000e-004		0.0328	0.0328		0.0302	0.0302	0.0000	86.0195	86.0195	0.0278	0.0000	86.7150
Total	**0.0575**	**0.5674**	**0.7138**	**9.8000e-004**		**0.0328**	**0.0328**		**0.0302**	**0.0302**	**0.0000**	**86.0195**	**86.0195**	**0.0278**	**0.0000**	**86.7150**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0575	0.5674	0.7138	9.8000e-004		0.0328	0.0328		0.0302	0.0302	0.0000	86.0194	86.0194	0.0278	0.0000	86.7149
Total	**0.0575**	**0.5674**	**0.7138**	**9.8000e-004**		**0.0328**	**0.0328**		**0.0302**	**0.0302**	**0.0000**	**86.0194**	**86.0194**	**0.0278**	**0.0000**	**86.7149**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0177	3.0000e-005		8.8000e-004	8.8000e-004		8.2000e-004	8.2000e-004	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-003**	**0.0168**	**0.0177**	**3.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.0000e-004	2.2300e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5963	0.5963	2.0000e-005	0.0000	0.5967
Total	**2.5000e-004**	**2.0000e-004**	**2.2300e-003**	**1.0000e-005**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5963**	**0.5963**	**2.0000e-005**	**0.0000**	**0.5967**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0177	3.0000e-005		8.8000e-004	8.8000e-004		8.2000e-004	8.2000e-004	0.0000	2.3481	2.3481	6.8000e-004	0.0000	2.3652
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.8000e-003**	**0.0168**	**0.0177**	**3.0000e-005**		**8.8000e-004**	**8.8000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.3481**	**2.3481**	**6.8000e-004**	**0.0000**	**2.3652**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.0000e-004	2.2300e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.7000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5963	0.5963	2.0000e-005	0.0000	0.5967
Total	**2.5000e-004**	**2.0000e-004**	**2.2300e-003**	**1.0000e-005**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5963**	**0.5963**	**2.0000e-005**	**0.0000**	**0.5967**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.0344**	**3.8200e-003**	**4.5400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0338					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.5000e-004	3.8200e-003	4.5400e-003	1.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6394
Total	**0.0344**	**3.8200e-003**	**4.5400e-003**	**1.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6394**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.5300e-003	0.0195	0.0549	2.1000e-004	0.0174	1.7000e-004	0.0176	4.6700e-003	1.6000e-004	4.8300e-003	0.0000	19.1605	19.1605	9.6000e-004	0.0000	19.1844
Unmitigated	3.5300e-003	0.0195	0.0549	2.1000e-004	0.0174	1.7000e-004	0.0176	4.6700e-003	1.6000e-004	4.8300e-003	0.0000	19.1605	19.1605	9.6000e-004	0.0000	19.1844

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	9.52	9.91	8.62	45,911	45,911
Total	9.52	9.91	8.62	45,911	45,911

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.5549	2.5549	1.1000e-004	2.0000e-005	2.5640
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2.5549	2.5549	1.1000e-004	2.0000e-005	2.5640
NaturalGas Mitigated	1.4000e-004	1.1900e-003	5.1000e-004	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3771	1.3771	3.0000e-005	3.0000e-005	1.3852
NaturalGas Unmitigated	1.4000e-004	1.1900e-003	5.1000e-004	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3771	1.3771	3.0000e-005	3.0000e-005	1.3852

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	25804.9	1.4000e-004	1.1900e-003	5.1000e-004	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3771	1.3771	3.0000e-005	3.0000e-005	1.3852
Total		**1.4000e-004**	**1.1900e-003**	**5.1000e-004**	**1.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**1.3771**	**1.3771**	**3.0000e-005**	**3.0000e-005**	**1.3852**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	25804.9	1.4000e-004	1.1900e-003	5.1000e-004	1.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	1.3771	1.3771	3.0000e-005	3.0000e-005	1.3852
Total		**1.4000e-004**	**1.1900e-003**	**5.1000e-004**	**1.0000e-005**		**1.0000e-004**	**1.0000e-004**		**1.0000e-004**	**1.0000e-004**	**0.0000**	**1.3771**	**1.3771**	**3.0000e-005**	**3.0000e-005**	**1.3852**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	8018.54	2.5549	1.1000e-004	2.0000e-005	2.5640
Total		**2.5549**	**1.1000e-004**	**2.0000e-005**	**2.5640**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	8018.54	2.5549	1.1000e-004	2.0000e-005	2.5640
Total		**2.5549**	**1.1000e-004**	**2.0000e-005**	**2.5640**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0457	3.3000e-004	0.0136	1.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0393	0.2210	0.2603	2.0000e-005	1.0000e-005	0.2629
Unmitigated	0.0457	3.3000e-004	0.0136	1.0000e-005		5.1000e-004	5.1000e-004		5.1000e-004	5.1000e-004	0.0393	0.2210	0.2603	2.0000e-005	1.0000e-005	0.2629

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.3800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0390					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.9400e-003	2.1000e-004	3.2900e-003	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0393	0.2041	0.2434	0.0000	1.0000e-005	0.2457
Landscaping	3.1000e-004	1.2000e-004	0.0103	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0169	0.0169	2.0000e-005	0.0000	0.0173
Total	**0.0457**	**3.3000e-004**	**0.0136**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0393**	**0.2210**	**0.2603**	**2.0000e-005**	**1.0000e-005**	**0.2629**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.3800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0390					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.9400e-003	2.1000e-004	3.2900e-003	1.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0393	0.2041	0.2434	0.0000	1.0000e-005	0.2457
Landscaping	3.1000e-004	1.2000e-004	0.0103	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.0169	0.0169	2.0000e-005	0.0000	0.0173
Total	**0.0457**	**3.3000e-004**	**0.0136**	**1.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0393**	**0.2210**	**0.2603**	**2.0000e-005**	**1.0000e-005**	**0.2629**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.4364	2.1400e-003	5.0000e-005	0.5059
Unmitigated	0.4364	2.1400e-003	5.0000e-005	0.5059

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.065154 / 0.0410754	0.4364	2.1400e-003	5.0000e-005	0.5059
Total		**0.4364**	**2.1400e-003**	**5.0000e-005**	**0.5059**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.065154 / 0.0410754	0.4364	2.1400e-003	5.0000e-005	0.5059
Total		**0.4364**	**2.1400e-003**	**5.0000e-005**	**0.5059**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.2497	0.0148	0.0000	0.6186
Unmitigated	0.2497	0.0148	0.0000	0.6186

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	1.23	0.2497	0.0148	0.0000	0.6186
Total		**0.2497**	**0.0148**	**0.0000**	**0.6186**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	1.23	0.2497	0.0148	0.0000	0.6186
Total		**0.2497**	**0.0148**	**0.0000**	**0.6186**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Thousand Peaks Residential

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	1.00	Dwelling Unit	0.67	10,803.00	3

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Thousand Peaks Residential - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - 0.67-acre disturbance area.10.803 sf

Construction Phase - No demo or prep.18 months. 10-day grading. 370 day building

Off-road Equipment -

Off-road Equipment - No crane

Off-road Equipment - No demo

Off-road Equipment - 0 concrete saw. Excavator

Off-road Equipment -

Off-road Equipment - no site prep

Trips and VMT - 8-10 cy capacity soil hauling trucks. Calabasas landfill approx. 10 miles

Grading - 3,658 cy export.

Woodstoves - no woodstove

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	370.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	PhaseEndDate	11/24/2021	11/30/2021
tblConstructionPhase	PhaseEndDate	11/10/2021	11/18/2022
tblConstructionPhase	PhaseEndDate	6/18/2021	6/6/2021
tblConstructionPhase	PhaseEndDate	6/23/2021	6/18/2021
tblConstructionPhase	PhaseEndDate	11/17/2021	11/24/2021
tblConstructionPhase	PhaseEndDate	6/21/2021	6/6/2021
tblConstructionPhase	PhaseStartDate	11/18/2021	11/24/2021
tblConstructionPhase	PhaseStartDate	6/24/2021	6/21/2021
tblConstructionPhase	PhaseStartDate	6/22/2021	6/7/2021

tblConstructionPhase	PhaseStartDate	11/11/2021	11/18/2021
tblConstructionPhase	PhaseStartDate	6/19/2021	6/7/2021
tblGrading	AcresOfGrading	0.00	0.67
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	3,658.00
tblLandUse	LandUseSquareFeet	1,800.00	10,803.00
tblLandUse	LotAcreage	0.32	0.67
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	457.00	892.00
tblWoodstoves	NumberCatalytic	0.05	0.00
tblWoodstoves	NumberNoncatalytic	0.05	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	15.1257	21.9972	16.1338	0.0507	1.7965	0.7987	2.1490	0.6817	0.7458	1.0074	0.0000	5,369.3940	5,369.3940	0.6314	0.0000	5,385.1797
2022	0.4998	4.9336	6.2065	8.5100e-003	0.0000	0.2851	0.2851	0.0000	0.2623	0.2623	0.0000	824.5241	824.5241	0.2667	0.0000	831.1908
Maximum	**15.1257**	**21.9972**	**16.1338**	**0.0507**	**1.7965**	**0.7987**	**2.1490**	**0.6817**	**0.7458**	**1.0074**	**0.0000**	**5,369.3940**	**5,369.3940**	**0.6314**	**0.0000**	**5,385.1797**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	15.1257	21.9972	16.1338	0.0507	1.3206	0.7987	1.6731	0.4465	0.7458	0.8177	0.0000	5,369.3940	5,369.3940	0.6314	0.0000	5,385.1797
2022	0.4998	4.9336	6.2065	8.5100e-003	0.0000	0.2851	0.2851	0.0000	0.2623	0.2623	0.0000	824.5241	824.5241	0.2667	0.0000	831.1908
Maximum	**15.1257**	**21.9972**	**16.1338**	**0.0507**	**1.3206**	**0.7987**	**1.6731**	**0.4465**	**0.7458**	**0.8177**	**0.0000**	**5,369.3940**	**5,369.3940**	**0.6314**	**0.0000**	**5,385.1797**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**26.49**	**0.00**	**19.55**	**34.51**	**0.00**	**14.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155
Energy	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Mobile	0.0213	0.1067	0.3318	1.2400e-003	0.1024	9.9000e-004	0.1034	0.0274	9.2000e-004	0.0283		126.1080	126.1080	6.1400e-003		126.2615
Total	**0.4920**	**0.1310**	**0.6806**	**1.7800e-003**	**0.1024**	**0.0384**	**0.1408**	**0.0274**	**0.0383**	**0.0657**	**3.4653**	**152.5740**	**156.0393**	**6.7900e-003**	**7.9000e-004**	**156.4439**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155
Energy	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Mobile	0.0213	0.1067	0.3318	1.2400e-003	0.1024	9.9000e-004	0.1034	0.0274	9.2000e-004	0.0283		126.1080	126.1080	6.1400e-003		126.2615
Total	**0.4920**	**0.1310**	**0.6806**	**1.7800e-003**	**0.1024**	**0.0384**	**0.1408**	**0.0274**	**0.0383**	**0.0657**	**3.4653**	**152.5740**	**156.0393**	**6.7900e-003**	**7.9000e-004**	**156.4439**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/7/2021	6/6/2021	5	0	
2	Site Preparation	Site Preparation	6/7/2021	6/6/2021	5	1	
3	Grading	Grading	6/7/2021	6/18/2021	5	10	
4	Building Construction	Building Construction	6/21/2021	11/18/2022	5	370	
5	Paving	Paving	11/18/2021	11/24/2021	5	5	
6	Architectural Coating	Architectural Coating	11/24/2021	11/30/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.67

Acres of Paving: 0

Residential Indoor: 21,876; Residential Outdoor: 7,292; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Thousand Peaks Residential - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	1	6.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	3.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	3.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	892.00	19.80	7.90	10.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	0.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8652	0.0000	0.8652	0.4277	0.0000	0.4277			0.0000			0.0000
Off-Road	0.5845	5.8383	6.3612	9.6200e-003		0.3129	0.3129		0.2879	0.2879		931.7888	931.7888	0.3014		939.3228
Total	**0.5845**	**5.8383**	**6.3612**	**9.6200e-003**	**0.8652**	**0.3129**	**1.1781**	**0.4277**	**0.2879**	**0.7156**		**931.7888**	**931.7888**	**0.3014**		**939.3228**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4425	16.1201	3.3167	0.0395	0.7808	0.0383	0.8191	0.2141	0.0367	0.2508		4,285.0003	4,285.0003	0.3256		4,293.1407
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0542	0.0388	0.5301	1.5300e-003	0.1505	1.1900e-003	0.1517	0.0399	1.1000e-003	0.0410		152.6049	152.6049	4.4500e-003		152.7162
Total	**0.4966**	**16.1589**	**3.8467**	**0.0410**	**0.9313**	**0.0395**	**0.9708**	**0.2540**	**0.0378**	**0.2918**		**4,437.6051**	**4,437.6051**	**0.3301**		**4,445.8568**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3893	0.0000	0.3893	0.1925	0.0000	0.1925			0.0000			0.0000
Off-Road	0.5845	5.8383	6.3612	9.6200e-003		0.3129	0.3129		0.2879	0.2879	0.0000	931.7888	931.7888	0.3014		939.3228
Total	**0.5845**	**5.8383**	**6.3612**	**9.6200e-003**	**0.3893**	**0.3129**	**0.7023**	**0.1925**	**0.2879**	**0.4804**	**0.0000**	**931.7888**	**931.7888**	**0.3014**		**939.3228**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4425	16.1201	3.3167	0.0395	0.7808	0.0383	0.8191	0.2141	0.0367	0.2508		4,285.0003	4,285.0003	0.3256		4,293.1407
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0542	0.0388	0.5301	1.5300e-003	0.1505	1.1900e-003	0.1517	0.0399	1.1000e-003	0.0410		152.6049	152.6049	4.4500e-003		152.7162
Total	**0.4966**	**16.1589**	**3.8467**	**0.0410**	**0.9313**	**0.0395**	**0.9708**	**0.2540**	**0.0378**	**0.2918**		**4,437.6051**	**4,437.6051**	**0.3301**		**4,445.8568**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212		823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**		**823.8464**	**823.8464**	**0.2665**		**830.5076**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212	0.0000	823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**	**0.0000**	**823.8464**	**823.8464**	**0.2665**		**830.5076**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4998	4.9336	6.2065	8.5100e-003		0.2851	0.2851		0.2623	0.2623		824.5241	824.5241	0.2667		831.1908
Total	**0.4998**	**4.9336**	**6.2065**	**8.5100e-003**		**0.2851**	**0.2851**		**0.2623**	**0.2623**		**824.5241**	**824.5241**	**0.2667**		**831.1908**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4998	4.9336	6.2065	8.5100e-003		0.2851	0.2851		0.2623	0.2623	0.0000	824.5241	824.5241	0.2667		831.1908
Total	**0.4998**	**4.9336**	**6.2065**	**8.5100e-003**		**0.2851**	**0.2851**		**0.2623**	**0.2623**	**0.0000**	**824.5241**	**824.5241**	**0.2667**		**831.1908**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0975	0.0699	0.9541	2.7600e-003	0.2709	2.1500e-003	0.2731	0.0719	1.9800e-003	0.0738		274.6887	274.6887	8.0100e-003		274.8891
Total	**0.0975**	**0.0699**	**0.9541**	**2.7600e-003**	**0.2709**	**2.1500e-003**	**0.2731**	**0.0719**	**1.9800e-003**	**0.0738**		**274.6887**	**274.6887**	**8.0100e-003**		**274.8891**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0975	0.0699	0.9541	2.7600e-003	0.2709	2.1500e-003	0.2731	0.0719	1.9800e-003	0.0738		274.6887	274.6887	8.0100e-003		274.8891
Total	**0.0975**	**0.0699**	**0.9541**	**2.7600e-003**	**0.2709**	**2.1500e-003**	**0.2731**	**0.0719**	**1.9800e-003**	**0.0738**		**274.6887**	**274.6887**	**8.0100e-003**		**274.8891**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.5194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**13.7383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.5194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**13.7383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0213	0.1067	0.3318	1.2400e-003	0.1024	9.9000e-004	0.1034	0.0274	9.2000e-004	0.0283		126.1080	126.1080	6.1400e-003		126.2615
Unmitigated	0.0213	0.1067	0.3318	1.2400e-003	0.1024	9.9000e-004	0.1034	0.0274	9.2000e-004	0.0283		126.1080	126.1080	6.1400e-003		126.2615

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	9.52	9.91	8.62	45,911	45,911
Total	9.52	9.91	8.62	45,911	45,911

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
NaturalGas Unmitigated	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	70.6984	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Total		**7.6000e-004**	**6.5200e-003**	**2.7700e-003**	**4.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**		**8.3175**	**8.3175**	**1.6000e-004**	**1.5000e-004**	**8.3669**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0.0706984	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Total		**7.6000e-004**	**6.5200e-003**	**2.7700e-003**	**4.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**		**8.3175**	**8.3175**	**1.6000e-004**	**1.5000e-004**	**8.3669**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155
Unmitigated	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0185					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2351	0.0168	0.2635	5.0000e-004		0.0364	0.0364		0.0364	0.0364	3.4653	18.0000	21.4653	3.4000e-004	6.4000e-004	21.6634
Landscaping	2.4900e-003	9.5000e-004	0.0826	0.0000		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.1486	0.1486	1.4000e-004		0.1521
Total	**0.4700**	**0.0177**	**0.3460**	**5.0000e-004**		**0.0369**	**0.0369**		**0.0369**	**0.0369**	**3.4653**	**18.1486**	**21.6138**	**4.8000e-004**	**6.4000e-004**	**21.8155**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0185					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2351	0.0168	0.2635	5.0000e-004		0.0364	0.0364		0.0364	0.0364	3.4653	18.0000	21.4653	3.4000e-004	6.4000e-004	21.6634
Landscaping	2.4900e-003	9.5000e-004	0.0826	0.0000		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.1486	0.1486	1.4000e-004		0.1521
Total	**0.4700**	**0.0177**	**0.3460**	**5.0000e-004**		**0.0369**	**0.0369**		**0.0369**	**0.0369**	**3.4653**	**18.1486**	**21.6138**	**4.8000e-004**	**6.4000e-004**	**21.8155**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Thousand Peaks Residential

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	1.00	Dwelling Unit	0.67	10,803.00	3

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	8			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Thousand Peaks Residential - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - 0.67-acre disturbance area.10.803 sf

Construction Phase - No demo or prep.18 months. 10-day grading. 370 day building

Off-road Equipment -

Off-road Equipment - No crane

Off-road Equipment - No demo

Off-road Equipment - 0 concrete saw. Excavator

Off-road Equipment -

Off-road Equipment - no site prep

Trips and VMT - 8-10 cy capacity soil hauling trucks. Calabasas landfill approx. 10 miles

Grading - 3,658 cy export.

Woodstoves - no woodstove

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	370.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	PhaseEndDate	11/24/2021	11/30/2021
tblConstructionPhase	PhaseEndDate	11/10/2021	11/18/2022
tblConstructionPhase	PhaseEndDate	6/18/2021	6/6/2021
tblConstructionPhase	PhaseEndDate	6/23/2021	6/18/2021
tblConstructionPhase	PhaseEndDate	11/17/2021	11/24/2021
tblConstructionPhase	PhaseEndDate	6/21/2021	6/6/2021
tblConstructionPhase	PhaseStartDate	11/18/2021	11/24/2021
tblConstructionPhase	PhaseStartDate	6/24/2021	6/21/2021
tblConstructionPhase	PhaseStartDate	6/22/2021	6/7/2021

tblConstructionPhase	PhaseStartDate	11/11/2021	11/18/2021
tblConstructionPhase	PhaseStartDate	6/19/2021	6/7/2021
tblGrading	AcresOfGrading	0.00	0.67
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	3,658.00
tblLandUse	LandUseSquareFeet	1,800.00	10,803.00
tblLandUse	LotAcreage	0.32	0.67
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	10.00
tblTripsAndVMT	HaulingTripNumber	457.00	892.00
tblWoodstoves	NumberCatalytic	0.05	0.00
tblWoodstoves	NumberNoncatalytic	0.05	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	15.1379	21.9891	16.0458	0.0494	1.7965	0.7987	2.1501	0.6817	0.7458	1.0085	0.0000	5,229.6544	5,229.6544	0.6493	0.0000	5,245.8871
2022	0.4998	4.9336	6.2065	8.5100e-003	0.0000	0.2851	0.2851	0.0000	0.2623	0.2623	0.0000	824.5241	824.5241	0.2667	0.0000	831.1908
Maximum	**15.1379**	**21.9891**	**16.0458**	**0.0494**	**1.7965**	**0.7987**	**2.1501**	**0.6817**	**0.7458**	**1.0085**	**0.0000**	**5,229.6544**	**5,229.6544**	**0.6493**	**0.0000**	**5,245.8871**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	15.1379	21.9891	16.0458	0.0494	1.3206	0.7987	1.6742	0.4465	0.7458	0.8177	0.0000	5,229.6544	5,229.6544	0.6493	0.0000	5,245.8871
2022	0.4998	4.9336	6.2065	8.5100e-003	0.0000	0.2851	0.2851	0.0000	0.2623	0.2623	0.0000	824.5241	824.5241	0.2667	0.0000	831.1908
Maximum	**15.1379**	**21.9891**	**16.0458**	**0.0494**	**1.3206**	**0.7987**	**1.6742**	**0.4465**	**0.7458**	**0.8177**	**0.0000**	**5,229.6544**	**5,229.6544**	**0.6493**	**0.0000**	**5,245.8871**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**26.49**	**0.00**	**19.54**	**34.51**	**0.00**	**15.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155
Energy	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Mobile	0.0207	0.1101	0.3107	1.1800e-003	0.1024	9.9000e-004	0.1034	0.0274	9.3000e-004	0.0283		120.1353	120.1353	6.0800e-003		120.2873
Total	**0.4914**	**0.1343**	**0.6595**	**1.7200e-003**	**0.1024**	**0.0384**	**0.1408**	**0.0274**	**0.0383**	**0.0657**	**3.4653**	**146.6013**	**150.0665**	**6.7300e-003**	**7.9000e-004**	**150.4696**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155
Energy	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Mobile	0.0207	0.1101	0.3107	1.1800e-003	0.1024	9.9000e-004	0.1034	0.0274	9.3000e-004	0.0283		120.1353	120.1353	6.0800e-003		120.2873
Total	**0.4914**	**0.1343**	**0.6595**	**1.7200e-003**	**0.1024**	**0.0384**	**0.1408**	**0.0274**	**0.0383**	**0.0657**	**3.4653**	**146.6013**	**150.0665**	**6.7300e-003**	**7.9000e-004**	**150.4696**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/7/2021	6/6/2021	5	0	
2	Site Preparation	Site Preparation	6/7/2021	6/6/2021	5	1	
3	Grading	Grading	6/7/2021	6/18/2021	5	10	
4	Building Construction	Building Construction	6/21/2021	11/18/2022	5	370	
5	Paving	Paving	11/18/2021	11/24/2021	5	5	
6	Architectural Coating	Architectural Coating	11/24/2021	11/30/2021	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0.67

Acres of Paving: 0

Residential Indoor: 21,876; Residential Outdoor: 7,292; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Thousand Peaks Residential - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	1	6.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	1	3.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	3.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	892.00	19.80	7.90	10.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	0.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.8652	0.0000	0.8652	0.4277	0.0000	0.4277			0.0000			0.0000
Off-Road	0.5845	5.8383	6.3612	9.6200e-003		0.3129	0.3129		0.2879	0.2879		931.7888	931.7888	0.3014		939.3228
Total	**0.5845**	**5.8383**	**6.3612**	**9.6200e-003**	**0.8652**	**0.3129**	**1.1781**	**0.4277**	**0.2879**	**0.7156**		**931.7888**	**931.7888**	**0.3014**		**939.3228**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4605	16.1078	3.6718	0.0383	0.7808	0.0394	0.8202	0.2141	0.0377	0.2518		4,154.2048	4,154.2048	0.3438		4,162.7991
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0610	0.0430	0.4812	1.4400e-003	0.1505	1.1900e-003	0.1517	0.0399	1.1000e-003	0.0410		143.6608	143.6608	4.1700e-003		143.7651
Total	**0.5215**	**16.1508**	**4.1530**	**0.0397**	**0.9313**	**0.0406**	**0.9720**	**0.2540**	**0.0388**	**0.2929**		**4,297.8656**	**4,297.8656**	**0.3479**		**4,306.5642**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3893	0.0000	0.3893	0.1925	0.0000	0.1925			0.0000			0.0000
Off-Road	0.5845	5.8383	6.3612	9.6200e-003		0.3129	0.3129		0.2879	0.2879	0.0000	931.7888	931.7888	0.3014		939.3228
Total	**0.5845**	**5.8383**	**6.3612**	**9.6200e-003**	**0.3893**	**0.3129**	**0.7023**	**0.1925**	**0.2879**	**0.4804**	**0.0000**	**931.7888**	**931.7888**	**0.3014**		**939.3228**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4605	16.1078	3.6718	0.0383	0.7808	0.0394	0.8202	0.2141	0.0377	0.2518		4,154.2048	4,154.2048	0.3438		4,162.7991
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0610	0.0430	0.4812	1.4400e-003	0.1505	1.1900e-003	0.1517	0.0399	1.1000e-003	0.0410		143.6608	143.6608	4.1700e-003		143.7651
Total	**0.5215**	**16.1508**	**4.1530**	**0.0397**	**0.9313**	**0.0406**	**0.9720**	**0.2540**	**0.0388**	**0.2929**		**4,297.8656**	**4,297.8656**	**0.3479**		**4,306.5642**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212		823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**		**823.8464**	**823.8464**	**0.2665**		**830.5076**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5685	5.5603	6.2723	8.5100e-003		0.3491	0.3491		0.3212	0.3212	0.0000	823.8464	823.8464	0.2665		830.5076
Total	**0.5685**	**5.5603**	**6.2723**	**8.5100e-003**		**0.3491**	**0.3491**		**0.3212**	**0.3212**	**0.0000**	**823.8464**	**823.8464**	**0.2665**		**830.5076**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4998	4.9336	6.2065	8.5100e-003		0.2851	0.2851		0.2623	0.2623		824.5241	824.5241	0.2667		831.1908
Total	**0.4998**	**4.9336**	**6.2065**	**8.5100e-003**		**0.2851**	**0.2851**		**0.2623**	**0.2623**		**824.5241**	**824.5241**	**0.2667**		**831.1908**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4998	4.9336	6.2065	8.5100e-003		0.2851	0.2851		0.2623	0.2623	0.0000	824.5241	824.5241	0.2667		831.1908
Total	**0.4998**	**4.9336**	**6.2065**	**8.5100e-003**		**0.2851**	**0.2851**		**0.2623**	**0.2623**	**0.0000**	**824.5241**	**824.5241**	**0.2667**		**831.1908**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286		1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**		**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1097	0.0773	0.8662	2.6000e-003	0.2709	2.1500e-003	0.2731	0.0719	1.9800e-003	0.0738		258.5894	258.5894	7.5100e-003		258.7772
Total	**0.1097**	**0.0773**	**0.8662**	**2.6000e-003**	**0.2709**	**2.1500e-003**	**0.2731**	**0.0719**	**1.9800e-003**	**0.0738**		**258.5894**	**258.5894**	**7.5100e-003**		**258.7772**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7214	6.7178	7.0899	0.0113		0.3534	0.3534		0.3286	0.3286	0.0000	1,035.3425	1,035.3425	0.3016		1,042.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7214**	**6.7178**	**7.0899**	**0.0113**		**0.3534**	**0.3534**		**0.3286**	**0.3286**	**0.0000**	**1,035.3425**	**1,035.3425**	**0.3016**		**1,042.8818**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1097	0.0773	0.8662	2.6000e-003	0.2709	2.1500e-003	0.2731	0.0719	1.9800e-003	0.0738		258.5894	258.5894	7.5100e-003		258.7772
Total	**0.1097**	**0.0773**	**0.8662**	**2.6000e-003**	**0.2709**	**2.1500e-003**	**0.2731**	**0.0719**	**1.9800e-003**	**0.0738**		**258.5894**	**258.5894**	**7.5100e-003**		**258.7772**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.5194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**13.7383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.5194					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**13.7383**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0207	0.1101	0.3107	1.1800e-003	0.1024	9.9000e-004	0.1034	0.0274	9.3000e-004	0.0283		120.1353	120.1353	6.0800e-003		120.2873
Unmitigated	0.0207	0.1101	0.3107	1.1800e-003	0.1024	9.9000e-004	0.1034	0.0274	9.3000e-004	0.0283		120.1353	120.1353	6.0800e-003		120.2873

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	9.52	9.91	8.62	45,911	45,911
Total	9.52	9.91	8.62	45,911	45,911

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
NaturalGas Unmitigated	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	70.6984	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Total		**7.6000e-004**	**6.5200e-003**	**2.7700e-003**	**4.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**		**8.3175**	**8.3175**	**1.6000e-004**	**1.5000e-004**	**8.3669**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	0.0706984	7.6000e-004	6.5200e-003	2.7700e-003	4.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004		8.3175	8.3175	1.6000e-004	1.5000e-004	8.3669
Total		**7.6000e-004**	**6.5200e-003**	**2.7700e-003**	**4.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**		**8.3175**	**8.3175**	**1.6000e-004**	**1.5000e-004**	**8.3669**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155
Unmitigated	0.4700	0.0177	0.3460	5.0000e-004		0.0369	0.0369		0.0369	0.0369	3.4653	18.1486	21.6138	4.9000e-004	6.4000e-004	21.8155

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0185					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2351	0.0168	0.2635	5.0000e-004		0.0364	0.0364		0.0364	0.0364	3.4653	18.0000	21.4653	3.4000e-004	6.4000e-004	21.6634
Landscaping	2.4900e-003	9.5000e-004	0.0826	0.0000		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.1486	0.1486	1.4000e-004		0.1521
Total	**0.4700**	**0.0177**	**0.3460**	**5.0000e-004**		**0.0369**	**0.0369**		**0.0369**	**0.0369**	**3.4653**	**18.1486**	**21.6138**	**4.8000e-004**	**6.4000e-004**	**21.8155**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0185					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2139					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2351	0.0168	0.2635	5.0000e-004		0.0364	0.0364		0.0364	0.0364	3.4653	18.0000	21.4653	3.4000e-004	6.4000e-004	21.6634
Landscaping	2.4900e-003	9.5000e-004	0.0826	0.0000		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004		0.1486	0.1486	1.4000e-004		0.1521
Total	**0.4700**	**0.0177**	**0.3460**	**5.0000e-004**		**0.0369**	**0.0369**		**0.0369**	**0.0369**	**3.4653**	**18.1486**	**21.6138**	**4.8000e-004**	**6.4000e-004**	**21.8155**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

24600 Thousand Peaks Road Project Fuel Consumption by Construction Phase Worksheet

Demolition			
diesel	**MT CO2**	**gasoline**	**MT CO2**
off road	0.00	worker trips	0
hauling	0.00		
Subtotal	**0.00**	**Subtotal**	**0**

Site Preparation			
diesel	**MT CO2**	**gasoline**	**MT CO2**
off road	0	worker trips	0
hauling	0		
Subtotal	**0**	**Subtotal**	**0**

Grading			
diesel	**MT CO2**	**gasoline**	**MT CO2**
off road	4.2	worker trips	0.7
hauling	19.2		
Subtotal	**23.4**	**Subtotal**	**0.7**

Building Construction (2021 and 2022)			
diesel	**MT CO2**	**gasoline**	**MT CO2**
off road	132.4	worker trips	0
vendor	0.00		
Subtotal	**132.40**	**Subtotal**	**0**

Paving			
diesel	**MT CO2**	**gasoline**	**MT CO2**
off road	2.3	worker trips	0.6
hauling	0		
Subtotal	**2.3**	**Subtotal**	**0.6**

Architectural Coating			
diesel	**MT CO2**	**gasoline**	**MT CO2**
off road	0.64	worker trips	0
Subtotal	**0.64**	**Subtotal**	**0**

	MT CO2	**lbs CO2**	lbs per gallon
Total Diesel CO2	158.74	349,962	22.4
(assumes vendors use diesel)			
Total Gasoline CO2	1.3	2,866	19.6
Total Diesel Gallons	**15,623**		
Total Gasoline Gallons	**146**		

MTCO2 emissions for each phase as reported in CalEEMod "Annual" output sheets from CalEEMod.2016.3.2 for 24600 Thousand Peaks Road Project

lbs per gallon factors from U.S. Energy Information Administration, Environment Carbon Dioxide Emissions Coefficients, Release date: February 2, 2016.

APPENDIX E-1

Biological Assessment

Biological Assessment for the

24600 Thousand Peaks Road Project




M A Y 2 0 1 5
(U p d a t e d D e c e m b e r 2 0 1 6)

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Biological Assessment for the 24600 Thousand Peaks Road Project, Los Angeles County, California (APN 4455-052-002)

Los Angeles County Department of Regional Planning Project Number R2014-03698

CDP 201400019, RENV 201400298

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MAY 2015
(UPDATED DECEMBER 2016)

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Biological Assessment for the 24600 Thousand Peaks Road Project, Los Angeles County, California

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Biological Assessment for the 24600 Thousand Peaks Road Project, Los Angeles County, California

1 INTRODUCTION AND PROJECT DESCRIPTION

Dudek has prepared this Biological Assessment (Report) on behalf of Adam Selkowitz in support of the California Environmental Quality Act (CEQA), federal and California Endangered Species Act (ESA), and Santa Monica Mountains Local Coastal Program (LCP) Local Implementation Plan (LIP) (County 2014a) review for the 24600 Thousand Peaks Road project (Project). The purpose of this report is to detail the methodology and results of the 2015 biological inventory survey and 2016 supplemental biological surveys performed within the Project site. The Project is associated with Los Angeles County Department of Regional Planning (LADRP) Project No. R2014-03698, Coastal Development Permit (CDP) 201400019, and RENV 201400298.

The proposed Project is located at 24600 Thousand Peaks Road (APN 4455-052-002), immediately west of Dry Canyon Cold Creek Road in unincorporated Los Angeles County south of the City of Calabasas (Figures 1 and 2). The entire parcel encompasses 11-acres (479,160 sq. ft.) and the Project proponent is proposing to build a single-family residence totaling approximately 8,096 sq. ft. on a previously graded pad totaling approximately 35,000 sq. ft. Additionally, hardscape features are proposed to total 3,567 sq. ft. Construction of the proposed Project will take place largely on a previously existing graded pad that, at the time of the 2015 field assessment, was devoid of vegetation cover. Existing trees will be trimmed/ removed as detailed below to facilitate construction of the proposed Project.

In accordance with Los Angeles County (County) regulations, a 200-foot fuel modification zone (FMZ) will be established and maintained as stipulated in County of Los Angeles Fire Department Fuel Modification Guidelines (LAFD 2011). Fuel modification in Zones A and B will take place in areas currently landscaped with a combination of native and ornamental species. Zones A and B, and a portion of Zone C to be revegetated will be irrigated. The irrigated portion of Zone C will only receive temporary irrigation with the goal of establishing self-sustaining habitat. A portion of Zone C located within a slope containing dense native chaparral vegetation and will not be irrigated. The fuel modification plan for the project is included in Appendix B

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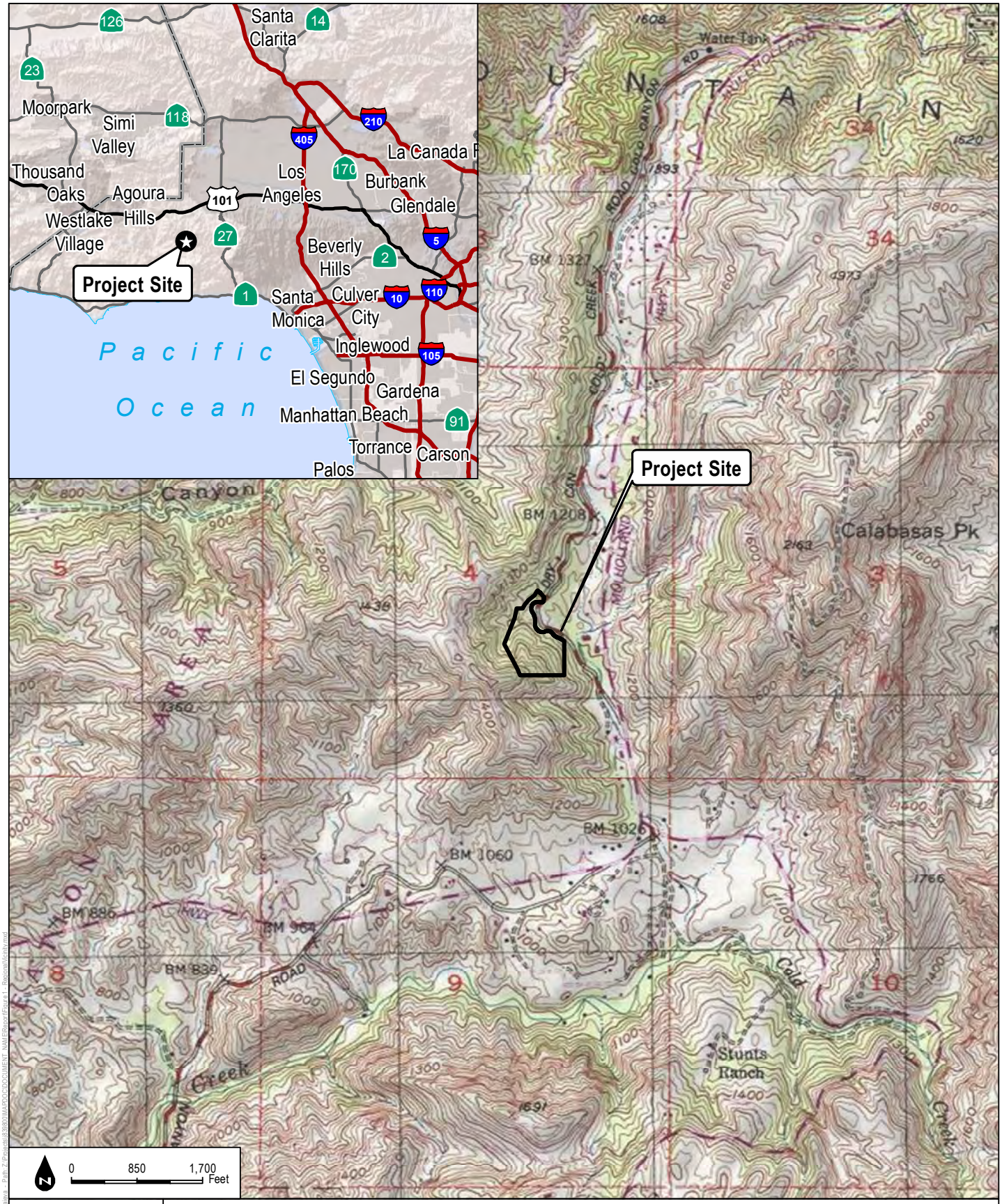

SOURCE: USGS 7.5-Minute Series Malibu Beach Quadrangle.

FIGURE 1

Regional and Vicinity Map

DUDEK

24600 Thousand Peaks CDP

Biological Assessment

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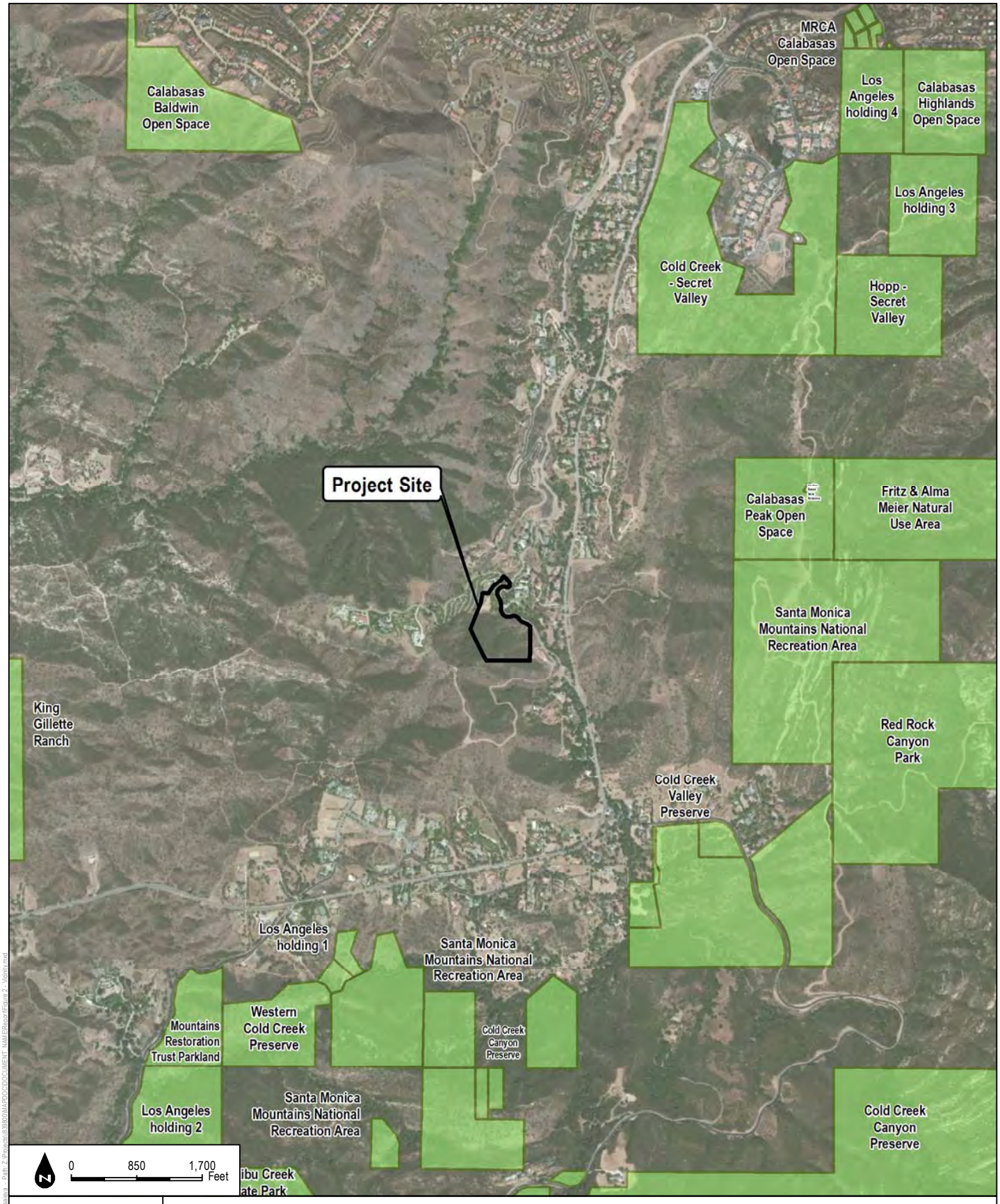

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SOURCE: Bing (accessed in 2016), CPAD 2016

FIGURE 2

Regional Development and Open Space

24600 Thousand Peaks CDP

Biological Assessment

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2 PROJECT SETTING

2.1 Project Location

The proposed Project is located south of the City of Calabasas, in unincorporated Los Angeles County, California, centered at latitude/longitude of 34°06′33.55″ N by 118°39′54.54″ W. The proposed Project is located in Township 1 South, Range 17 West, Section 4 of the Malibu Beach, California, USGS 7.5 Minute Series Quadrangle (Figures 1 and 2). Elevation within the proposed Project site is approximately 1,200 feet above mean sea level (amsl).

2.2 Soils

Soils within the proposed Project site have been previously disturbed by residential development and are comprised of fill material as a result of earth-moving/ grading operations. Natural Resource Conservation Service (NRCS) soil mapping data shows that prior to development of the proposed Project site the soil was comprised of Sumiwawa-Hipuk-Rock outcrop complex (30% to 75% slopes). South of the proposed project site, Cotharin clay loam (30% to 75% slopes) and Zumaridge-Kawenga association (30% to 75% slopes) soil types are present (NRCS 2015). Soil types present within the Project site are described in detail below. None of these soils is on the *National Hydric Soils List by State* (NRCS 2014).

> Sumiwawa-Hipuk-Rock outcrop complex (30% to 75% slopes) soils are formed from colluvium derived from sandstone and/ or residuum weathered from sandstone and form on hillsides. This soil complex is relatively shallow (approximately 30-inches to unweathered bedrock), somewhat well drained to somewhat excessively drained, with a typical soil profile of gravelly loamy sand in the 0- to 9-inch layer, sandy loam in the 9- to 13-inch layer, sandy clay loam in the 13- to 18-inch layer, and weathered to unweathered bedrock below 18-inches. (NRCS 2015).
>
> Cotharin clay loam (30% to 75% slopes) soils are formed from colluvium and/ or residuum derived from andesite and form on mountains and hills. This soil is shallow (approximately 14-inches to weathered bedrock), well drained, with a typical soil profile of decomposed plant matter (organic layer) in the 0- to 1-inch layer, loam in the 1- to 11-inch layer, and weathered bedrock below 11-inches. (NRCS 2015).
>
> Zumaridge-Kawenga association (30% to 75% slopes) soils are formed from colluvium and/ or residuum derived from sandstone and form on hillsides. This soil association ranges from shallow (approximately 13-inches to unweathered

bedrock for Zumaridge) to relatively deep (approximately 55-inches to weathered bedrock for Kawenga), is well drained, and has a typical soil profile of decomposed plant matter (organic layer) in the 0- to 2-inch layer, loam to gravelly loam in the 2- to 13-inch layer, and clay loam/ gravelly loam/ weathered bedrock in the 13- to 55-inch layer (NRCS 2015).

2.3 Terrain

The Project site occurs within upland habitat on generally flat terrain which has been previously altered by earth-moving/ grading operations and is located near a canyon bottom. Macro-topographic features in the immediate vicinity of the Project site consist of steep north- and east-facing slopes rising approximately 300 vertical feet above the subject property.

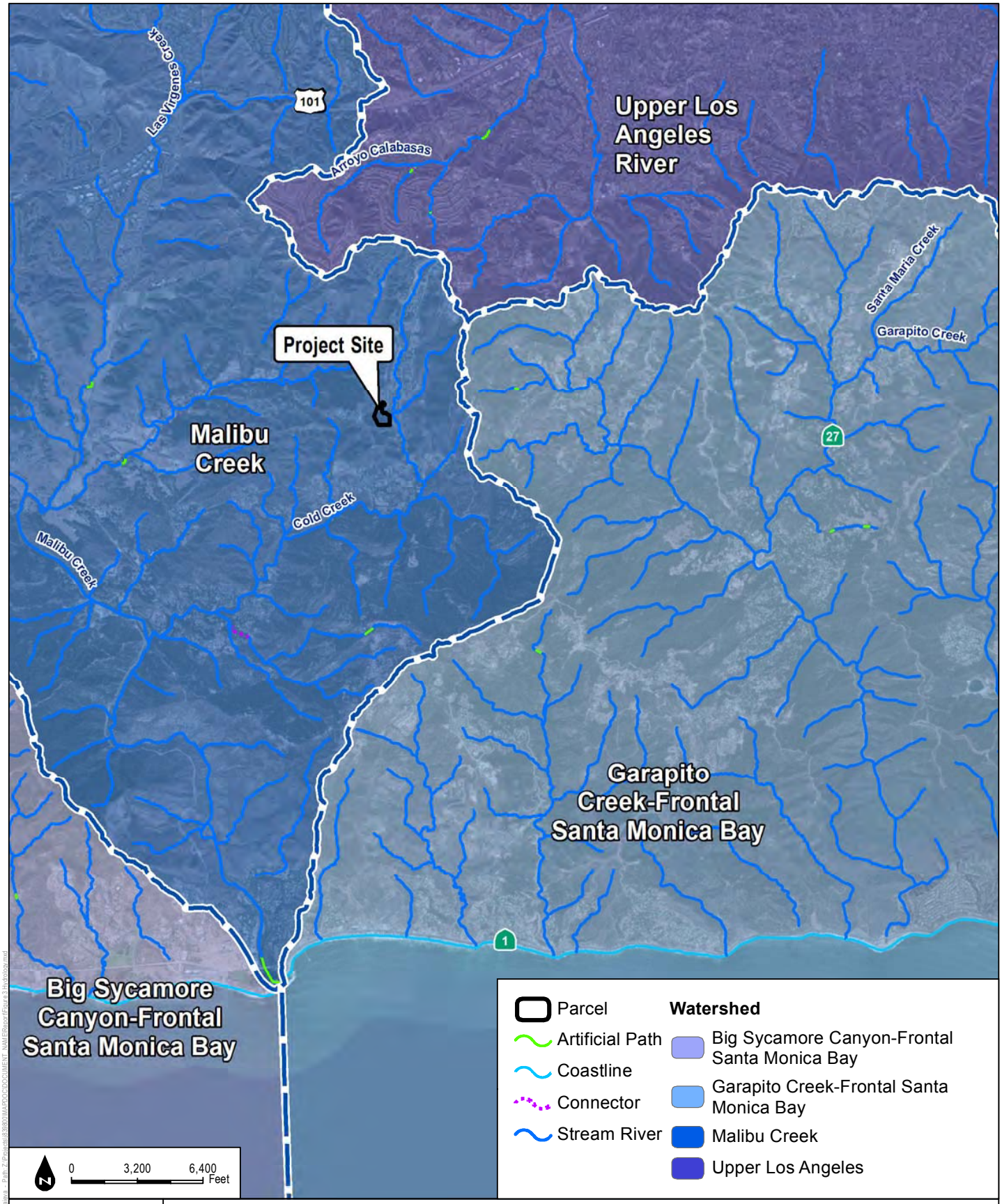
2.4 Land Uses

On-Site and Off-Site Land Uses

Existing land uses within the proposed Project site are limited to an undeveloped graded building pad. Existing land uses in the immediate vicinity of the Project site include private residences to the north and east, a landscaped slope to the west, and undisturbed open space to the south.

2.5 Hydrology

The Project is located in the Cold Creek sub-watershed which is within the Malibu Creek watershed. The primary source of surface water in the Project site is rainfall runoff from the slopes to the south of the Project site. The runoff flows in the canyon bottom to the southern edge of the previously graded building pad at which point flows enter an existing concrete v-ditch which extends to the east and flows into Dry Canyon, an unnamed tributary to Cold Creek. Flows enter Cold Creek approximately 1-mile downstream of the proposed Project site. Cold Creek ultimately flows into Malibu Creek which discharges into the Pacific Ocean at Malibu Lagoon to the southwest of the Project site. Watersheds and hydrologic features in the vicinity of the Project site are displayed on Figure 3.



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SOURCE: Bing (accessed in 2016), NHDPLUS CA 2016

FIGURE 3
Hydrology

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3 METHODS

3.1 Literature Review

Prior to conducting the field investigation, a review of the existing biological resources and species within the vicinity of the survey area was conducted using the CDFW California Natural Diversity Database (CNDDB) (CDFG 2011, CDFW 2015a, CDFW 2015b, 2015c, 2015d) and the California Native Plant Society *Inventory of Rare and Endangered Plants* (CNPS 2015). Special-status occurrence data was obtained from the above sources by querying records within the 6-quadrangle maps surrounding the Project site including the Malibu Beach, Thousand Oaks, Calabasas, Canoga Park, Point Dume, and Topanga USGS quadrangle maps. Note that no quadrangle maps exist south of the Malibu Beach quadrangle as this falls within the Pacific Ocean. The Santa Monica Mountains LCP/ LIP was reviewed for consistency and 2016 mapping data was utilized to determine potential impacts associated with the proposed Project. Santa Monica LCP/ LIP mapping data in relation to the proposed Project is displayed on Figure 4. U.S. Fish and Wildlife Service (USFWS) data (USFWS 2015) was queried in ArcGIS to determine other species present in the region with potential to occur on site. Additionally, the Los Angeles County Sensitive Bird Species (Audubon 2009) was referenced to determine potential for these species to occur within the Project site.

3.2 Field Reconnaissance

Dudek biologists Randall McInvale and Melissa Blundell conducted a reconnaissance-level field survey within the proposed Project site on May 3, 2015, between the hours of 0630 and 0830. The proposed Project site was methodically surveyed on foot and all resources and potential constraints were identified and inventoried. Survey conditions were suitable for determining potential biological constraints. Environmental conditions included 0% cloud cover, wind speeds ranging from 0 to 2 miles per hour (mph), and temperatures between 55°F and 62°F. A supplemental biological survey was completed on October 11, 2016 by Dudek biologist Randall McInvale between the hours of 1345 and 1700. Environmental conditions included 0% cloud cover, wind speeds ranging from 2 to 6 miles per hour (mph), and temperatures between 76°F and 78°F.

In support of the November 2016 update, a tree inventory of the Project site as well as those trees within 200-feet of the Project site was completed by Dudek certified arborist Ryan Gilmore on August 11, 2016. All tree species, including both native and non-native species, were inventoried.

3.2.1 Vegetation Community and Land Cover Mapping

Vegetation mapping was conducted in accordance with the CDFW List of Vegetation Alliances and Associations (CDFG 2010a). The Natural Communities List is based on *A Manual of California Vegetation, Second Ed.* (Sawyer et al. 2009) which is the California expression of the National Vegetation Classification. Land cover types not included in the Natural Communities List were mapped based on site characteristics that existed during the field survey.

3.2.2 Flora

The Project site was walked by Dudek biologist Randall McInvale. All plant species encountered during the field surveys were identified and recorded. Those species that could not be identified immediately were brought into the laboratory for further investigation. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the *California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2015). For plant species without a CRPR, Latin names follow the *Jepson Manual* (Baldwin et al. 2012) and the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2015) and common names follow the United States Department of Agriculture (USDA) Natural Resources Conservation Service PLANTS Database (USDA 2014). Appendix A contains a complete list of plant species observed during the survey. The site was surveyed for habitat and soil conditions that are known to support special-status plant species.

Trees species present within the Project site were inventoried by Dudek certified arborist, Ryan Gilmore. Each tree was mapped using a handheld Trimble global positioning system (GPS). Each tree was identified to species and data including number of stems, diameter at breast height (DBH), tree height, and canopy was collected. Tree health and structure were also evaluated.

3.2.3 Fauna

The Project site was walked by Dudek biologist Melissa Blundell, and all wildlife species, as detected during field surveys by sight, calls, tracks, scat, or other signs, were identified and recorded. In addition to species actually observed, expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area. No trapping or focused surveys for special-status or nocturnal species was conducted. Latin and common names for vertebrate species referred to in this report follow Crother (2012) for amphibians and reptiles, Wilson and Reeder (2005) for mammals, and American Ornithologists' Union (AOU) Checklist of North and Middle American Birds (AOU 2013) for birds. Appendix A contains a complete list of wildlife species observed during the survey.

3.2.4 Special-Status Resources

No special-status wildlife or plant species were observed within the Project site during the field surveys. All plant and wildlife species observed during the surveys are provided in Appendix A. Tables in Section 4.3.1 and Section 4.3.2 provide a list of all special-status wildlife and plant species that are known from the Project vicinity as well as a designation of their potential to occur within the Project site. Each of these special-status species' occurrence or potential for occurrence within the survey area is provided based on known range, habitat associations, and elevation.

3.2.5 Jurisdictional Determination

A formal wetland delineation/ jurisdictional determination was not completed within the Project site and surrounding area; however, an assessment of potentially jurisdictional water features was included in the field survey. The assessment included those features that would be regulated by the following federal and state agencies as:

- Waters of the United States, including wetlands, under the jurisdiction of ACOE, pursuant to Section 404 of the federal CWA
- Waters of the state under the jurisdiction of the California RWQCB, pursuant to Section 401 of the federal CWA and the Porter-Cologne Act as wetlands or drainages
- Streambeds under the jurisdiction of CDFW, pursuant to Section 1602 of the California Fish and Game Code

3.2.6 Survey Limitations

The initial survey was conducted during the spring season and the supplemental biological survey was completed in the fall season, which resulted in detection and identification of most annual and perennial plant species that may occur in the area. Due to the timing of the surveys, some summer-blooming annuals and cryptic perennials may not have been detected. During the 2015 survey, conditions were suitable for detection of most diurnal wildlife species (0% cloud cover, 55°F–62°F temperatures, and 0–2 mph winds) including both resident and summer visitor birds. The timing of the survey limited the observations of birds that may occur in the area during the winter or migration periods. Direct observation of mammal species was limited because the survey was conducted during the daytime when many of the species potentially occurring in the vicinity of the Project site are inactive (e.g., small rodents). Identification of mammals, therefore, primarily relied on detection of surface sign such as scat, burrows, and tracks. The purpose of the field survey was to determine the likelihood of occurrence of any

special-status or otherwise sensitive plant or wildlife species based on the presence/absence of suitable habitat and other natural history elements that might predict their occurrence.

Precipitation totals to this point in the 2014–2015 rainy season (July 2014 to May 2015) in the Santa Monica Mountains were below average, totaling between 8.0- to 9.1 inches (MesoWest 2015). Average annual precipitation for the Malibu Hills/ Calabasas ranges from 14-16 inches (WRCC 2015). This below-average rainfall total has the potential to reduce the germination and recruitment of annual plant species and may result in the non-detection of annual and cryptic perennial special-status species.

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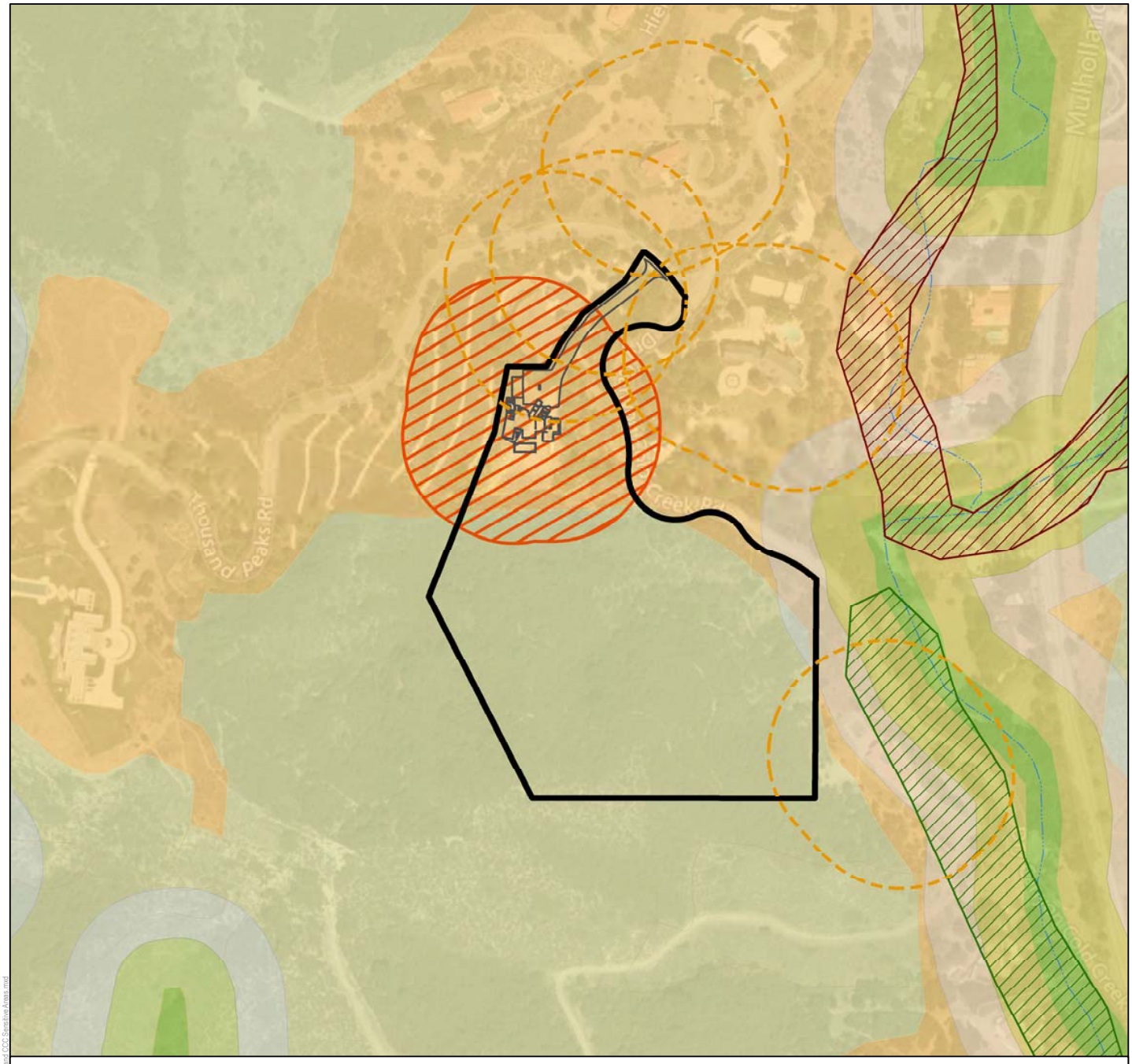

SOURCE: County of Los Angeles Department of Regional Planning, Santa Monica Mountains Local Coastal Program, Bing Maps

FIGURE 4

Santa Monica Mountains and California Coastal Commission Sensitive Areas

DUDEK

24600 Thousand Peaks CDP

Biological Assessment

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4 RESULTS

4.1 Vegetation Communities, Land Covers, and Floral Diversity

Vegetation mapping is limited to the 200-foot FMZ associated with the proposed Project as shown on Figure 5. Tree species and locations are also included on Figure 5. Overview photographs of the Project site are provided in Figure 6. Acreage of each vegetation community and land cover within the proposed Project site as well as the 200-foot FMZ is provided in Table 1.

Birchleaf Mountain Mahogany Chaparral

The birchleaf mountain mahogany chaparral alliance is recognized by the *Natural Communities List* (CDFG 2010a, 2010b), macrogroup MG043 (California chaparral) and CaCode 76.100.00. The alliance is described by Sawyer et al. (2009) as occurring on ridges, upper slopes of all aspects, made up of fractured rock outcrops, including limestone and marble, rarely flooded, rocky alluvium. Soils are shallow, rocky, and well drained. This vegetation is designated as a Sensitive Environmental Resource Area (SERA) H2 by the Santa Monica Mountains LCP/ Land Use Plan (LUP) (County 2014b).

Species associated with the birchleaf mountain mahogany chaparral alliance include chamise (*Adenostoma fasciculatum*), California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), black sage (*Salvia mellifera*), hoaryleaf ceanothus (*Ceanothus crassifolius*), and coast live oak (*Quercus agrifolia*) (Sawyer et al. 2009).

Birchleaf mountain mahogany chaparral comprises a portion of the 200-foot FMZ associated with the proposed Project and is made of primarily of shrub species, including birchleaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides*), ceanothus (*Ceanothus* sp.), California buckwheat, chamise, climbing penstemon (*Keckiella cordifolia*), coyote brush (*Baccharis pilularis*), black sage, coastal goldenbush (*Isocoma menziesii*) on site. The alliance is very dense with very few openings present throughout.

Survey results found that this vegetation community immediately adjacent to the previously graded building pad has been disturbed as evidenced by the presence of concrete drainage channels south of the existing retaining wall (Figure 5). The vegetation has regenerated to mature levels since this disturbance; however, few non-native species were observed at the border between the birchleaf mountain mahogany chaparral and the existing retaining wall including isolated wattle (*Acacia* sp.) and Spanish broom (*Spartium junceum*).

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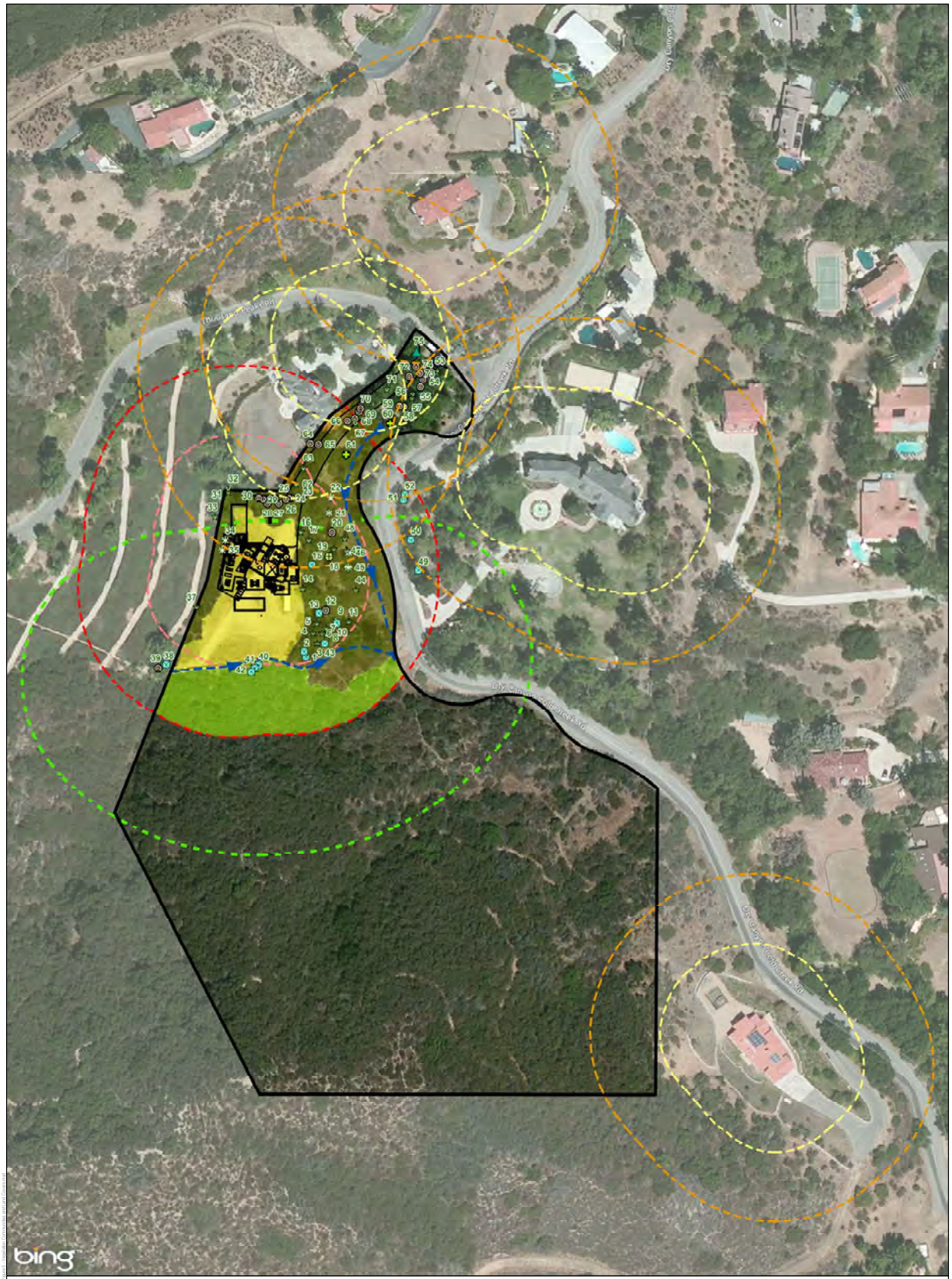

Project Parcel
Project Footprint
Potential Juridictional Waters
100-foot Fuel Modification Zone
200-foot Fuel Modification Zone
200' Mahogany Chaparral Buffer
100-foot Adjacent Fuel Modification
200-foot Adjacent Fuel Modification

Vegetation

Landcover

Developed
Disturbed
Mahogany Chaparral
Ornamental Landscape

N
0 65 130 Feet

DUDEK

SOURCE: Bing Maps, Dudek Vegetation(2015)

FIGURE 5
Vegetation Communities and Land Covers

24600 Thousand Peaks CDP

Biological Assessment

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Photo 1: View of the previously graded building pad, facing north

Photo 2: View of the birchleaf mountain mahogany chaparral south of the previously graded building pad, facing south

Photo 3: View of the ornamental landscape surrounding the previously graded building pad, facing west

Photo 4: View of the existing access road, facing north

Photo 5: View of the concrete drainage channels within the birchleaf mountain mahogany chaparral vegetation, facing south

Photo 6: View of the potential jurisdictional waterway north of the existing retaining wall, facing east

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Developed Land

Developed land refers to areas supporting man-made structures including homes, yards, roadways, and other highly modified lands supporting structures associated with dwellings or other permanent structures. Within the proposed Project site, developed land refers to existing homes, paved roads, and concrete drainage features within the landscaped slope. No vegetation is present in these areas with the exception of landscaped areas associated with existing homes.

Disturbed Land

Disturbed land refers to areas that display some level of human impact; however, these areas do not reflect the type and intensity of usage to be described as developed. On site, disturbed land is limited to the existing 35,000 sq. ft. graded building pad. No vegetation is present in this area and it appears to be regularly maintained via scraping.

Ornamental Landscape

Ornamental landscape refers to areas that are dominated by non-native ornamental plant species and are supported by irrigation. On site, these areas are present to the north, east, and west of the previously graded building pad. Non-native species present in these areas include wattle, saltcedar (*Tamarix ramosissima*), tree-of-heaven (*Ailanthus altissima*), Peruvian peppertree (*Schinus molle*), and Aleppo pine (*Pinus halepensis*). Several native species were observed within the ornamental landscape including Fremont cottonwood (*Populus fremontii*), which is presumed to have been planted. Other native species presumed to have recruited naturally include coyote brush and bush mallow (*Malacothamnus fasciculatus*).

Table 1
Vegetation Communities and Land Cover Acreage

Macrogroup / Description	Scientific Name	Acres
MG043 / birchleaf mountain mahogany chaparral	*Cercocarpus [montanus] betuloides*	0.33
Ornamental Landscape	N/A	2.71
Developed land	N/A	0.97
Disturbed land	N/A	0.59
	Total	**4.60**

Sources: CDFG 2010a, 2010b.
N/A = not applicable

4.2 Trees

The tree inventory completed in August 2016 recorded a total of 75 trees within 200-feet of the Project site. Tree species present within and adjacent to the Project site include coast live oak, Fremont cottonwood, Aleppo pine, California sycamore (*Platanus racemosa*), Peruvian pepper, Chinese flame tree (*Koelreuteria bipinnata*), Sargent cypress (*Cupressus sargentii*), Chinese flame tree (*Koelrueteria bipinnata*), and Chinese pistache (*Pistacia chinensis*). Recorded tree metrics are included in Appendix C.

4.3 Wildlife

A total of 18 bird species were detected during the field survey. No reptiles or mammals were directly observed on site; however, indicative sign (e.g. tracks, scat, fur) of mammal species was observed on site, indicating mammal use of the Project site. Coyote (*Canis latrans*) scat was observed within the vicinity of the Project site and several gopher holes, presumably Botta's pocket gopher (*Thomomys bottae*), were observed in the previously graded portion of the Project site.

No fish or amphibians were observed during the field survey; however, an unnamed tributary to Cold Creek is located immediately southwest of the Project site and may provide suitable habitat for and amphibians. The tributary was observed to be dry during the field survey and therefore does not provide suitable habitat for fish.

4.4 Special-Status/Regulated Resources

The following resources are discussed in this section: (1) plant and animal species present or potentially present on the Project Site that have special designations due to declining, limited, or threatened populations; (2) habitat areas that are unique, of relatively limited distribution, or of particular value to wildlife; and (3) vegetation communities that are unique, of relatively limited distribution, or of particular value to wildlife.

Sources used for determination of special-status biological resources are as follows:

- State- and federally listed plant species (CDFW 2015c)
- CNPS CRPR 1B, 2, 3, and 4 species (CNPS 2015)
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2015b)
- CDFW natural communities (CDFG 2010a, 2010b)
- Special Animals List (CDFG 2011)

- CNDDB (CDFW 2015b)

4.4.1 Special-Status Plant Species

Tables 2 and 3 present the special-status plants known to occur in the vicinity of the Project site. Table 2 includes special-status plant species observed or with moderate to high potential to occur within the Project site and Table 3 includes special-status species not observed and not expected to occur within the Project site. Special-status species included in Table 2 are analyzed further below due to the potential direct, indirect, or cumulative impacts to occur to these species. No further analysis of special-status plant species in Table 3 is included since no direct, indirect, or cumulative impacts are expected.

Table 2
Special-Status Plants with Moderate to High Potential to Occur in Project Site

Common Name	Scientific Name	Federal/State Status1	CRPR	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
western spleenwort	*Asplenium vespertinum*	None/ None	4.2	Chaparral, Cismontane woodland, Coastal scrub/rocky/ perennial rhizomatous herb/ Feb-Jun/ 591-3,281 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
Catalina mariposa lily	*Calochortus catalinae*	None/ None	4.2	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/ perennial bulbiferous herb/ (Feb),Mar-Jun/ 49-2,297 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
slender mariposa lily	*Calochortus clavatus var. gracilis*	None/ None	1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/ perennial bulbiferous herb/ Mar-Jun/ 1,050-3,281 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
Plummer's mariposa lily	*Calochortus plummerae*	None/ None	4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill	Moderate potential to occur in native habitat south of the proposed Project site. Project is

Table 2
Special-Status Plants with Moderate to High Potential to Occur in Project Site

Common Name	Scientific Name	Federal/State Status1	CRPR	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
				grassland/granitic, rocky/ perennial bulbiferous herb/ May-Jul/ 328-5,577 ft	within the elevation range for this species. Suitable vegetation present.
island mountain-mahogany	*Cercocarpus betuloides var. blancheae*	None/ None	4.3	Closed-cone coniferous forest, Chaparral/ perennial evergreen shrub/ Feb-May/ 98-1,969 ft	Moderate potential to occur in native habitat south of the proposed Project site. All *Cercocarpus* identified on site was var. *betuloides;* however, there is potential for this species to occur. Project is within the elevation range for this species. Suitable vegetation present.
Santa Susana tarplant	*Deinandra minthornii*	None/ CR	1B.2	Chaparral, Coastal scrub/rocky/ perennial deciduous shrub/ Jul-Nov/ 919-2,493 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
Santa Monica dudleya	*Dudleya cymosa ssp. ovatifolia*	FT/ None	1B.1	Chaparral, Coastal scrub/volcanic or sedimentary, rocky/ perennial herb/ Mar-Jun/ 492-5,495 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
white-veined monardella	*Monardella hypoleuca ssp. hypoleuca*	None/ None	1B.3	Chaparral, Cismontane woodland/ perennial herb/ (Apr),May-Aug(Sep),(Oct),(Nov),(Dec)/ 164-5,003 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
Ojai navarretia	*Navarretia ojaiensis*	None/ None	1B.1	Chaparral(openings), Coastal scrub(openings), Valley and foothill grassland/ annual herb/ May-Jul/ 902-	Moderate potential to occur in native habitat south of the proposed

Table 2
Special-Status Plants with Moderate to High Potential to Occur in Project Site

Common Name	Scientific Name	Federal/State Status1	CRPR	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
				2,034 ft	Project site. Project is within the elevation range for this species. Suitable vegetation present.
chaparral nolina	*Nolina cismontana*	None/ None	1B.2	Chaparral, Coastal scrub/sandstone or gabbro/ perennial evergreen shrub/ (Mar),May-Jul/ 459-4,183 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
Hubby's phacelia	*Phacelia hubbyi*	None/ None	4.2	Chaparral, Coastal scrub, Valley and foothill grassland/gravelly, rocky, talus/ annual herb/ Apr-Jul/ 0-3,281 ft	Moderate potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
Ventura marsh milk-vetch	*Astragalus pycnostachyus var. lanosissimus*	FE/ CE	1B.1	Coastal dunes, Coastal scrub, Marshes and swamps(edges, coastal salt or brackish)/ perennial herb/ Jun-Oct/ 3-115 ft	Absent on the Project site. Project is outside of elevation range for this species. No suitable vegetation present. Survey conducted during blooming period and would have been identified, if present.
coastal dunes milk-vetch	*Astragalus tener var. titi*	FE/ CE	1B.1	Coastal bluff scrub(sandy), Coastal dunes, Coastal prairie(mesic)/often vernally mesic areas/ annual herb/ Mar-May/ 3-164 ft	Absent on the Project site. Project is outside of elevation range for this species. No

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
					suitable vegetation present. Survey conducted during blooming period and would have been identified, if present.
Davidson's saltscale	*Atriplex serenana var. davidsonii*	None/ None	1B.2	Coastal bluff scrub, Coastal scrub/alkaline/ annual herb/ Apr-Oct/ 33-656 ft	Not expected to occur on the Project site. Project is outside of elevation range for this species.
Malibu baccharis	*Baccharis malibuensis*	None/ None	1B.1	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/ perennial deciduous shrub/ Aug/ 492-1001 ft	Not expected to occur on the Project site. Project is outside of elevation range for this species.
Lewis' evening-primrose	*Camissoniopsis lewisii*	None/ None	3	Coastal bluff scrub, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland/sandy or clay/ annual herb/ Mar-May(Jun)/ 0-984 ft	Not expected to occur on the Project site. Project is outside of elevation range for this species.
salt marsh bird's-beak	*Chloropyron maritimum ssp. maritimum*	FE/ CE	1B.2	Coastal dunes, Marshes and swamps(coastal salt)/ annual herb (hemiparasitic)/ May-Oct/ 0-98 ft	Absent on the Project site. Project is outside of elevation range for this species. No suitable vegetation present.
dune larkspur	*Delphinium parryi ssp. blochmaniae*	None/ None	1B.2	Chaparral(maritime), Coastal dunes/ perennial herb/ Apr-Jun/ 0-656 ft	Absent on the Project site. Project is outside of elevation range for this species. No suitable vegetation present.
Mt. Pinos larkspur	*Delphinium parryi ssp. purpureum*	None/ None	4.3	Chaparral, Mojavean desert scrub, Pinyon and juniper woodland/ perennial herb/ May-Jun/ 3,281-8,530 ft	Absent on the Project site. Project is outside of elevation range for this species. No suitable vegetation present.
beach spectaclepod	*Dithyrea maritima*	None/ CT	1B.1	Coastal dunes, Coastal scrub(sandy)/ perennial rhizomatous herb/ Mar-May/ 10-164 ft	Not expected to occur on the Project site. Project is outside of elevation range for this species. No suitable

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
					habitat present.
decumbent goldenbush	*Isocoma menziesii var. decumbens*	None/ None	1B.2	Chaparral, Coastal scrub(sandy, often in disturbed areas)/ perennial shrub/ Apr-Nov/ 33-443 ft	Not expected to occur on the Project site. Project is outside of elevation range for this species. No suitable habitat present.
south coast branching phacelia	*Phacelia ramosissima var. austrolitoralis*	None/ None	3.2	Chaparral, Coastal dunes, Coastal scrub, Marshes and swamps(coastal salt)/sandy, sometimes rocky/ perennial herb/ Mar-Aug/ 16-984 ft	Not expected to occur on the Project site. Project is outside of elevation range for this species.
Braunton's milk-vetch	*Astragalus brauntonii*	FE/ None	1B.1	Chaparral, Coastal scrub, Valley and foothill grassland/recent burns or disturbed areas, usually sandstone with carbonate layers/ perennial herb/ Jan-Aug/ 13-2,100 ft	Low potential to occur on the Project site. Project is within the elevation range for this species. Suitable habitat present. No recently burned areas. Survey conducted during blooming period and this perennial herb would have been identified in the disturbed areas, if present.
Coulter's saltbush	*Atriplex coulteri*	None/ None	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland/alkaline or clay/ perennial herb/ Mar-Oct/ 10-1,509 ft	Low potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. No suitable vegetation present.
Parish's brittlescale	*Atriplex parishii*	None/ None	1B.1	Chenopod scrub, Playas, Vernal pools/alkaline/ annual herb/ Jun-Oct/ 82-6,234 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. No suitable vegetation present.
Brewer's calandrinia	*Calandrinia breweri*	None/ None	4.2	Chaparral, Coastal scrub/sandy or loamy, disturbed sites and burns/ annual herb/ Mar-Jun/ 33-4,003 ft	Low potential to occur on the Project site. Project is within the elevation range for this species. Suitable

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
					habitat present. No recently burned areas. Survey conducted during blooming period and this perennial herb would have been identified in the disturbed areas, if present.
round-leaved filaree	*California macrophylla*	None/ None	1B.1	Cismontane woodland, Valley and foothill grassland/clay/ annual herb/ Mar-May/ 49-3,937 ft	Low potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present but suitable clay soils are not present.
club-haired mariposa lily	*Calochortus clavatus var. clavatus*	None/ None	4.3	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/usually serpentinite, clay, rocky/ perennial bulbiferous herb/ May-Jun/ 246-4,265 ft	Low potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present but suitable serpentine/ clay soils are not present.
southern tarplant	*Centromadia parryi ssp. australis*	None/ None	1B.1	Marshes and swamps(margins), Valley and foothill grassland(vernally mesic), Vernal pools/ annual herb/ May-Nov/ 0-1,575 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. No suitable mesic habitat present.
San Fernando Valley spineflower	*Chorizanthe parryi var. fernandina*	FC/ CE	1B.1	Coastal scrub(sandy), Valley and foothill grassland/ annual herb/ Apr-Jul/ 492-4,003 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. No suitable habitat present.

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
Parry's spineflower	*Chorizanthe parryi var. parryi*	None/ None	1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/sandy or rocky, openings/ annual herb/ Apr-Jun/ 902-4,003 ft	Low potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present.
small-flowered morning-glory	*Convolvulus simulans*	None/ None	4.2	Chaparral(openings), Coastal scrub, Valley and foothill grassland/clay, serpentinite seeps/ annual herb/ Mar-Jul/ 98-2,297 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. Suitable vegetation present but preferred serpentinite seeps are not present.
Blochman's dudleya	*Dudleya blochmaniae ssp. blochmaniae*	None/ None	1B.1	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland/rocky, often clay or serpentinite/ perennial herb/ Apr-Jun/ 16-1,476 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. Suitable vegetation present but preferred serpentine/ clay substrate is not present.
Agoura Hills dudleya	*Dudleya cymosa ssp. agourensis*	FT/ None	1B.2	Chaparral, Cismontane woodland/rocky, volcanic/ perennial herb/ May-Jun/ 656-1,640 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. Suitable vegetation present but preferred volcanic substrate is not present.
marcescent dudleya	*Dudleya cymosa ssp. marcescens*	FT/ CR	1B.2	Chaparral/volcanic, rocky/ perennial herb/ Apr-Jul/ 492-1,706 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. Suitable vegetation present but preferred volcanic substrate is not present
many-	*Dudleya*	None/	1B.2	Chaparral, Coastal scrub, Valley and	Low potential to occur

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
stemmed dudleya	*multicaulis*	None		foothill grassland/often clay/ perennial herb/ Apr-Jul/ 49-2,592 ft	in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present but preferred clay soil is not present.
Conejo dudleya	*Dudleya parva*	FT/ None	1B.2	Coastal scrub, Valley and foothill grassland/rocky or gravelly, clay or volcanic/ perennial herb/ May-Jun/ 197-1,476 ft	Low potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. No suitable vegetation present.
Conejo buckwheat	*Eriogonum crocatum*	None/ CR	1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/Conejo volcanic outcrops, rocky/ perennial herb/ Apr-Jul/ 164-1,903 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. Suitable habitat present but preferred volcanic outcrop substrate is not present.
vernal barley	*Hordeum intercedens*	None/ None	3.2	Coastal dunes, Coastal scrub, Valley and foothill grassland(saline flats and depressions), Vernal pools/ annual herb/ Mar-Jun/ 16-3,281 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. No suitable habitat present.
Southern California black walnut	*Juglans californica*	None/ None	4.2	Chaparral, Cismontane woodland, Coastal scrub/alluvial/ perennial deciduous tree/ Mar-Aug/ 164-2,953 ft	Absent on the Project site. Project is within the elevation range for this species but this perennial species would have been identified, if present.
Coulter's goldfields	*Lasthenia glabrata ssp. coulteri*	None/ None	1B.1	Marshes and swamps(coastal salt), Playas, Vernal pools/ annual herb/ Feb-Jun/ 3-4,003 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. No suitable habitat present.

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
ocellated Humboldt lily	*Lilium humboldtii ssp. ocellatum*	None/ None	4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland/openings/ perennial bulbiferous herb/ Mar-Jul(Aug)/ 98-5,906 ft	Low potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present; however, available habitat may not provide suitable mesic conditions.
California Orcutt grass	*Orcuttia californica*	FE/ CE	1B.1	Vernal pools/ annual herb/ Apr-Aug/ 49-2,165 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. No suitable habitat present.
Lyon's pentachaeta	*Pentachaeta lyonii*	FE/ CE	1B.1	Chaparral(openings), Coastal scrub, Valley and foothill grassland/rocky, clay/ annual herb/ Mar-Aug/ 98-2,067 ft	Low potential to occur in native habitat south of the proposed Project site. Project is within the elevation range for this species. Suitable vegetation present but clay soil is not present.
salt spring checkerbloom	*Sidalcea neomexicana*	None/ None	2B.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas/alkaline, mesic/ perennial herb/ Mar-Jun/ 49-5,020 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. Suitable vegetation present but playas/ alkaline areas are not present.
Sonoran maiden fern	*Thelypteris puberula var. sonorensis*	None/ None	2B.2	Meadows and seeps(seeps and streams)/ perennial rhizomatous herb/ Jan-Sep/ 164-2,001 ft	Not expected to occur on the Project site. Project is within the elevation range for this species. No suitable habitat present.
California screw-moss	*Tortula californica*	None/ None	1B.2	Chenopod scrub, Valley and foothill grassland/sandy, soil/ moss/ N.A./ 33-4,790 ft	Not expected to occur on the Project site. Project is within the elevation range for this

Table 3
Special-Status Plants Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/ State Status[1]	CRPR[1]	Primary Habitat Associations/Life Form/Blooming Period/Elevation (amsl)	Status on Site or Potential to Occur
					species. No suitable habitat present.

[1] Regulatory Status (CDFW 2011, 2015b, 2015c, 2015d; CNPS 2015)
State Designations
ST: State threatened
SE: State endangered
CSC: Species of special concern species; considered by CDFW as possibly facing extinction in California due to declining populations or habitat.
WL: CDFW watch list
California Rare Plant Rank (CRPR)
1A: Plants presumed extinct in California
1B: Plants rare, threatened, or endangered in California and elsewhere
2: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which we need more information–a review list
4: Plants of limited distribution–a watch list
Threat Ranks
0.1: Seriously threatened in California (high degree/immediacy of threat)
0.2: Fairly threatened in California (moderate degree/immediacy of threat)
0.3: Not very threatened in California (low degree/immediacy of threats or no current threats known)
Federal Designations
FE: Species listed as endangered by USFWS
FT: Species listed as threatened by USFWS

4.4.2 Special-Status Wildlife Species

Tables 4 and 5 present the special-status wildlife species known to occur in the vicinity of the Project site. Table 4 includes special-status wildlife species observed or with moderate to high potential to occur within the Project site and Table 5 includes special-status wildlife species not observed and not expected to occur within the Project site. Special-status species included in Table 4 are analyzed further below due to the potential direct, indirect, or cumulative impacts to occur to these species. No further analysis of special-status wildlife species in Table 5 is included since no direct, indirect, or cumulative impacts are expected.

Table 4
Special-Status Wildlife Species with Moderate to High Potential to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
Birds				
Cooper's hawk	*Accipiter cooperii*	None/ WL	Dense stands of live oak, riparian deciduous, or other forest habitats near water used most frequently.	Moderate potential to forage on the Project site and nesting habitat is available in the immediate vicinity.
southern California rufous-crowned	*Aimophila ruficeps canescens*	None/ WL	Grass-covered hillsides, coastal sage scrub, chaparral with	Moderate potential to forage on the Project site and

Table 4
Special-Status Wildlife Species with Moderate to High Potential to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
sparrow			boulders and outcrops.	nesting habitat is available in the immediate vicinity.
golden eagle	*Aquila chrysaetos*	None/ FP-WL	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Moderate potential to forage on the Project site. No nesting habitat available.
lesser nighthawk	*Chordeiles acutipennis*	None/ None/ County Sensitive	Arid scrub, dry grassland, desert washes. Found in open arid habitats including desert, grassland, brushy country.	Moderate potential to forage and nest on the Project site.
greater roadrunner	*Geococcyx californianus*	None/ None/ County Sensitive	Deserts, open country with scattered brush. Most common in Sonoran desert and in other kinds of brushy country, including chaparral and Texas brushlands, in areas with a mix of open ground and dense low cover.	Moderate potential to forage and nest in the chaparral vegetation south of the Project site.
loggerhead shriks	*Lanius ludovicianus*	None/ CSC/ County Sensitive	Semi-open country with lookout posts; wires, trees, scrub. Breeds in any kind of semi-open terrain, from large clearings in wooded regions to open grassland or desert with a few scattered trees or large shrubs.	Moderate potential to forage and nest in the chaparral vegetation south of the Project site.
hairy woodpecker	*Picoides villosus*	None/ None/ County Sensitive	Forests, woodlands, river groves, shade trees. Accepts wide variety of habitats so long as large trees present; found in deciduous, coniferous, and mixed forest, groves along rivers in prairie country, open juniper woodland, swamps.	Moderate potential to forage and nest in the woodland within and in the vicinity of the Project site.
coastal California gnatcatcher	*Polioptila californica californica*	FT/ CSC	Low, dense coastal scrub habitat in arid washes, on mesas, and on slopes of coastal hills. California buckwheat, coastal sage, and patches of pricklypear are particularly favored.	Moderate potential to forage on the Project site. No nesting habitat available.
peregrine falcon	*Falco peregrinus anatum*	Delisted/ FP	Nests on cliffs, buildings, bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Moderate potential to forage over the Project site. No nesting habitat available on site but suitable nesting habitat is available in the

Table 4
Special-Status Wildlife Species with Moderate to High Potential to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
				vicinity.
Mammals				
pallid bat	*Antrozous pallidus*	None/ CSC	Open habitats, rocky crevices, tree cavities, mines, caves, or buildings for maternity roosts. Deep crevices are important for day roosts	Moderate potential to forage on the Project site as well as tributary to Malibu Creek adjacent to the Project site. Roosting habitat available on site and in the immediate vicinity.
Townsend's big-eared bat	*Corynorhinus townsendii*	None/ Candidate Threatened	Nocturnal, roosts in caves, uses wide variety of habitats although usually mesic areas for foraging	Moderate potential to forage on the Project site as well as tributary to Malibu Creek adjacent to the Project site. Roosting habitat available in the vicinity.
western mastiff bat	*Eumops perotis californicus*	None/ CSC	Extensive open areas with abundant roost locations provided by crevices in rock outcrops and buildings.	Moderate potential to forage and roost in the vicinity.
western red bat	*Lasiurus blossevillii*	None/ CSC	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	Moderate potential to forage and roost in the vicinity.
hoary bat	*Lasiurus cinereus*	None/ None	Prefers open habitats or mosaics, with access to trees for cover and open areas or edges for feeding. Roosts in dense foliage of medium to large trees. Requires water.	Moderate potential to forage on the Project site as well as tributary to Malibu Creek adjacent to the Project site. Roosting habitat available on site and in the immediate vicinity.
western small-footed myotis	*Myotis ciliolabrum*	None/ None	Wide variety; mostly arid wooded and brushy uplands near water, seeks cover in caves, buildings, nests, and crevices. Prefers open stands in forests and woodlands, requires water.	Moderate potential to forage on the Project site as well as tributary to Malibu Creek adjacent to the Project site. Roosting habitat available on site and in the immediate vicinity.
Yuma myotis	*Myotis yumanensis*	None/ None	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Moderate potential to forage and roost in the vicinity.

Table 4
Special-Status Wildlife Species with Moderate to High Potential to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
San Diego desert woodrat	*Neotoma lepida intermedia*	None/ CSC	The house usually is built against a rock crevice, at the base of creosote or cactus, or in the lower branches of trees. Rock crevices appear preferred where available, but woodrats generally adapt to virtually any situation. Houses are used for nesting, food caching, and predator escape.	Moderate potential to occur in the habitat south of the Project site.

Table 5
Special-Status Wildlife Species Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
Amphibians				
arroyo toad	*Anaxyrus californicus*	Endangered/ CSC	Stream channels for breeding(typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur on the Project site. No suitable habitat present.
California red-legged frog	*Rana draytonii*	Threatened/ CSC	Found mainly near ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams.	Not expected to occur on the Project site. No suitable habitat present.
Reptiles				
western pond turtle	*Actiemys marmorata*	None/ CSC	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter	Not expected to occur on the Project site. No suitable habitat present.
silvery legless lizard	*Anniella pulchra pulchra*	None/ CSC	Common in several habitats but especially in coastal dune, valley-foothill, chaparral, and coastal scrub types.	Not expected to occur on the Project site. Some potential to occur in the vicinity.
coastal whiptail	*Aspidoscelis tigris stejnegeri*	None/ None	Found in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas.	Not expected to occur on the Project site. Some potential to occur in the vicinity.

Table 5
Special-Status Wildlife Species Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
San Bernardino ringneck snake	*Diadophis punctatus modestus*	None/ None	Open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats.	Not expected to occur on the Project site. Some potential to occur in the vicinity.
California mountain kingsnake (San Diego population)	*Lampropeltis zonata (pulchra)*	None/ CSC	Coniferous forest, oak-pine woodlands, riparian woodland, chaparral, manzanita, and coastal sage scrub.	Not expected to occur on the Project site. Some potential to occur in the vicinity.
coast horned lizard	*Phrynosoma blainvillii*	None/ CSC	Coastal sage scrub, annual grassland, chaparral, oak and riparian woodland, coniferous forest	Not expected to occur on the Project site. Some potential to occur in the vicinity.
two-striped garter snake	*Thamnophis hammondii*	None/ CSC	Coastal California from vicinity of Salinas to northwest Baja California from sea level to about 7,000 feet elevation.	Not expected to occur on the Project site. Some potential to occur in the vicinity.
Birds				
tricolored blackbird	*Agelaius tricolor*	None/ Endangered	Seeks cover in emergent wetland vegetation, especially cattails and tules; also in trees and shrubs. Roosts in large flocks in emergent wetland or in trees	Low potential to forage over the Project site. Not expected to nest in the vicinity.
burrowing owl	*Athene cunicularia*	None/ CSC	Open, dry grasslands, deserts, and scrublands with low-growing vegetation.	Low potential to forage on the Project site. No suitable burrows observed during the field survey. Not expected to nest on site.
Swainson's hawk	*Buteo swainsoni*	None/ Threatened	Open grassland, shrublands, croplands	Low potential to forage over the Project site during migration. Not known to nest in the vicinity.
bank swallow	*Riparia riparia*	None/ Threatened	Found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. In migration, flocks with other swallows over many open	Not expected to occur on the Project site. The tributary to Malibu Creek adjacent to the Project site may provide suitable foraging habitat for this species.

Table 5
Special-Status Wildlife Species Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
			habitats.	
least Bell's vireo	*Vireo bellii pusillus*	Endangered/ Endangered	Nests in southern willow scrub with dense cover within 1-2 meters of the ground; habitat includes willows, cottonwoods, baccharis, wild blackberry or mesquite on desert areas.	Not expected to occur on the Project site. No suitable habitat in the vicinity.
Mammals				
California leaf-nosed bat	*Macrotus californicus*	None/ CSC	Habitats occupied include desert riparian, desert wash, desert scrub, desert succulent shrub, alkali desert scrub, and palm oasis.	Not expected to occur. Outside of known range.
American badger	*Taxidea taxus*	None/ CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Not expected to occur on the Project site. Some potential to occur in the vicinity.
Fish				
tidewater goby	*Eucyclogobius newberryi*	Endangered/ CSC	Lagoons and streams of coastal California.	Absent. No suitable habitat present.
arroyo chub	*Gila orcuttii*	None/ CSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths > 40 centimeters; substrates of sand or mud	Absent. No suitable habitat present.
southern steelhead - southern California DPS	*Oncorhynchus mykiss irideus*	Endangered/ CSC	Freshwater streams.	Absent. No suitable habitat present.
Invertebrates				
monarch (California overwintering population)	*Danaus plexippus pop. 1*	None/ None	Eucalyptus, Monterey pine, and Monterey cypress tree stands.	Not expected to occur. No suitable roosting tree species present.
globose dune beetle	*Coelus globosus*	None/ None	Coastal dunes	Absent. No suitable habitat present.
Gertsch's socalchemmis spider	*Socalchemmis gertschi*	None/ None	Known from 2 locations (Brentwood and Topanga), habitat consists of sage scrub, chaparral, oak woodland, coniferous forest, generally in rocky outcrops or talus slopes.	Not expected to occur on the Project site. Some potential to occur in the vicinity.
Santa Monica grasshopper	*Trimerotropis occidentiloides*	None/ None	Known only from Santa Monica Mountains, California.	Not expected to occur on the Project site. Some potential

Table 5
Special-Status Wildlife Species Not Expected to Occur in Project Site

Common Name	Scientific Name	Federal/State Status[1]	Habitat Associations	Status on Site or Potential to Occur
				to occur in the vicinity.
sandy beach tiger beetle	*Cicindela hirticollis gravida*	None/ None	Found in moist sand near the ocean, for example in swales behind dunes or upper beaches beyond normal high tides.	Absent. No suitable habitat present.

[1] Regulatory Status (CDFW 2011, 2015b, 2015c, 2015d; CNPS 2015)

State
CSC = California Species of Special Concern
FP = Fully Protected
Regulated = A game species (mule deer) or take requires depredation permit (mountain lion)
SA = Special Animals List (CDFG 2011)
SD = State Delisted
SE = California Endangered
ST = State Threatened
WL = Watch List

Federal
BCC = USFWS Bird of Conservation Concern
DPS = Distinct Population Segment
FD = Federal Delisted
FE = Federal Endangered
FT = Federal Threatened

4.4.3 Special-Status Vegetation Communities

The birchleaf mountain mahogany chaparral vegetation community present on site has a global rarity rank of G5 and a state rarity rank of S4 and, therefore, is not considered to be of special concern by CDFW (CDFW 2014e). This vegetation is designated as a Sensitive Environmental Resource Area (SERA) H2 by the Santa Monica Mountains LCP/LUP (County 2014b).

4.4.4 Jurisdictional Waters

An existing concrete v-ditch is present at the base of a concrete block retaining wall in the southern portion of the proposed Project site. This concrete v-ditch conveys irrigation run-off from the landscaped areas adjacent to the proposed Project site. The concrete v-ditch traverses outside the boundary of the previously graded building pad and flows into a culvert under Dry Canyon Cold Creek Road to the tributary to Malibu Creek southwest of the proposed Project. Additionally, a second run-off conveyance feature is present to the east of the proposed Project site and consists of an apparent storm drain that flows north to south along Dry Canyon Cold Creek Road and into a separate culvert under Dry Canyon Cold Creek Road to the tributary to Malibu Creek southeast of the proposed Project. The locations of these features are shown on Figure 4.

4.4.5 Wildlife Corridors and Habitat Linkages

Wildlife corridors and habitat linkages can be described at three levels of function: (1) wildlife landscape habitat linkages, (2) wildlife corridors, and (3) wildlife crossings. Wildlife landscape habitat linkages (or simply linkages) are relatively large open space areas that contain natural habitat and provide connection between at least two larger adjacent open spaces that can provide for both diffusion and dispersal of many species (Bennett 2003). Wildlife corridors are linear landscape elements that provide for species movement and dispersal between two or more habitats but do not necessarily contain sufficient habitat for all life history requirements of a species, particularly reproduction (Rosenberg et al. 1997). Wildlife crossings are locations where wildlife must pass through physically constrained environments (e.g., roads, development) during movement within home ranges or during dispersal or migration between core areas of suitable habitat (Meese et al. 2007).

The habitat adjacent to the Project site is contiguous to the south and southwest; however, to the north, east, and west, private property parcels along Thousand Peaks Road, Dry Canyon Cold Creek Road, and Mulholland Highway fragment native habitat. Although habitat is fragmented by private property parcels, the relatively small area and low density of these properties does not appear to comprise a significant barrier to wildlife movement between large areas of contiguous habitat within the Santa Monica Mountains. The roads noted above experience relatively low amounts of vehicular traffic and constitute a minor wildlife crossing. Wildlife is expected to move through the entire Project site at will and is not substantially constrained to any particular portion of the Project site or surrounding landscape. Culverts present immediately east of the subject parcel and Project site are approximately 24- to 36-inches in diameter. The suitability of these culverts as wildlife corridors was assessed at the inlet; however, the outlets of both culverts are located on adjacent private properties that could not be accessed. The culvert inlets appeared to be suitable for small wildlife to utilize, though larger wildlife species are not expected to use these structures during movement or migration between habitat patches. Fencing currently surrounding the Project site consists of a split vertical steel bar design approximately 6-feet in height. The fencing is located entirely within H3-habitat; however, the fence does not meet the definition of "wildlife permeable" in the Santa Monica Mountains LCP/ LIP. Non-wildlife permeable fencing is permitted to the limit of FMZ Zone A as well as for animal containment facilities, with the requirement that the fencing will not significantly impede wildlife movement through a property or through the surrounding area (County 2014a). While the fencing is not wildlife permeable it is installed in previously disturbed portions of the property and does not encompass any native vegetation currently. Further, the placement of the fence does not appear to pose an impediment to wildlife movement in the vicinity and wildlife would be able to utilize the existing native vegetation and concrete v-ditch to the south of the Project site as a movement

corridor. Although the fencing does appear to comprise an impediment to wildlife movement, the fencing placement and design may need to be modified to comply with the standards included in the Santa Monica Mountains LCP/ LIP.

4.5 Regional Resource Planning Context

The Santa Monica Mountains LCP/ LUP (County 2014b) details goals specific to natural resource management and protection. Specifically, the Conservation and Open Space Element outlines the goals included in the Santa Monica Mountains LCP/ LUP as well as the policies to be implemented by LA County in support of each goal. Santa Monica Mountains LCP/ LUP goals pertaining to the proposed Project are included below. With implementation of mitigation measures identified in Section 7 of this report, the proposed project will be consistent with applicable land use policies and goals pertaining to conservation and open space.

Goal CO-1: Maintain and restore biological productivity and coastal water quality appropriate to maintain optimum populations of marine and freshwater organisms and to protect human health.

Goal CO-2: Sensitive Environmental Resource Areas shall be protected against any significant disruption of habitat values. Development in areas adjacent to Sensitive Environmental Resource Areas shall be sited and designed to prevent impacts which would significantly degrade these areas and shall be compatible with the continuance of the habitat.

Goal CO-3: Retain the natural topographic character and vegetation of hillsides to the maximum extent possible and ensure that all development in such areas is sited and designed to provide maximum protection to public health and safety, coastal waters, public scenic views, and sensitive habitats.

Goal CO-4: An integrated open space system that preserves valuable natural resources and provides a variety of recreational opportunities, within a program coordinated among federal, State, local, and non-profit agencies.

Goal CO-5: Retain the scenic beauty of the plan area by considering and protecting its scenic and visual qualities as a resource of public importance.

Goal CO-6: Provide maximum public access and recreational opportunities for all people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resources from overuse.

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5 PROJECT IMPACTS

5.1 Definition of Impacts

Permanent direct impacts typically refer to 100% permanent loss of a biological resource. It is also often referred to as the "project footprint" and refers to the area where vegetation clearing, grubbing, and mass grading occurs. It may include brush management zones or FMZs. Basically, wherever the existing vegetation or land cover would be permanently affected, it is considered to be a permanent direct impact.

Direct temporary impacts typically refer to short-term removal of a biological resource where the resource is expected to fully recover its function upon completion of the Project. Areas subject to temporary disturbance may include slope remediation sites, construction access roads, staging areas, stockpiles, mowing, dredging, etc. Such sites would not have permanent structures. However, because not all natural vegetation communities fully recover following disturbance (e.g., oak woodland).

Indirect impacts are reasonably foreseeable effects caused by Project implementation on remaining or adjacent biological resources outside the direct construction disturbance zone. Indirect impacts may affect areas within the defined Project site but outside the construction disturbance zone, including open space and areas outside the Project site, such as downstream effects. Indirect impacts include short-term effects immediately related to construction activities and long-term or chronic effects related to the human occupation of developed areas (i.e., development-related long-term effects). In most cases, indirect effects are not quantified, but in some cases quantification might be included, such as total dissolved solids released to downstream areas or using a noise contour to quantify indirect impacts to nesting birds.

Cumulative impacts refer to the combined environmental effects of the proposed Project and other relevant projects. In some cases, the impact from a single project may not be significant, but when combined with other projects, the cumulative impact may be significant. This section describes the approach to analyzing cumulative effects, including defining the cumulative effects study area, the method for including other projects (i.e., the list vs. the plan method).

5.2 Impacts to Vegetation Communities and Land Covers

Direct permanent impacts to 0.12-acre of disturbed land and 0.13-acre of ornamental landscape will occur as a result of the construction of the proposed residence (Table 6). Additionally, direct impacts associated with implementation of a 200-foot FMZ will result in impacts to 2.71-acres of ornamental landscape in FMZ Zones A, B, and C, and 0.33-acre of birchleaf mountain mahogany chaparral in FMZ Zone C (Table 7). Direct impacts to 21 trees will take place in association with

the construction of the residence. Tree impacts are summarized in Table 8. Maintenance related to the 200-foot FMZ may include removal of non-native invasive species and trimming/ thinning of trees and brush. FMZ management will initially focus on the removal and control of plant species included on the LA County Fire Undesirable Non-Native Species List (County 2011) and the County Plants to Avoid in the Santa Monica Mountains list (County 2012). Non-native species present within the birchleaf mountain mahogany chaparral vegetation community include wattle and Spanish broom. Native vegetation removal will be limited to the minimum amount necessary to achieve LA County Fire Department requirements for plant cover in FMZ's. Indirect impacts to native vegetation communities and land covers may occur and could include recruitment of non-native species in newly cleared areas associated with fuel modification activities. Permanent direct impacts to native trees will results due to Project buildout. Mitigation for impacts to native trees is detailed in the Santa Monica Mountains LCP/ LIP and is described in in relation to the Project in Section 7. Long-term direct impacts to vegetation communities will occur in relation to fuel modification; however, these impacts will be minimized with implementation of mitigation measures described in Section 7. Note that disturbed land within the FMZ will be part of the property landscape and will be subject to LA County standards concerning landscaping.

Table 6
Vegetation Community and Land Cover Impacts Associated With Project Build Out

Vegetation Community / Land Cover	Acres Permanently Impacted
Ornamental Landscape	0.13
Disturbed land	0.12
Total	**0.25**

Table 7
Vegetation Community and Land Cover Impacts Resulting From the Fuel Modification Zone*

Vegetation Community / Land Cover	Acres Impacted by Fuel Modification
Birchleaf Mountain Mahogany Chaparral	0.33
Ornamental Landscape*	2.71
Disturbed Land	0.59
Total	**3.63**

* Ornamental Landscape is irrigated and is not anticipated to be removed during fuel modification activities

Table 8
Tree Impacts Associated With Project Build Out

Tree Species	Number Impacted/ Removed
Fremont cottonwood	15
Aleppo pine	5
Peruvian pepper tree	1
Total	**21**

5.3 Impacts to Special-Status Plant Species

The proposed Project footprint avoids impacts to all existing native habitat; however, the 200-foot FMZ includes approximately 0.33 acre of birchleaf mountain mahogany chaparral, which provides suitable habitat for 11 special-status plant species that have moderate potential to occur on-site. As noted above, impacts to existing native habitat suitable for special-status plant species, birchleaf mountain mahogany chaparral, related to the 200-foot FMZ will occur entirely within Zone C and will initially focus on the removal and control of non-native invasive species to maintain LA County cover requirements. Native species impacts will include selective trimming and thinning and will be limited to the minimum amount necessary to achieve LA County Fire Department cover requirement for FMZ's.

Permanent direct impacts to special-status plant species may result from fuel modification activities due to removal of individual plants as well as suitable habitat. Native vegetation within the portion of FMZ Zone C, which includes the birchleaf mountain mahogany chaparral vegetation, would be selectively thinned and not completely removed, therefore potential impacts to special-status plant species, if present, would be minimal. Potential short-term, construction-related, or temporary direct impacts to special-status plants could primarily result from clearing, trampling, or grading outside of the Project footprint, including vehicle access, during construction. Although the potential for direct impacts to these species is low, implementation of mitigation measures described in Section 7 will ensure that special-status plants are protected to the greatest extent feasible. Long-term, indirect impacts to special-status plants with moderate potential to occur within the Project site are not anticipated due to the relatively small construction footprint and the contiguous condition of native habitat adjacent to the Project site.

5.4 Impacts to Special-Status Wildlife Species

Table 4 details the special-status wildlife species that have potential to occur on site. A total of 13 special-status wildlife species have moderate potential to occur adjacent to the Project site, primarily within the birchleaf mountain mahogany chaparral habitat. Nearly all of these species are either birds or bats, which are highly mobile and are not anticipated to be permanently directly impacted by the proposed Project. The one non-bird or bat is San Diego desert woodrat which, if present, would inhabit chaparral or riparian habitat, which is not proposed to be removed by the Project. Direct permanent impacts to these species are not anticipated to occur with implementation of mitigation measures described in Section 7. Potential short-term, construction-related, or temporary direct impacts to these special-status wildlife species could primarily result from clearing, trampling, or grading outside of the Project footprint, including vehicle access, during construction. Long-term, indirect impacts to this special-status wildlife species could result from increased noise and lighting, which may reduce populations in the immediate vicinity of the proposed Project.

5.5 Impacts to Jurisdictional Waters and Riparian Areas

As noted in Section 4.4.4, two ephemeral waterway features are present immediately adjacent to the Project site. As currently designed, the Project would not directly impact jurisdictional waters based on an assessment of bed and bank indicators during the October 2016 site visit; however, there is potential for non-native species control and fuel modification activities to affect these features, which may result in impacts to water quality. The potential impacts related to non-native species control and fuel modification activities may include the placement of fill material (plant debris) within the jurisdictional boundaries. Potential short-term direct and indirect impacts to jurisdictional waters are not anticipated to occur with implementation of mitigation measures described in Section 7.

5.6 Impacts to Wildlife Corridors and Habitat Connectivity

Due to the relatively small size of the proposed Project, direct impacts to wildlife corridors and habitat connectivity are not anticipated to occur. Traffic is not expected to increase appreciably on surface streets as a result of this project. Therefore, no increases in strikes by vehicles are expected to occur. Indirect impacts to wildlife corridors and habitat connectivity could result from increased noise and lighting that may deter wildlife use adjacent to the Project site.

5.7 Cumulative Impacts

Under CEQA, "cumulative impacts" are "two or more individual effects [from a single project or multiple projects] which, when considered together, are considerable or which compound or increase other environmental impacts" (14 CCR 15355).

Evaluation of the proposed Project by the lead agency in the context of cumulative impacts would need to take into account those projects in the vicinity that occur in similar habitat and environmental settings. Individually, the proposed Project is likely to result in minimal impacts to native habitat, special-status species, jurisdictional resources, and habitat connectivity, as described in the above sections.

6 SIGNIFICANT IMPACTS

6.1 Explanation of Findings of Significance

CEQA Guidelines Section 15065(a) lists impacts that are helpful in defining whether a project may have a significant effect on the environment. Mandatory findings of significance occur when there is substantial evidence that a project could (1) substantially degrade the quality of the environment, (2) substantially reduce the habitat of a fish or wildlife species, (3) cause a fish or wildlife population to drop below self-sustaining levels, (4) threaten to eliminate a plant or animal community, or (5) reduce the number or restrict the range of a rare or endangered plant or animal.

The following are the significance thresholds for biological resources provided in the CEQA Appendix G environmental checklist, which states that a project could potentially have a significant effect if it:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS
- Has a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

6.2 Significance Determination for Impacts to Special-Status Vegetation Communities

The proposed Project would result in direct permanent impacts to 0.33 acres of birchleaf mountain mahogany chaparral vegetation (designated as SERA H2) from implementation of the

200-foot FMZ. Mitigation for impacts to H2 habitat is described in Section 7 and would include the removal and control of non-native plant species and revegetation with locally indigenous species in FMZ Zones B and C (BIO-1 and BIO-2).

6.3 Significance Determination for Impacts to Special-Status Plant Species

Eleven special-status plant species have moderate potential to occur within the Project site, specifically within the birchleaf mountain mahogany chaparral vegetation. Approximately 0.33-acre of birchleaf mountain mahogany chaparral vegetation will be impacted by fuel modification activities, which will include selective thinning of vegetation. With mitigation, potential direct and indirect impacts to these special-status species would be less than significant (BIO-3).

6.4 Significance Determination for Impacts to Special-Status Wildlife Species

Fourteen special-status wildlife species have moderate potential to occur within the Project site. No short-term, construction related direct permanent impacts to special-status wildlife species are anticipated to occur with implementation of mitigation measures (BIO-4 and BIO-5) included in Section 7. Long-term, indirect impacts to special-status wildlife with moderate potential to occur within the Project site are anticipated to be minor and not likely to affect special-status wildlife populations potentially occurring in the vicinity of the Project site. Within implementation of mitigation measures, impacts to special-status wildlife would be less than significant.

6.5 Significance Determination for Impacts to Wildlife Corridors and Habitat Connectivity

Due to the relatively small size of the proposed Project, direct impacts to wildlife corridors and habitat connectivity are not anticipated to occur and indirect impacts to wildlife corridors and habitat connectivity are anticipated to be minor. Impacts to wildlife corridors and habitat connectivity would be less than significant.

7 MITIGATION

As previously noted, the proposed Project consists of a residential infill project located within a previously approved subdivision adjacent to currently developed residences. No special-status plant or wildlife species were identified during the biological inventory and none are anticipated to occur within the proposed building footprint. However, mitigation measures included below are proposed for implementation to reduce the potential for impacts to special-status species, which may occur in the vicinity of the proposed Project as well as within the FMZ. Mitigation related to the revegetation of FMZ Zones B and C is intended to satisfy the Santa Monica Mountains LCP/ LIP requirements as well as LADRP request for native species revegetation. In our experience, revegetation with native species is typically detailed along with performance criteria, maintenance, monitoring, and reporting in a standalone habitat mitigation and monitoring plan. However, in this case, the revegetation standards and guidelines provided herein, as well as in the landscape plans prepared separately, will provide the basis for the required native plant revegetation to satisfy the County's landscape plan requirements. It should be noted that County review and approval of the final landscape plans will likely be necessary prior to the issuance of grading permits. Mitigation measures detailed below are designed to reduce impacts to less than significant.

MM BIO-1 **Removal of Non-Native Plant Species.** To minimize impacts to native vegetation communities and potentially occurring special-status plant species, fuel modification activities in FMZ Zones B and C shall focus on non-native species removal. Thinning or removal of native species shall be limited to the minimum amount necessary to achieve LA County Fire Department standards for FMZ's. Non-native species targeted for initial removal will be mapped and included on the Project landscape plans. Non-native species within the boundaries of the jurisdictional waterways present within the property will be controlled without disturbance to the bed and bank of the feature. Excavation of these isolated non-native species shall be prohibited. The location of the jurisdictional waterways shall be included on the Project landscape plans. Follow-up fuel modification activities will follow the LA County Fire Department standards and will also focus on the removal and control of non-native species.

MM BIO-2 **Revegetation of FMZ Zones B and C.** The revegetation of the currently cleared portion of FMZ Zone C will be designed to mimic natural vegetation present adjacent to the Project site. Species selected for the revegetation area will include locally indigenous native species included in the Recommended List of Native Plants for Landscaping on the Santa Monica Mountains (CNPS

2007). Revegetation goals will include the establishment of self-sustaining native habitat consistent with the adjacent natural areas. Irrigation will be allowed within the revegetation area, however, following establishment, the irrigation system will be removed and the revegetation are will be maintained as non-irrigated FMZ Zone C. In addition to the revegetation of FMZ Zone C, native species installation may be necessary in FMZ Zone B to achieve LA County Fire Department cover requirements for FMZ's. Per the Santa Monica Mountains LCP/ LIP Section 22.44.1240.C.8.b, with the exception of turf, plant species used in Zone B shall be restricted to locally indigenous species. Recommended native plant species to be included in the revegetation of FMZ Zones B and C are included in Table 9 below.

Table 9
Fuel Modification Zone B and C Native Plant Species

Container Plants	
Common Name	*Scientific Name*
Trees	
California bay	*Umbellularia californica*
California sycamore	*Platanus racemosa*
coast live oak	*Quercus agrifolia*
Shrubs	
birchleaf mountain mahogany	*Cercocarpus betuloides*
toyon	*Heteromeles arbutifolia*
sugarbush	*Rhus ovata*
black sage	*Salvia mellifera*
Herbs	
golden yarrow	*Eriophyllum confertiflorum*
scarlet bugler	*Penstemon centranthifolius*
wild canterbury bells	*Phacelia minor*
hummingbird sage	*Salvia spathacea*
purple nightshade	*Solanum xantii*
Seed Mix	
Common Name	*Scientific Name*
elegant clarkia	*Clarkia unguiculata*
western wildrye	*Elymus glaucus*
succulent lupine	*Lupinus succulentus*
chaparral melic	*Melica imperfecta*
chia	*Salvia columbariae*

The primary goal of the revegetation will be to achieve native cover percentages similar to natural vegetation in the vicinity of the Project. Species cover data was collected during the October 2016 site visit via two continuous line transects in natural habitat south of the Project site. The results of the transect data collected are provided below in Table 10. The revegetation shall be determined to be successful once established and displaying cover consistent with the average provided below.

Table 10
Natural Habitat Transect Data Collection Results

Cover Class	Transect 1 Percent Cover	Transect 2 Percent Cover	Average Percent Cover
Native Shrub	66.06%	71.78%	68.92%
Native Herb	3.72%	0.32%	2.02%
Non-Native Herb	0.56%	0.20%	0.38%
Bare Ground	0.20%	27.70%	13.95%

MM BIO-3 **Native Tree Impact Mitigation.** Per the Santa Monica Mountains LCP/ LIP Section 22.44.1940.K.1, removal or encroachment into the protected zone of native trees requires mitigation in the form of on-site native tree replacement (if feasible) and/ or off-site native tree planting through a conservation organization. Mitigation ratios established in the Santa Monica Mountains LCP/ LIP will apply to native tree removal or encroachment associated with the Project. Native tree impact and replacement requirements will be included in the Project design plans, once finalized. Per the Santa Monica Mountains LCP/ LIP, the replacement trees planted on-site shall be less than one year old seedlings installed in suitable habitat. The replacement trees shall be monitored to determine health and establishment and performance criteria including average tree heights will be established and included in the Project landscape plans. Recommended replacement tree species and performance criteria are included in Table 11 below. These species were selected based on the native habitat present within Dry Canyon and are consistent with Recommended List of Native Plants for Landscaping on the Santa Monica Mountains (CNPS 2007).

Table 11
Replacement Native Tree Performance Criteria

Tree Species	Height in Feet 3 Years Following Planting
California bay	4
California sycamore	6
coast live oak	4

MM BIO-4 **Special-Status Plant Species Survey.** No more than 7 days prior to initial fuel modification in the 200-foot FMZ, a botanical survey shall be completed to determine the presence/ absence of special-status plants in the proposed disturbance area. If special-status plants are identified, they shall be flagged for avoidance during fuel modification operations.

MM BIO-5 **Pre-Construction Nesting Bird Survey.** No more than 7 days prior to initial ground-disturbing activities associated with construction, grading, or fuel modification that would occur during the nesting/breeding season of native bird species potentially nesting on the site (December 1 through August 31 in the Project region, or as determined by a qualified biologist), the applicant shall have a single pre-construction survey conducted by a qualified biologist to determine if active nests of bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone. If nesting birds are found to be present, surveys will continue on a weekly basis until those within the disturbance zone or buffer area are finished nesting.

If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors) shall be postponed or halted, at the discretion of the biologist in consultation with the California Department of Fish and Wildlife (CDFW), until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers, and construction personnel shall be instructed on the sensitivity of nest areas. The biologist shall serve as a

construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts to these nests occur.

MM BIO-6 **Pre-Construction Bat Survey.** If trees and/or structures must be removed during the maternity season (March 1 to September 30), a qualified bat specialist should conduct a pre-construction survey to identify those trees and/or structures proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats. Each tree and/or structure identified as potentially supporting an active maternity roost should be closely inspected by the bat specialist no greater than 7 days prior to disturbance to more precisely determine the presence or absence of roosting bats. Trees and/or structures determined to be maternity roosts should be left in place until the end of the maternity season.

To the extent feasible, tree removal or relocation shall be scheduled between October 1 and November 30, in order to be outside bird nesting season and outside of the bat maternity roosting season (March 1 to September 30). Trees shall be removed in a manner that allows birds and bats to escape, pushed or pulled to the ground in 2-3 nudges, with a pause of approximately 30 seconds between each nudge to allow bats and birds to become active. The tree should then be pushed to the ground slowly and should remain in place for a period of 48 hours to allow any trapped animals to escape. Chain saws shall only be used after the tree has been on the ground for 48 hours.

MM BIO-7 **Pre-Construction Biological Survey.** No more than 72 hours prior to the start of construction activities, the project applicant shall conduct a pre-construction biological survey for special-status species determined to have potential to occur in within the Project site. If special-status species are detected during pre-construction surveys, appropriate mitigation plans will be prepared by a qualified biologist. Additionally, a biological monitor will be present periodically during construction to ensure that impacts to special-status species do not occur and disturbance boundaries are respected.

MM BIO-8 **Delineation of Project Boundary and Protection of Sensitive Habitat.** The limits of the Project disturbance area shall be clearly demarcated with flagging and/ or fencing during construction of the residence. Sensitive habitat including birchleaf mountain mahogany chaparral (H2 habitat) and jurisdictional waterways shall be clearly demarcated for avoidance. Construction personnel will be informed of these demarcations and the sensitive nature of the protected areas. These demarcations shall also be included on the Project design and landscape

plans. Demarcation of the birchleaf mountain mahogany chaparral included in the fuel modification area will remain in place during fuel modification activities and only trained landscape crews will be allowed to enter this area. Jurisdictional waterways will be demarcated for avoidance during all construction and fuel modification activities. No impacts to the bed and bank or associated riparian vegetation shall occur.

8 REFERENCES

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APPENDIX A

Plant and Wildlife Species
Observed in the Project Site

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APPENDIX A
Plant and Wildlife Species Observed in the Project Site

PLANT SPECIES

ANGIOSPERMS (DICOTS)

***ANACARDIACEAE* – SUMAC FAMILY**

Malosma laurina – Laurel sumac
* *Pistacia chinensis* – Chinese pistache
Rhus integrifolia – lemonade berry
Rhus ovata – sugar bush
* *Schinus molle* – Peruvian peppertree

***ASTERACEAE* – SUNFLOWER FAMILY**

Artemisia californica – California sagebrush
Baccharis pilularis – coyote brush
* *Centaurea melitensis* – star thistle
Eriophyllum confertiflorum – golden yarrow
Helianthus annuus – annual sunflower
Isocoma menziesii – coastal goldenbush
Pseudognaphalium sp. - everlasting
* *Sonchus asper* – sow thistle

***BRASSICACEAE* – MUSTARD FAMILY**

* *Hirschfeldia incana* – shortpod mustard

***CAPRIFOLIACEAE* – HONEYSUCKLE FAMILY**

Lonicera subspicata – southern honeysuckle

***CHENOPODIACEAE* – GOOSEFOOT FAMILY**

* *Salsola tragus* – Russian thistle

***CUCURBITACEAE* – GOURD FAMILY**

Marah macrocarpa – chilicothe

***FABACEAE* – LEGUME FAMILY**

* *Acacia* sp. – wattle
* *Spartium junceum* – Spanish broom

***FAGACEAE* – OAK FAMILY**

Quercus agrifolia – coast live oak

***HYPERICACEAE* – ST. JOHNS WORT FAMILY**

Hypericum sp. – St. John's wort

***LAMIACEAE* – MINT FAMILY**

Salvia mellifera – black sage

MALVACEAE – MALLOW FAMILY

Malacothamnus fasciculatus – chaparral mallow

***MELANTHIACEAE* – FALSE-HELLEBORE FAMILY**

Toxicoscordion fremontii – Fremont's star lily

***MONTIACEAE* – MINER'S LETTUCE FAMILY**

Claytonia perfoliata – miner's lettuce

MYRSINACEAE – MYRSINE FAMILY

* *Lysimachia arvensis* – scarlet pimpernel

***POLYGONACEAE* – BUCKWHEAT FAMILY**

Eriogonum fasciculatum var. *fasciculatum* – coastal California buckwheat

***PLANTAGINACEAE* – PLANTAIN FAMILY**

Keckiella cordifolia – climbing penstemon

***RHAMNACEAE* – BUCKTHORN FAMILY**

Ceanothus sp. – ceanothus

Rhamnus crocea – spiny redberry

***ROSACEAE* – ROSE FAMILY**

Adenostoma fasciculatum – chamise

Cercocarpus betuloides var. *betuloides* – birch-leaf mountain-mahogany

Heteromeles arbutifolia – toyon

***SALIACEAE* – WILLOW FAMILY**

Populus fremontii – Fremont cottonwood

SAPINDACEAE – SOAPBERRY FAMILY

* *Koelrueteria bipinnata* – Chinese flame tree

***SIMAROUBACEAE* – QUASSIA FAMILY**

* *Ailanthus altissima* – tree-of-heaven

***SOLANACEAE* – NIGHTSHADE FAMILY**

Solanum xanti – purple nightshade

***TAMARICACEAE* – TAMARISK FAMILY**

* *Tamarix ramosissima* – saltcedar

CONIFERS

PINACEAE – PINE FAMILY

* *Pinus halepensis* – Aleppo pine

MONOCOTS

***CYPERACEAE* – SEDGE FAMILY**

Cyperus sargentii – sargent cyperus

***POACEAE* – GRASS FAMILY**

* *Agrostis viridis* – water beard grass

* *Bromus madritensis* ssp. *rubens* – red brome

* *Bromus diandrus* – ripgut

* *Piptatherum mileaceum* – smilo grass

WILDLIFE SPECIES – VERTEBRATES

MAMMALS

***CANIDAE* – CANID FAMILY**

Canis latrans – coyote (sign)

***GEOMYIDAE* – POCKET GOPHERS**

Thomomys bottae – Botta's pocket gopher

BIRDS

***CARDINALIDAE* – CARDINALS, GROSBEAKS, AND ALLIES**

Pheucticus melanocephalus – black-headed grosbeak

***COLUMBIDAE* – PIGEONS AND DOVES**

Zenaida macroura – mourning dove

***CORVIDAE* – JAYS AND CROWS**

Aphelocoma californica – western scrub-jay
Mimus polyglottos – northern mockingbird

***EMBERIZIDAE* – EMBERIZIDS**

Melozone crissalis – California towhee
Pipilo maculatus – spotted towhee

***MIMIDAE* – MOCKINGBIRDS, THRASHERS, AND ALLIES**

Toxostoma redivivum – California thrasher

***ODONTOPHORIDAE* – NEW WORLD QUAIL**

Callipepla californica – California quail

***PICIDAE* – WOODPECKERS AND ALLIES**

Colaptes auratus – northern flicker
Picoides nuttallii – Nuttall's woodpecker

***PTILOGONATIDAE* – SILKY FLYCATCHERS**

Phainopepla nitens – phainopepla

***SYLVIIDAE* – OLD WORLD WARBLERS**

Chamaea fasciata – wrentit

***TROGLODYTIDAE* – WRENS**

Thryomanes bewickii – Bewick's wren

***TYRANNIDAE* – TYRANT FLYCATCHERS**

Tyrannus vociferans – Cassin's kingbird

***VIREONIDAE* – VIREOS**

Vireo gilvus – warbling vireo

***** signifies introduced (non-native) species

APPENDIX B

Fuel Modification Plan

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24600 THOUSAND PEAKS ROAD

FUEL MODIFICATION

SHEET INDEX:

SHEET	TITLE
L-0.0	COVER SHEET
L-1.0	SITE PHOTOGRAPHS
L-1.1	FUEL MODIFICATION
L-2.0	PLANTING PLAN
L-2.1	PLANTING DETAILS & SPECIFICATIONS
L-3.0	IRRIGATION PLAN
L-3.1	IRRIGATION DETAILS & SPECIFICATIONS

PROJECT DESCRIPTION

LEGAL DESCRIPTION:

APN 2368016026

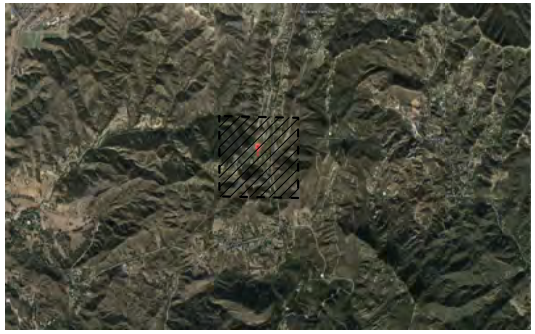
LOT 1, TRACT 36172, IN THE CITY OF CALABASAS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON MAP FILED IN BOOK 57 PAGE 17 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY.

AREA OF PROPERTY: 479,160 SF
SQ. FOOTAGE OF HOUSE/COVERED PATIOS: 8290 SF

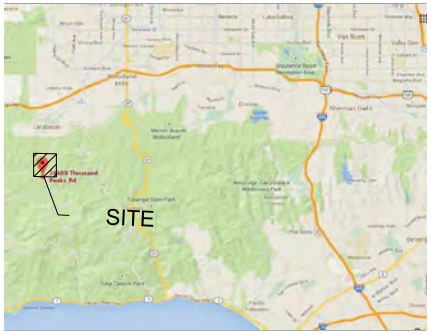
CONTACT INFORMATION:

OWNER
THOUSAND PEAKS LLC
13114 PONTOON PLACE
BRENTWOOD, CA 90049

LANDSCAPE ARCHITECT
GAUDET DESIGN GROUP
DIRK GAUDET
2109 STONER AVENUE
WEST LOS ANGELES, CA 90025
(310) 828-4908



AERIAL MAP



VICINITY MAP

LOCATION MAP

DIG ALERT
DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

Gaudet Design Group
Landscape Architecture
2109 Stoner Avenue
West Los Angeles, California 90025
310.828.4908 310.828.4906 Fax

LICENSED LANDSCAPE ARCHITECT
3970
November 2015
Renewal Date
08-11-15
Date
STATE OF CALIFORNIA

PROJECT
24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

SHEET TITLE
TITLE SHEET

ISSUE

1	08-11-15	FUEL MODIFICATION

PHASE
Fuel Modification

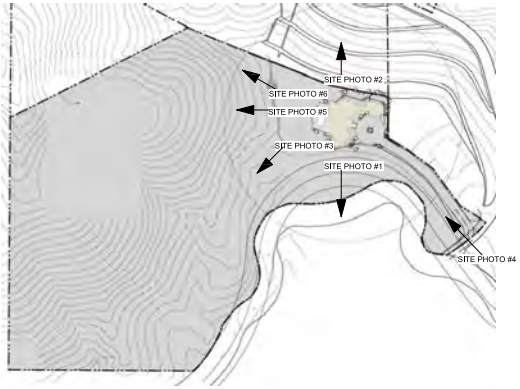
ORIGIN DATE 08-06-15
PLOT DATE 08-11-15
DRAWN BY: TP
CHECKED BY: DG

SHEET 1 of 7

L-0.0

SITE PHOTO #1

SITE PHOTO #2



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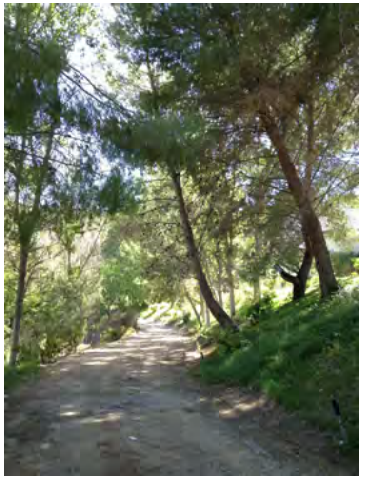


SITE PHOTO #4

SITE PHOTO #5

SITE PHOTO #6

Gaudet Design Group
Landscape Architecture
2109 Stoner Avenue
West Los Angeles, California 90025
310.828.4908 310.828.4906 Fax

LICENSED LANDSCAPE ARCHITECT
3970
November 2015
Renewal Date
08-11-15
Date
STATE OF CALIFORNIA

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

SHEET TITLE

SITE PHOTOGRAPHS

ISSUE

1	08-11-15	FUEL MODIFICATION

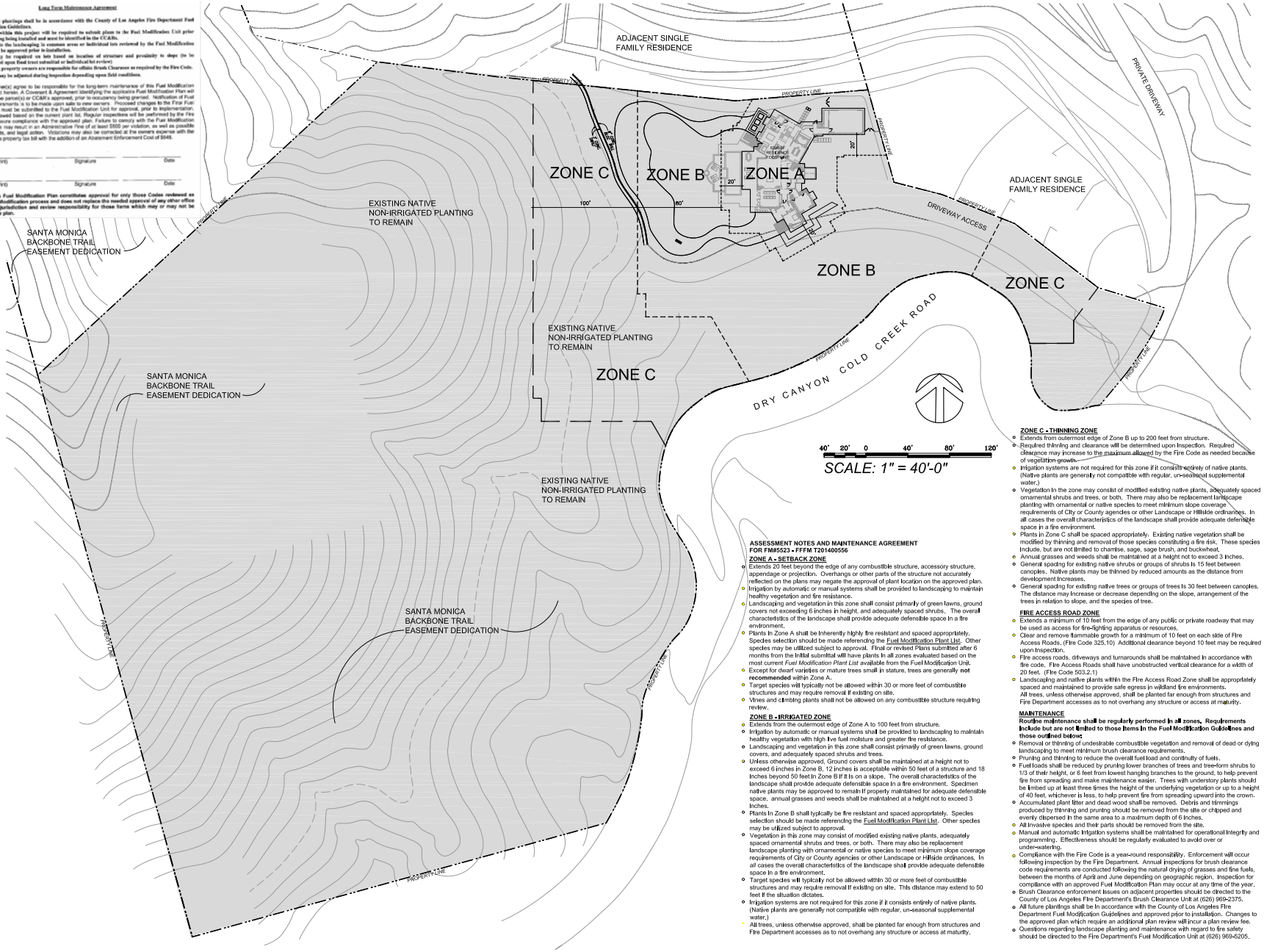
PHASE

Fuel Modification

ORIGIN DATE	08-06-15
PLOT DATE	08-11-15
DRAWN BY:	TP
CHECKED BY:	DG

SHEET 2 of 7

L-1.0



Long Term Maintenance Agreement

- All future plantings shall be in accordance with the County of Los Angeles Fire Department Fuel Modification Guidelines.
- All Lots within this project will be required to submit plans to the Fuel Modification Unit prior toanything being installed and must be identified in the CC&Rs.
- Changes to the landscaping in common areas or individual lots reviewed by the Fuel Modification Unit shall be approved prior to installation.
- Walls may be required on lots based on location of structure and proximity to slope (to be determined upon final tract submittal or individual lot review)
- Adjoining property owners are responsible for offsite Brush Clearance as required by the Fire Code.
- Zone C may be adjusted during inspection depending upon field conditions.

The property owner(s) agree to be responsible for the long-term maintenance of this Fuel Modification plan, as described herein. A Covenant & Agreement identifying the applicable Fuel Modification Plan will be recorded on the parcel(s) or CC&R's approved, prior to occupancy being granted. Notification of Fuel Modification requirements is to be made upon sale to new owners. Proposed changes to the Final Fuel Modification plan must be submitted to the Fuel Modification Unit for approval, prior to implementation. Plans will be reviewed based on the current plant list. Regular inspections will be performed by the Fire Department to ensure compliance with the approved plan. Failure to comply with the Fuel Modification Plan requirements may result in an Administrative Fine of at least $500 per violation, as well as possible liens, assessments, and legal action. Violations may also be corrected at the owners expense with the cost placed on the property tax bill with the addition of an Abatement Enforcement Cost of $645.

Name (Print) _____ Signature _____ Date _____

Name (Print) _____ Signature _____ Date _____

Approval of this Fuel Modification Plan constitutes approval for only those Codes reviewed as part of the Fuel Modification process and does not replace the needed approval of any other office or agency with jurisdiction and review responsibility for those items which may or may not be illustrated on the plan.

ASSESSMENT NOTES AND MAINTENANCE AGREEMENT
FOR FM#5523 - FFFM T201400556

ZONE A - SETBACK ZONE

- Extends 20 feet beyond the edge of any combustible structure, accessory structure, appendage or projection. Overhangs or other parts of the structure not accurately reflected on the plans may negate the approval of plant location on the approved plan.
- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation and fire resistance.
- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers not exceeding 6 inches in height, and adequately spaced shrubs. The overal characteristics of the landscape shall provide adequate defensible space In a fire environment.
- Plants In Zone A shall be Inherently highly fire resistant and spaced appropriately. Species selection should be made referencing the Fuel Modification Plant List. Other species may be utilized subject to approval. Final or revised Plans submitted after 6 months from the Initial submittal will have plants In all zones evaluated based on the most current *Fuel Modification Plant List* available from the Fuel Modification Unit.
- Except for dwarf varieties or mature trees small in stature, trees are generally **not recommended** within Zone A.
- Target species will typically not be allowed within 30 or more feet of combustible structures and may require removal if existing on site.
- Vines and climbing plants shall not be allowed on any combustible structure requiring review.

ZONE B - IRRIGATED ZONE

- Extends from the outermost edge of Zone A to 100 feet from structure.
- Irrigation by automatic or manual systems shall be provided to landscaping to maintain healthy vegetation with high live fuel moisture and greater fire resistance.
- Landscaping and vegetation in this zone shall consist primarily of green lawns, ground covers, and adequately spaced shrubs and trees.
- Unless otherwise approved, Ground covers shall be maintained at a height not to exceed 6 inches in Zone B, 12 inches is acceptable within 50 feet of a structure and 18 Inches beyond 50 feet In Zone B If It is on a slope. The overall characteristics of the landscape shall provide adequate defensible space In a fire environment. Specimen native plants may be approved to remain If properly maintained for adequate defensible space. annual grasses and weeds shall be maintained at a height not to exceed 3 Inches.
- Plants In Zone B shall typically be fire resistant and spaced appropriately. Species selection should be made referencing the Fuel Modification Plant List. Other species may be utilized subject to approval.
- Vegetation in this zone may consist of modified existing native plants, adequately spaced ornamental shrubs and trees, or both. There may also be replacement landscape planting with ornamental or native species to meet minimum slope coverage requirements of City or County agencies or other Landscape or Hillside ordinances. In *all* cases the overall characteristics of the landscape shall provide adequate defensible space In a fire environment.
- Target species will typically not be allowed within 30 or more feet of combustible structures and may require removal If existing on site. This distance may extend to 50 feet If the situation dictates.
- Irrigation systems are not required for this zone if it consists entirely of native plants. (Native plants are generally not compatible with regular, un-seasonal supplemental water.)
- All trees, unless otherwise approved, shall be planted far enough from structures and Fire Department accesses as to not overhang any structure or access at maturity.

ZONE C - THINNING ZONE

- Extends from outermost edge of Zone B up to 200 feet from structure.
- Required thinning and clearance will be determined upon Inspection. Required clearance may increase to the maximum allowed by the Fire Code as needed because of vegetation growth.
- Irrigation systems are not required for this zone if it consists entirety of native plants. (Native plants are generally not compatible with regular, un-seasonal supplemental water.)
- Vegetation In the zone may consist of modified existing native plants, adequately spaced ornamental shrubs and trees, or both. There may also be replacement landscape planting with ornamental or native species to meet minimum slope coverage requirements of City or County agencies or other Landscape or Hillside ordinances. In all cases the overall characteristics of the landscape shall provide adequate defensible space in a fire environment.
- Plants in Zone C shall be spaced appropriately. Existing native vegetation shall be modified by thinning and removal of those species constituting a fire risk. These species include, but are not limited to chamise, sage, sage brush, and buckwheat.
- Annual grasses and weeds shall be maintained at a height not to exceed 3 Inches.
- General spacing for existing native shrubs or groups of shrubs Is 15 feet between canopies. Native plants may be thinned by reduced amounts as the distance from development Increases.
- General spacing for existing native trees or groups of trees Is 30 feet between canopies. The distance may Increase or decrease depending on the slope, arrangement of the trees in relation to slope, and the species of tree.

FIRE ACCESS ROAD ZONE

- Extends a minimum of 10 feet from the edge of any public or private roadway that may be used as access for fire-fighting apparatus or resources.
- Clear and remove flammable growth for a minimum of 10 feet on each side of Fire Access Roads. (Fire Code 325.10) Additional clearance beyond 10 feet may be required upon Inspection.
- Fire access roads, driveways and turnarounds shall be maintained in accordance with fire code. Fire Access Roads shall have unobstructed vertical clearance for a width of 20 feet. (Fire Code 503.2.1)
- Landscaping and native plants within the Fire Access Road Zone shall be appropriately spaced and maintained to provide safe egress in wildland fire environments. All trees, unless otherwise approved, shall be planted far enough from structures and Fire Department accesses as to not overhang any structure or access at maturity.

MAINTENANCE

Routine maintenance shall be regularly performed In all zones. Requirements Include but are not limited to those Items In the Fuel Modification Guidelines and those outlined below:

- Removal or thinning of undesirable combustible vegetation and removal of dead or dying landscaping to meet minimum brush clearance requirements.
- Pruning and thinning to reduce the overall fuel load and continuity of fuels.
- Fuel loads shall be reduced by pruning lower branches of trees and tree-form shrubs to 1/3 of their height, or 6 feet from lowest hanging branches to the ground, to help prevent fire from spreading and make maintenance easier. Trees with understory plants should be limbed up at least three times the height of the underlying vegetation or up to a height of 40 feet, whichever is less, to help prevent fire from spreading upward into the crown.
- Accumulated plant litter and dead wood shall be removed. Debris and trimmings produced by thinning and pruning should be removed from the site or chipped and evenly dispersed In the same area to a maximum depth of 6 Inches.
- All Invasive species and their parts should be removed from the site.
- Manual and automatic Irrigation systems shall be maintained for operational Integrity and programming. Effectiveness should be regularly evaluated to avoid over or under-watering.
- Compliance with the Fire Code is a year-round responsibility. Enforcement will occur following inspection by the Fire Department. Annual inspections for brush clearance code requirements are conducted following the natural drying of grasses and fine fuels, between the months of April and June depending on geographic region. Inspection for compliance with an approved Fuel Modification Plan may occur at any time of the year.
- Brush Clearance enforcement Issues on adjacent properties should be directed to the County of Los Angeles Fire Department's Brush Clearance Unit at (626) 969-2375.
- All future plantings shall be In accordance with the County of Los Angeles Fire Department Fuel Modification Guidelines and approved prior to installation. Changes to the approved plan which require an additional plan review will incur a plan review fee.
- Questions regarding landscape planting and maintenance with regard to fire safety should be directed to the Fire Department's Fuel Modification Unit at (626) 969-5205.

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LICENSED LANDSCAPE ARCHITECT — DANIEL J. GAUDET — 3970 — November 2015 Renewal Date — 08-11-15 Date — STATE OF CALIFORNIA

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

SHEET TITLE

FUEL MODIFICATION

ISSUE

1	08-11-15	FUEL MODIFICATION

PHASE

Fuel Modification

ORIGIN DATE 08-06-15
PLOT DATE 08-11-15
DRAWN BY: TP
CHECKED BY: DG

SHEET 3 of 7

L-1.1

GROUNDCOVER LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	SPACE	REFERENCE	WATER NEEDS	ZONE
	PEA GRAVEL FIREFIGHTER ACCESS PATH. MIN. 5' WIDE 3" THICK LAYER	CCQ	- - -	- - -	- - -	- - -	- - -
	EXISTING NATIVE IRRIGATED SLOPE PLANTING TO REMAIN	- - -	- - -	- - -	- - -	- - -	- - -
	MIXED VEGETABLES/HERBS IN A RAISED PLANTERS	CCQ	4" POTS	16" OC	- - -	MEDIUM PF 0.4	A
	BUFFALO 'VERDE' GRASS (SODDED TURF)	CCQ	SOD	- - -	- - -	MEDIUM PF 0.4	A/B
	DROUGHT BUSTER TALL FESCUE (SODDED TURF)	CCQ	SOD	- - -	- - -	MEDIUM PF 0.4	A/B
	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	CCQ	1 GAL	24" OC	- - -	MEDIUM PF 0.4	A/B

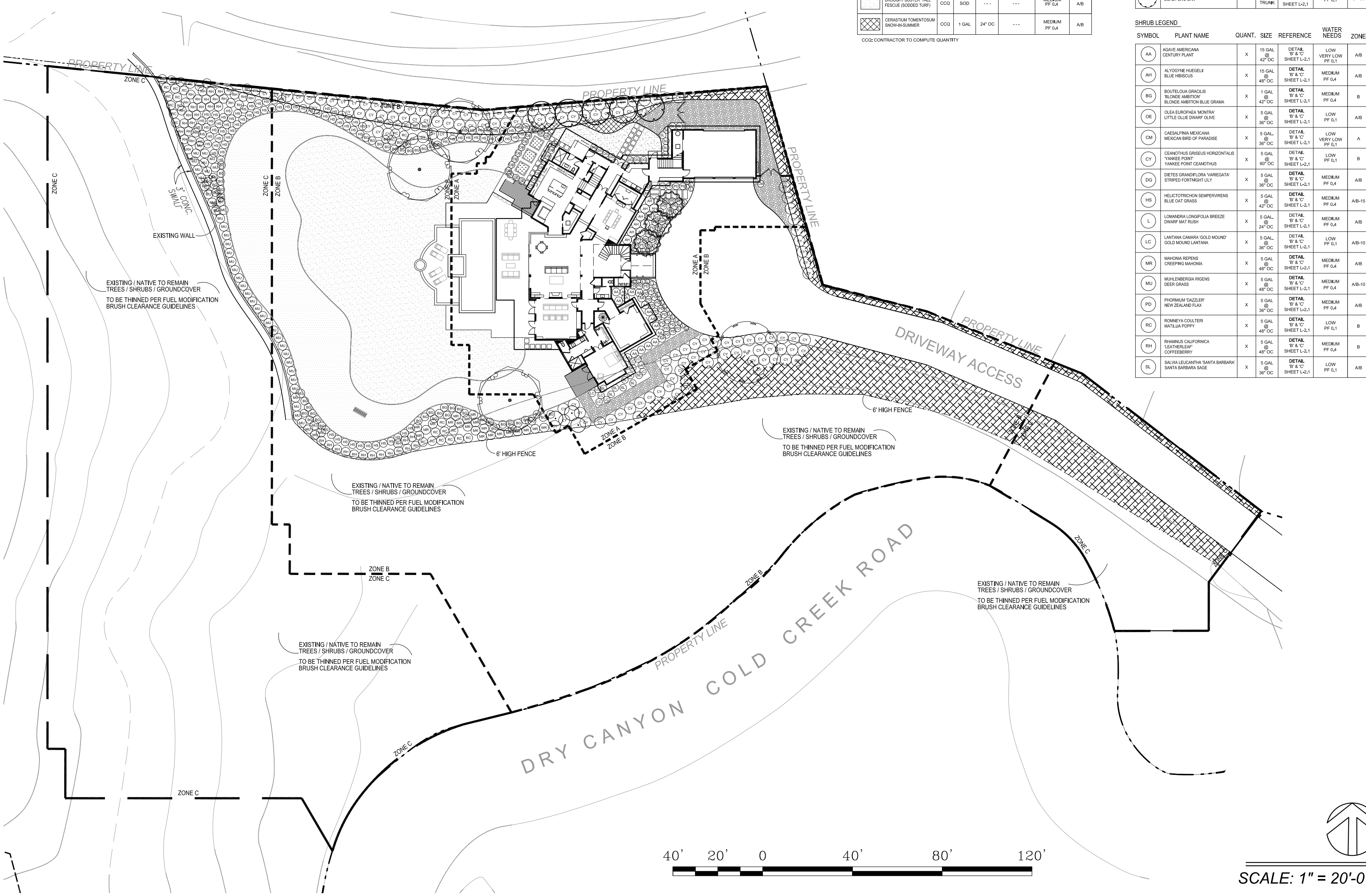
CCQ: CONTRACTOR TO COMPUTE QUANTITY

TREE / PALM LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
	CERCIS OCCIDENTALIS WESTERN REDBUD	X	24" BOX	DETAIL 'A' SHEET L-2.1	LOW PF 0.1	A/B-10
	CITRUS SPECIES (MIXED) CITRUS TREE	X	24" BOX	DETAIL 'A' SHEET L-2.1	MED PF 0.4	A/B
	DODONAEA VISCOSA 'PURPUREA' PURPLE HOPSEED BUSH	X	24" BOX	DETAIL 'A' SHEET L-2.1	MED PF 0.4	A/B
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	X	36" BOX	DETAIL 'A' SHEET L-2.1	LOW PF 0.1	B
	QUERCUS AGRIFOLIA COAST LIVE OAK	X	36" BOX MULTI-TRUNK	DETAIL 'A' SHEET L-2.1	LOW PF 0.1	B - 30

SHRUB LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
AA	AGAVE AMERICANA CENTURY PLANT	X	15 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.1	LOW VERY LOW PF 0.1	A/B
AH	ALYOGYNE HUEGELII BLUE HIBISCUS	X	15 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	A/B
BG	BOUTELOUA GRACILIS 'BLONDE AMBITION' BLONDE AMBITION BLUE GRAMA	X	1 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	B
OE	OLEA EUROPAEA 'MONTRA' LITTLE OLLIE DWARF OLIVE	X	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.1	LOW PF 0.1	A/B
CM	CAESALPINIA MEXICANA MEXICAN BIRD OF PARADISE	X	5 GAL. @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.1	LOW VERY LOW PF 0.1	A
CY	CEANOTHUS GRISEUS HORIZONTALIS 'YANKEE POINT' YANKEE POINT CEANOTHUS	X	5 GAL @ 60" OC	DETAIL 'B' & 'C' SHEET L-2.1	LOW PF 0.1	B
DG	DIETES GRANDIFLORA 'VARIEGATA' STRIPED FORTNIGHT LILY	X	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	A/B
HS	HELICTOTRICHON SEMPERVIRENS BLUE OAT GRASS	X	5 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	A/B-15
L	LOMANDRA LONGIFOLIA BREEZE DWARF MAT RUSH	X	5 GAL. @ 24" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	A/B
LC	LANTANA CAMARA 'GOLD MOUND' GOLD MOUND LANTANA	X	5 GAL. @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.1	LOW PF 0.1	A/B-10
MR	MAHONIA REPENS CREEPING MAHONIA	X	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	A/B
MU	MUHLENBERGIA RIGENS DEER GRASS	X	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	A/B-10
PD	PHORMIUM 'DAZZLER' NEW ZEALAND FLAX	X	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	A/B
RC	ROMNEYA COULTERI MATILIJA POPPY	X	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.1	LOW PF 0.1	B
RH	RHAMNUS CALIFORNICA 'LEATHERLEAF' COFFEEBERRY	X	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.1	MEDIUM PF 0.4	B
SL	SALVIA LEUCANTHA 'SANTA BARBARA' SANTA BARBARA SAGE	X	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.1	LOW PF 0.1	A/B



SCALE: 1" = 20'-0"

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LICENSED LANDSCAPE ARCHITECT
DIRK J GAUDET
3970
November 2015
Renewal Date
08-11-15
Date
STATE OF CALIFORNIA

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

SHEET TITLE

PLANTING PLAN

ISSUE

1	08-11-15	FUEL MODIFICATION

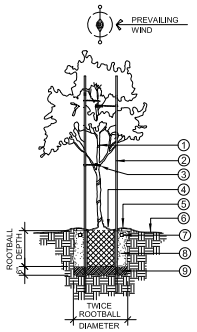
PHASE

Fuel Modification

ORIGIN DATE 08-06-15
PLOT DATE 08-11-15
DRAWN BY: TP
CHECKED BY: DG

SHEET 4 of 7

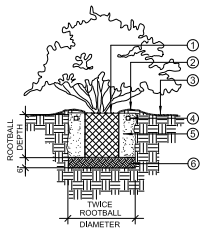
L-2.0



1. TREE TRUNK
2. 2" DIA. x 12' LONG MIN. LODGE POLE PINE STAKES: ONE STAKE FOR 5 GAL. TWO STAKES FOR 15 GAL. AND LARGER TREES.
3. RUBBER TIES WRAP ONCE AROUND STAKE AND PROVIDE 2 TIES FOR 5 GAL. & 3 TIES FOR 15 GAL. AND LARGER TREES.
4. TREE ROOTBALL: 5 & 15 GAL. 1" ABOVE GRADE. 24" BOX & LARGER 3" ABOVE GRADE. TAPER ROOTBALL TO GRADE
5. 4" HIGH WATER RETENSION BASIN. FORM FROM PLANT PIT EXCAVATION. MAY BE RAKED OUT PRIOR TO OTHER WORK AS DIRECTED BY LANDSCAPE ARCHITECT
6. FINISH GRADE
7. FERTILIZER TABLETS (AGRIFORM 21 GRAM TABLETS)
   -10 TABLETS PER 15 GAL. TREE
   -14 TABLETS PER 20/24" BOXED TREES
8. PREPARED BACKFILL PER SPECIFICATIONS
9. 6" ZONE OF OVER-EXCAVATED AND RE-COMPACTED NATIVE SOIL

DETAIL
NOT TO SCALE

Ⓐ STANDARD TRUNK TREE PLANTING AND STAKING

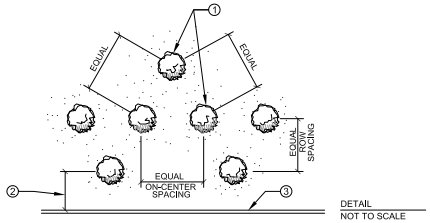


1. ROOTBALL CROWN SHALL BE 1" ABOVE FINISH GRADE. AVOID PLANTING SHRUBS DIRECTLY IN FRONT OF IRRIGATION SPRAY HEADS. PROVIDE CLEARANCE WHEN POSSIBLE
2. 3" HIGH WATER RETENTION BASIN. FORM FROM PLANT PIT EXCAVATION. MAY BE RAKED OUT PRIOR TO OTHER WORK AS DIRECTED BY LANDSCAPE ARCHITECT
3. FINISH GRADE
4. FERTILIZER TABLETS (AGRIFORM 21 GRAM TABLETS)
   -3 TABLETS PER 1 GAL. SHRUB
   -5 TABLETS PER 5 GAL. SHRUB
   -9 TABLETS PER 15 GAL. SHRUB
5. PREPARED BACKFILL PER SPECIFICATIONS
6. 6" ZONE OF OVER-EXCAVATED AND RE-COMPACTED NATIVE SOIL

DETAIL
NOT TO SCALE

Ⓑ SHRUB/SMALL MULTI-TRUNK TREE PLANTING

1. TRIANGULAR SPACE PLANT MATERIAL PER SPACING INDICATED IN THE PLANTING LEGEND.
2. 1/2 ON-CENTER SPACING.
3. PAVING, CURB, BUILDING, OR HEADER.



DETAIL
NOT TO SCALE

Ⓒ SHRUB SPACING

LANDSCAPE PLANTING SPECIFICATIONS

1. GENERAL

   A. The Landscape Contractor shall furnish all labor, equipment, materials and services for the complete installation as described by the landscape planting and irrigation drawings and in these specifications.

   B. Any deviation from the plan or specifications is to have a prior written approval by the Owner or his representative.

   C. All materials and workmanship shall be of highest quality. Work shall meet the requirements of all governing codes, ordinances, laws, etc., relating to the work.

   D. Samples and/or photographs of all materials shall be submitted to the Landscape Architect for written approval prior to installation. The Landscape Architect & Owner reserves the right to reject unsatisfactory material before and after planting. Acceptable replacements will be required prior to final acceptance.

   F. Until all work is completed and accepted by the Owner, the Landscape Contractor shall assume all risks and bear all losses to his materials and equipment.

   G. During the course of the contract (including maintenance period), the Landscape Contractor shall provide and maintain public liability and property damage insurance. The minimum amount of public liability insurance shall be $1,000,000 for each person injured. The minimum amount of property damage insurance shall be $1,000,000 for any single property damage claim.

   H. The Landscape Contractor shall repair work damaged by him or make payment for each repair. Should the Landscape Contractor have his work damaged by another Contractor, he is to make arrangements with the other Contractor for the Contractor's repair or that Contractor's payment for the repair.

   I. Quantities given for plant materials specified for "on-center" spacing are shown for convenience only and are subordinate to the spacing given. Contractor is to supply a sufficient quantity of plants to fulfill the spacing requirements.

2. WEED CONTROL

   A. The Landscape Contractor is to remove all weeds and/or unwanted grasses (including the roots) existing in the landscape areas.

   B. All landscape areas are to receive the pre-emergent herbicide Surflan per manufacturer's instructions. Application of this herbicide shall be done by personnel licensed to handle agricultural chemicals.

3. SOIL CONDITIONING AND GRADING

   A. All landscape areas are to receive an even application (2 yrd. per 1,000 sq.ft.) of Kellog 'Soil Amender' uniformly into the top 12" soil.

   B. All rock or unbroken soil clods over 1" in diameter brought to the surface are to be removed from the site.

3. PLANTING

   A. All plants (Except Bare Root Palms) are to have a planting pit two (2) times the diameter of the rootball and 4" below its depth. The plant pit is to be backfilled (after positioning of plant) with the following:
   1/2 SITE SOIL
   1/2 GROMULCH SOIL AMEND

   B. Groundcovers are to be planted so that after settling, the crown of the plant is even with finish grade, roots fully covered with soil and firmed.

   C. Plants grown on vine stakes are to have the stakes removed. Plants are to be attached to walls/fences with transparent, glue-on fasteners.

   D. Watering of plants is to take place immediately after planting.

   E. Mulch all shrub and ground cover areas with a 3" layer Premium Forest Mulch. Free of leaves and small twigs. Provided by C&M Topsoil Landscape Centers. 818.899.5485 or approved equal. Keep mulch 6" away from plant trunk.

   F. Staking of trees is to be per details.

   G. All applications are given for bidding purposes only. After construction, but prior to planting contractor must have soil tested for agricultural analysis (at least (2) soil samples of final grade at site), and submit the results to the Landscape Architect for interpretation and recommendations.

4. PLANTS

   A. All plant material must be vigorous, healthy, free from disease, not root bound and labeled. Soil in the container should be moist. All trees must show a tapering trunk, have multiple roots in all directions, preferably feathered (except palm trees) with multiple branches. Do not prune any plants unless directed by Landscape Architect.

   B. Before planting first determine true surface of rootball: located where the first main root branches form the trunk. Remove container soil to find true rootball. Loosen any circling roots on the outside edge of the root ball after removing the plant from its container.

5. CLEAN UP

   A. At the completion of all planting operations, the premises are to be left neat and clean. All surplus materials, nursery tags and waste are to be removed from the site.

6. MAINTENANCE

   A. The Landscape Contractor is to maintain all landscape areas for a period of ninety (90) calendar days from the date of completion, established by the Owner or his representative. All areas are to be kept well watered, free of weeds, unwanted grasses and trash during this period.

   B. An application of Tri-C (6.2.4) fertilizer is to be made at 30-day intervals during the maintenance period, at the rate of 10 pounds per 1,000 sq.ft.

   C. Maintenance is to include control and treatment of all plant disease and plant pests encountered during this period. Application of chemicals is to be performed by a Licensed Chemical Applicator.

   D. The irrigation system is to be checked for coverage at each watering. Malfunctions, such as dirty heads, clogged emitters, adjustment of heads, etc., are to be corrected on the spot. More serious defects are to be reported immediately to the Owner for correction by the Landscape Contractor.

7. GUARANTEE

   A. All plant material (other than flatted material) less than 24" Box size shall be guaranteed for a period of 3 months. All palms & 24" Box material and larger material shall be guaranteed for a period of one year. Guarantee period commences from the time of final inspection and acceptance by the Owner. Plants used for replacement shall be the same kind and size as originally planted. They are to be planted following the original plans and specifications.

End of Specifications

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LICENSED LANDSCAPE ARCHITECT
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24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

SHEET TITLE

PLANTING DETAILS

ISSUE

1	08-11-15	FUEL MODIFICATION

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SHEET 5 of 7

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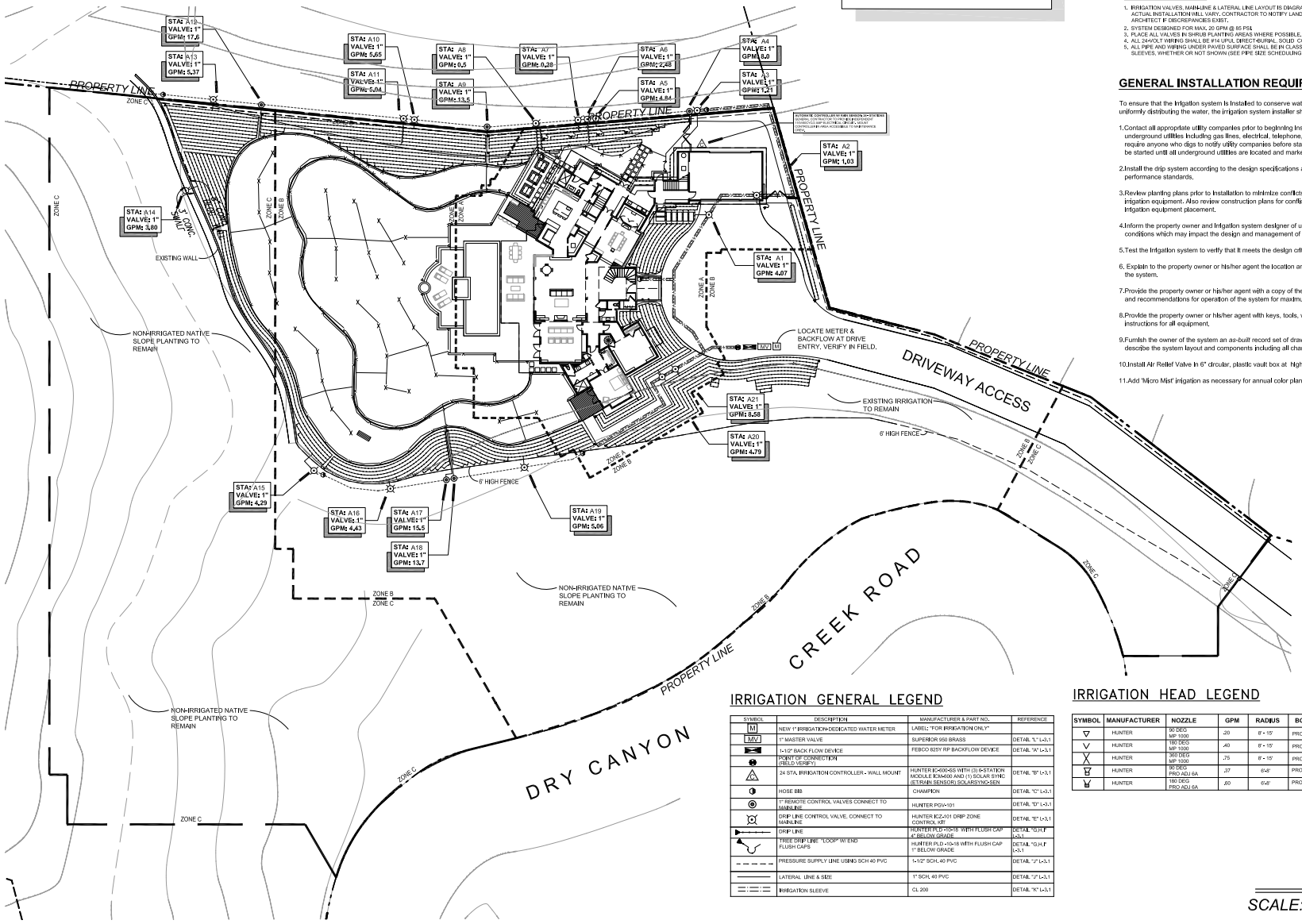


PRODUCTS

1. PROVIDE AS SPECIFIED OR APPROVED EQUAL.

STATION LEGEND

STA:	CONTROLLER STATION / HYDROVALVE
VALVE:	VALVE SIZE IN INCHES
GPM/DRIP:	GALLONS PER MINUTE/DRIP

PIPE SIZING SCHEDULE

GPM	SIZE	SLEEVE SIZE	NO. OF WIRE
0-4	1/2"	2"	0-7
5-8	3/4"	2"	0-7
9-13	1"	2"	8-14
14-23	1-1/4"	2-1/2"	15-20
24-32	1-1/2"	2-1/2"	
33-53	2"	3"	
54-74	2-1/2"	6"	

DESIGN NOTES

1. IRRIGATION VALVES, MAIN-LINE & LATERAL LINE LAYOUT IS DIAGRAMMATIC. ACTUAL INSTALLATION WILL VARY. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IF DISCREPANCIES EXIST.
2. SYSTEM DESIGNED FOR MAX. 20 GPM @ 65 PSI.
3. PLACE ALL VALVES IN SHRUB PLANTING AREAS WHERE POSSIBLE.
4. ALL 24-VOLT WIRING SHALL BE #14 UPUL DIRECT-BURIAL SOLID COPPER.
5. ALL PIPE AND WIRING UNDER PAVED SURFACE SHALL BE IN CLASS 200 PVC SLEEVES, WHETHER OR NOT SHOWN (SEE PIPE SIZE SCHEDULING BELOW).

GENERAL INSTALLATION REQUIREMENTS

To ensure that the irrigation system is installed to conserve water resources by efficiently and uniformly distributing the water, the irrigation system installer should:

1. Contact all appropriate utility companies prior to beginning installation, to locate underground utilities including gas lines, electrical, telephone, cable, and so forth. State laws require anyone who digs to notify utility companies before starting. The installation should not be started until all underground utilities are located and marked.
2. Install the drip system according to the design specifications and manufacturer's published performance standards.
3. Review planting plans prior to installation to minimize conflicts between larger plants and irrigation equipment. Also review construction plans for conflicts between hardscape and irrigation equipment placement.
4. Inform the property owner and irrigation system designer of unusual or abnormal soil conditions which may impact the design and management of the irrigation system.
5. Test the irrigation system to verify that it meets the design criteria.
6. Explain to the property owner or his/her agent the location and operation of all components of the system.
7. Provide the property owner or his/her agent with a copy of the controller program you have set and recommendations for operation of the system for maximum water conservation.
8. Provide the property owner or his/her agent with keys, tools, warranties and operating instructions for all equipment.
9. Furnish the owner of the system an *as-built* record set of drawings. Within this set of drawings, describe the system layout and components including all changes from the original design.
10. Install Air Relief Valve in 6" circular, plastic vault box at high point at all drip irrigation circuits.
11. Add 'Micro Mist' irrigation as necessary for annual color planting.

IRRIGATION GENERAL LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER & PART NO.	REFERENCE
M	NEW 1" IRRIGATION-DEDICATED WATER METER	LABEL: "FOR IRRIGATION ONLY"	
MV	1" MASTER VALVE	SUPERIOR 950 BRASS	DETAIL "L" L-3.1
	1-1/2" BACK FLOW DEVICE	FEBCO 825Y RP BACKFLOW DEVICE	DETAIL "A" L-3.1
	POINT OF CONNECTION (FIELD VERIFY)		
	24 STA, IRRIGATION CONTROLLER - WALL MOUNT	HUNTER IC-600-SS WITH (3) I-STATION MODULE ICM-600 AND (1) SOLAR SYNC (ET/RAIN SENSOR) SOLARSYNC-SEN	DETAIL "B" L-3.1
	HOSE BIB	CHAMPION	DETAIL "C" L-3.1
	1" REMOTE CONTROL VALVES CONNECT TO MAINLINE	HUNTER PGV-101	DETAIL "D" L-3.1
	DRIP LINE CONTROL VALVE. CONNECT TO MAINLINE	HUNTER ICZ-101 DRIP ZONE CONTROL KIT	DETAIL "E" L-3.1
	DRIP LINE	HUNTER PLD -15-18 WITH FLUSH CAP 4" BELOW GRADE	DETAIL "G,H,I" L-3.1
	TREE DRIP LINE "LOOP" W/ END FLUSH CAPS	HUNTER PLD -15-18 WITH FLUSH CAP 1" BELOW GRADE	DETAIL "G,H,I" L-3.1
	PRESSURE SUPPLY LINE USING SCH 40 PVC	1-1/2" SCH. 40 PVC	DETAIL "J" L-3.1
	LATERAL LINE & SIZE	1" SCH. 40 PVC	DETAIL "J" L-3.1
	IRRIGATION SLEEVE	CL 200	DETAIL "K" L-3.1

IRRIGATION HEAD LEGEND

SYMBOL	MANUFACTURER	NOZZLE	GPM	RADIUS	BODY	DETAIL
	HUNTER	90 DEG MP 1000	.20	8' - 15'	PROS-4	DETAIL F L-3.1
	HUNTER	180 DEG MP 1000	.40	8' - 15'	PROS-4	DETAIL F L-3.1
	HUNTER	360 DEG MP 1000	.75	8' - 15'	PROS-4	DETAIL F L-3.1
	HUNTER	90 DEG PRO ADJ 6A	.37	6'-8'	PROS-6	DETAIL F L-3.1
	HUNTER	180 DEG PRO ADJ 6A	.80	6'-8'	PROS-6	DETAIL F L-3.1

SCALE: 1" = 20'-0"

Gaudet Design Group
Landscape Architecture
2109 Stoner Avenue
West Los Angeles, California 90025
310.828.4908 310.828.4906 Fax

LICENSED LANDSCAPE ARCHITECT — 3970 — November 2015 Renewal Date — 08-11-15 Date — STATE OF CALIFORNIA

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

SHEET TITLE

IRRIGATION PLAN

ISSUE

1	08-11-15	FUEL MODIFICATION

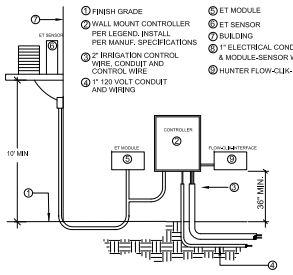
PHASE

Fuel Modification

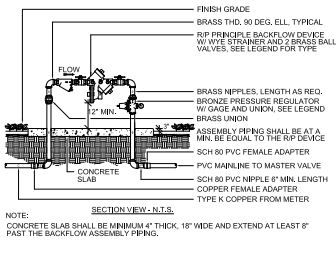
ORIGIN DATE 08-06-15
PLOT DATE 08-11-15
DRAWN BY: TP
CHECKED BY: DG

SHEET 6 of 7

L-3.0



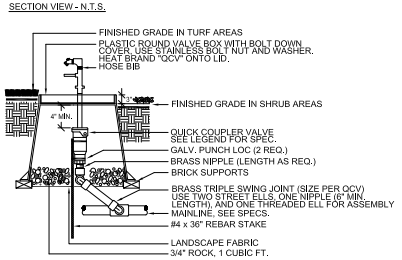
A CONTROLLER



SECTION VIEW - N.T.S.

NOTE:
CONCRETE SLAB SHALL BE MINIMUM 4" THICK, 18" WIDE AND EXTEND AT LEAST 6" PAST THE BACKFLOW ASSEMBLY PIPING.

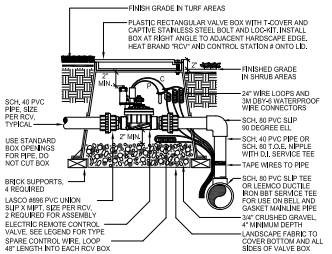
B BACKFLOW DEVICE



SECTION VIEW - N.T.S.

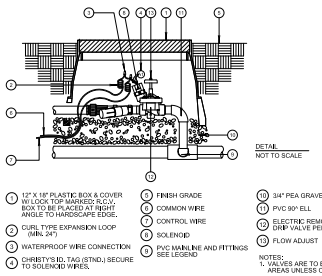
NOTE:
USE TEFLON TAPE ON ALL THREADED FITTINGS TYPICAL.

C HOSE BIB

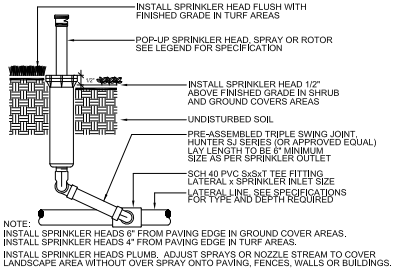


SECTION VIEW - N.T.S.

D REMOTE CONTROL VALVE



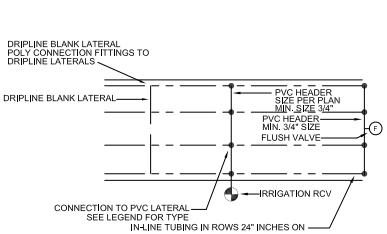
E DRIP VALVE ASSEMBLY



NOTE:
INSTALL SPRINKLER HEADS 6" FROM PAVING EDGE IN GROUND COVER AREAS.
INSTALL SPRINKLER HEADS 4" FROM PAVING EDGE IN TURF AREAS.
INSTALL SPRINKLER HEADS PLUMB. ADJUST SPRAYS OR NOZZLE STREAM TO COVER LANDSCAPE AREA WITHOUT OVER SPRAY ONTO PAVING, FENCES, WALLS OR BUILDINGS.

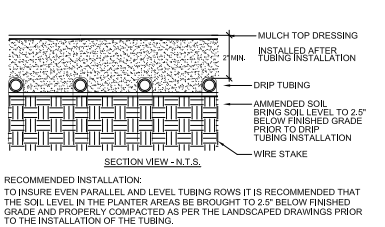
SECTION VIEW - N.T.S.

F ROTATOR / SPRAY HEAD



INSTALL DRIP FLUSH VALVE PER DETAIL AT THE END OF EACH TUBING SECTION PER PLAN

G DRIP LINE LAYOUT



SECTION VIEW - N.T.S.

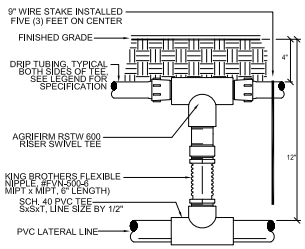
RECOMMENDED INSTALLATION:

TO INSURE EVEN PARALLEL AND LEVEL TUBING ROWS IT IS RECOMMENDED THAT THE SOIL LEVEL IN THE PLANTER AREAS BE BROUGHT TO 2.5" BELOW FINISHED GRADE AND PROPERLY COMPACTED AS PER THE LANDSCAPED DRAWINGS PRIOR TO THE INSTALLATION OF THE TUBING.

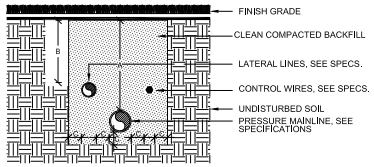
INSTALL TUBING AS INDICATED ON THESE DRAWINGS AND SECURE TO GRADE USING WIRE HOOP STAKES AT 5 FEET ON CENTER SPACING.

BACKFILL FINAL 2.5" OF BARK MULCH OVER THE TUBING AFTER INSTALLATION OF THE TUBING AND OBSERVATION BY THE OWNER'S AUTHORIZED REPRESENTATIVE.

H DRIP LINE INSTALLATION

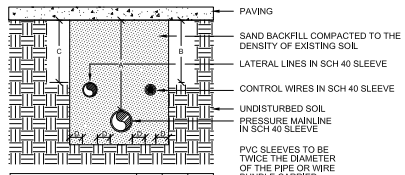


I DRIP LINE CONNECTION



DIMENSION	A	B	C
1/2" TO 2-1/2" IN SIZE	18"	12"	4"
3" TO 6" IN SIZE	24"		4"

J PIPE INSTALLATION



DIMENSION	A	B	C	D
1/2" TO 4" IN SIZE	36"	24"	24"	4"

K SLEEVE INSTALLATION

LANDSCAPE IRRIGATION SPECIFICATIONS

1. GENERAL

A. All workmanship and materials shall conform to local building and plumbing codes having jurisdiction.

B. Apply and pay for all permits required for this portion of the work.

C. Prior to submitting bid, examine the site and the conditions thereof.

D. The work to be performed under this contract shall include furnishing all labor, materials, tools, machinery, and equipment necessary to install a complete sprinkler system as shown on the Irrigation plans, including trenching, backfilling, etc.

E. Prior to commencing work on the project, arrange an on-site conference with the Landscape Architect or his duly appointed representative.

F. The installation and operation of the system must be approved by the Landscape Architect or Representative.

G. If it is found during installation that the site varies from the drawings, notify the Landscape Architect before proceeding with the work.

H. Coordinate the installation of all sprinkler materials, including pipe, with the landscape drawings to avoid interfering with the planting of trees shrubs, or other planting.

I. It is the intent of these drawings and specifications to indicate a complete sprinkler system installed and ready for use without further cost.

J. Record accurately on one set of reproductible prints of the drawings, an as-built plan kept up to date as the project is under construction. In addition, dimension from two permanent points of reference the location of the pressure supply line routing, all valves, plug tees, and control wire.

K The sprinkler system shall be unconditionally guaranteed for a period of one year from the date of acceptance. Manufacturer warranties shall not replace this guarantee, and the Contractor shall be liable for repairs and replacement of failed material.

L. Upon completion of the work, remove all excess material, equipment and waste to the satisfaction of the Landscape Architect.

M. The sprinkler installation shall be deemed incomplete until all sprinkler heads, valves and all related irrigation equipment have been checked and adjusted to best conform to the conditions and requirements that will prevail at the finish site, and approved as-built drawings have been submitted. This includes change of nozzles if required for proper coverage.

N. All sprinkler heads and piping shall be installed per their details, in their respective locations, and shall be of the manufacturer noted unless otherwise approved.

O. All material required for the project shall be as indicated in the legend and installed according to same or as recommended by manufacturer.

P. Connection between controller and remote control valves shall be made with direct burial AWG-UF 600 volt wire, wire sizing No. 14, splices where permitted shall be waterproofed.

Q. Plastic fittings shall be of Schedule 40, polyvinyl chloride injection molded and side gated. Where threads are required, these shall be injection molded also.

R. Trenches shall be excavated to sufficient depth to provide coverage of 18" over all pressure supply lines and 12" over all non-pressure lines unless otherwise noted on drawing when piping occurs under paved areas. Consider dimension to be below subgrade.

S. Backfill for trenching shall be compacted to a dry density equal to the adjacent undisturbed soil, and shall conform to adjacent grades without clips, sunken areas, humps, or other irregularities.

T. Initial backfill on plastic lines shall be of a fine granular material with no foreign matter larger than 1" in size.

U. Supply as part of this contract the following tools:

1. Two keys for the controller.
2. One controller chart for the controller supplied. This chart shall be a reduced drawing of the actual as-built system, with each station indicated in a different color. Chart shall be hermetically sealed between two pieces of plastic, 20 mils. each.

End of Specifications

GENERAL DRIP IRRIGATION NOTES

1. Drip lines to be covered w/ min. 2" layer of soil.
2. Irrigation submain and pipe under concrete to be PVC SCH 40.
3. Prevent kinking of tube, use elbows where tight bends are encountered.
4. "Snake" laterals about landscape area so as to allow for expansion and contraction due to temperature variations.
5. Do not use detergent or lubricants in polyethylene hose connections as they may cause accelerated deterioration of the hose.
6. Make all hose cuts squarely with a sharp knife or shears.
7. Dirt or other contaminants should be kept out of emission lines by placing tape over ends that are not immediately secured.
8. Flush all mains, submains, and laterals prior to emitter installation.
9. Have water running through laterals at low pressure (0-5 psi) during emitter installation.
10. Verify correct pressure regulator downstream pressure setting.
11. Before operation, open tubing (laterals) end caps, turn on water and allow it to flow freely for several minutes to flush lines clean. Do not bury tubing until emitters are placed correctly around or beside each plant.
12. Place all valve boxes in shrub planting away from main entries.

Gaudet Design Group
Landscape Architecture
2109 Stoner Avenue
West Los Angeles, California 90025
310.828.4908 310.828.4906 Fax

LICENSED LANDSCAPE ARCHITECT
TIMOTHY J. GAUDET
3970
November 2015
Renewal Date
08-11-15
Date
STATE OF CALIFORNIA

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

SHEET TITLE

IRRIGATION DETAILS

ISSUE

1	08-11-15	FUEL MODIFICATION

PHASE

Fuel Modification

ORIGIN DATE 08-06-15
PLOT DATE 08-11-15
DRAWN BY: TP
CHECKED BY: DG

SHEET 7 of 7

L-3.1

APPENDIX C

Tree Information Matrices

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Tree Information Matrices

Tree No.	Botanical Name	Common Name	Stems	Individual Stem Diameter (in.)			Combined DBH (Ordinance)	Height (ft.)	Canopy (ft.)	Health	Structure	Regulation	Notes	X	Y
				DBH	DBH 2	DBH 3									
1	*Quercus agrifolia*	Coast live oak	2	5.5	4.3		9.3	18	12	Good	Fair	Yes -SM		-118.665	34.10886
2	*Quercus agrifolia*	Coast live oak	1	1				8	4	Good	Fair	No		-118.665	34.10888
3	*Pinus halepensis*	Aleppo pine	1	7				25	10	Good	Good	No		-118.665	34.10892
4	*Pinus halepensis*	Aleppo pine	1	18				35	25	Fair	Fair	No		-118.665	34.10896
5	*Pinus halepensis*	Aleppo pine	1	19				45	30	Fair	Fair	No		-118.665	34.109
6	*Pinus halepensis*	Aleppo pine	1	3				20	6	Fair	Fair	No		-118.665	34.10896
7	*Pinus halepensis*	Aleppo pine	1	5				25	9	Fair	Fair	No		-118.665	34.10898
8	*Pinus halepensis*	Aleppo pine	1	7				30	12	Fair	Fair	No		-118.665	34.10895
9	*Koelreuteria bipinnata*	Chinese flame tree	1	3				16	9	Poor	Fair	No		-118.665	34.10901
10	*Quercus agrifolia*	Coast live oak	2	3.4	3.8		7.2	12	12	Good	Fair	No		-118.665	34.109
11	*Pinus halepensis*	Aleppo pine	1	7				25	12	Fair	Poor	No		-118.665	34.109
12	*Populus fremontii*	Western cottonwood	1	11				35	12	Poor	Poor	No	Planted	-118.665	34.10905
13	*Quercus agrifolia*	Coast live oak	1	4.3				16	12	Good	Good	No		-118.665	34.10904
14	*Pinus halepensis*	Aleppo pine	1	26				40	30	Fair	Fair	No		-118.665	34.10914
15	*Quercus agrifolia*	Coast live oak	1	1				7	3	Good	Good	No		-118.665	34.10923
16	*Pinus halepensis*	Aleppo pine	1	9				35	18	Fair	Fair	No		-118.665	34.10936
17	*Pinus halepensis*	Aleppo pine	1	16				45	30	Fair	Fair	No		-118.665	34.10933
18	*Cupressus sargentii*	Sargent cypress	2	9	9.5			35	25	Fair	Fair	No		-118.665	34.10926
19	*Pinus halepensis*	Aleppo pine	1	9				35	18	Fair	Fair	No		-118.665	34.10929
20	*Populus fremontii*	Western cottonwood	1	11				40	25	Poor	Fair	No	Planted	-118.665	34.10936
21	*Schinus molle*	Peruvian pepper	3	7	6			30	25	Fair	Fair	No		-118.665	34.10943
22	*Schinus molle*	Peruvian pepper	1	6				18	12	Fair	Fair	No		-118.665	34.10949
23	*Pinus halepensis*	Aleppo pine	1	22				55	35	Poor	Poor	No		-118.665	34.10948
24	*Populus fremontii*	Western cottonwood	1	14.8				60	35	Fair	Fair	No	Planted	-118.665	34.10949
25	*Populus fremontii*	Western cottonwood	1	11				55	25	Fair	Poor	No	Planted	-118.665	34.10949
26	*Populus fremontii*	Western cottonwood	1	13.3				60	30	Fair	Poor	No	Planted	-118.665	34.10949
27	*Populus fremontii*	Western cottonwood	1	5.4				16	12	Fair	Poor	No	Planted	-118.665	34.10947
28	*Populus fremontii*	Western cottonwood	1	10.8				35	30	Fair	Poor	No	Planted	-118.665	34.10947
29	*Populus fremontii*	Western cottonwood	1	14				55	35	Fair	Poor	No	Planted	-118.665	34.10949
30	*Populus fremontii*	Western cottonwood	1	13.3				55	35	Poor	Poor	No	Planted	-118.665	34.10949
31	*Pinus halepensis*	Aleppo pine	1	20				55	35	Fair	Fair	No		-118.665	34.10951
32	*Pinus halepensis*	Aleppo pine	1	20				55	35	Fair	Fair	No		-118.665	34.10953
33	*Pinus halepensis*	Aleppo pine	1	19				40	35	Fair	Fair	No		-118.665	34.10942
34	*Schinus molle*	Peruvian pepper	1	8				16	16	Fair	Fair	No		-118.665	34.10932
35	*Schinus molle*	Peruvian pepper	1	6				18	16	Poor	Poor	No		-118.665	34.10929
37	*Pinus halepensis*	Aleppo pine	1	15				35	25	Fair	Fair	No		-118.665	34.10906
38	*Quercus agrifolia*	Coast live oak	1	3.7				9	8	Good	Good	No		-118.666	34.10883
39	*Populus fremontii*	Western cottonwood	1	13.3				50	30	Poor	Fair	No	Planted	-118.666	34.10882
40	*Quercus agrifolia*	Coast live oak	3	4.6	3.1	2.4	7.7	12	9	Good	Good	No		-118.665	34.10883
41	*Quercus agrifolia*	Coast live oak	2	1.4	1.3		2.7	8	4	Fair	Fair	No		-118.665	34.10882
42	*Quercus agrifolia*	Coast live oak	2	1.7	2.8		4.5	10	6	Fair	Fair	No		-118.665	34.1088
43	*Quercus agrifolia*	Coast live oak	2	2.8	2.6		5.4	10	8	Fair	Fair	No		-118.665	34.10892
44	*Pinus halepensis*	Aleppo pine	1	8				20	14	Fair	Fair	No		-118.665	34.10913

Tree Information Matrices

Tree No.	Botanical Name	Common Name	Stems	Individual Stem Diameter (in.)			Combined DBH (Ordinance)	Height (ft.)	Canopy (ft.)	Health	Structure	Regulation	Notes	X	Y
				DBH	DBH 2	DBH 3									
45	*Schinus molle*	Peruvian pepper	2	13	12			25	25	Fair	Fair	No		-118.665	34.10922
46	*Schinus molle*	Peruvian pepper	3	6	6	3		25	20	Fair	Fair	No		-118.665	34.10928
47	*Pinus halepensis*	Aleppo pine	2	7	6			25	16	Fair	Fair	No		-118.665	34.10929
48	*Pinus halepensis*	Aleppo pine	1	9				35	20	Fair	Fair	No		-118.665	34.10934
49	*Quercus agrifolia*	Coast live oak	1	11				35	20	Fair	Fair	Yes -SM/LC	Offsite - Private property	-118.664	34.10921
50	*Quercus agrifolia*	Coast live oak	1	14				35	30	Fair	Fair	Yes -SM/LC	Offsite - Private property	-118.664	34.10933
51	*Quercus agrifolia*	Coast live oak	2	8	6		14	30	20	Fair	Fair	Yes -SM/LC	Offsite - Private property	-118.664	34.10949
52	*Quercus agrifolia*	Coast live oak	2	11	8		19	30	25	Fair	Fair	Yes -SM/LC	Offsite - Private property	-118.664	34.10951
53	*Pinus halepensis*	Aleppo pine	1	22				45	35	Fair	Fair	No		-118.664	34.11
54	*Populus fremontii*	Western cottonwood	1	11				55	20	Fair	Fair	No	Planted	-118.664	34.10996
55	*Populus fremontii*	Western cottonwood	1	5				35	8	Fair	Fair	No	Planted	-118.664	34.10993
56	*Pinus halepensis*	Aleppo pine	1	22				55	25	Fair	Fair	No		-118.664	34.10991
57	*Pinus halepensis*	Aleppo pine	1	17				50	22	Fair	Fair	No		-118.664	34.10989
58	*Populus fremontii*	Western cottonwood	1	6.4				35	9	Poor	Fair	No	Planted	-118.664	34.10985
59	*Populus fremontii*	Western cottonwood	1	9.8				45	17	Poor	Fair	No	Planted	-118.664	34.10986
60	*Pistacia chinensis*	Chinese pistache	1	7				18	18	Fair	Fair	No		-118.665	34.10979
61	*Pistacia chinensis*	Chinese pistache	1	7				25	25	Fair	Fair	No		-118.665	34.10966
62	*Pinus halepensis*	Aleppo pine	1	8				35	14	Fair	Fair	No		-118.665	34.10955
63	*Pinus halepensis*	Aleppo pine	1	20				55	35	Fair	Fair	No	Offsite - Private property	-118.665	34.10961
64	*Populus fremontii*	Western cottonwood	1	16				50	35	Fair	Fair	No	Planted	-118.665	34.10971
65	*Populus fremontii*	Western cottonwood	1	14.4				45	25	Poor	Fair	No	Planted	-118.665	34.1097
66	*Populus fremontii*	Western cottonwood	1	12.5				40	25	Poor	Fair	No	Planted	-118.665	34.1098
67	*Pinus halepensis*	Aleppo pine	1	12				35	25	Fair	Poor	No		-118.665	34.10979
68	*Populus fremontii*	Western cottonwood	2	12	7.5			40	20	Fair	Poor	No	Planted	-118.665	34.10981
69	*Populus fremontii*	Western cottonwood	1	10.7				30	12	Poor	Poor	No	Planted	-118.665	34.10983
70	*Populus fremontii*	Western cottonwood	1	12				45	16	Poor	Poor	No	Planted	-118.665	34.10985
71	*Pinus halepensis*	Aleppo pine	1	19				55	35	Fair	Fair	No	Offsite - Private property	-118.665	34.10992
72	*Populus fremontii*	Western cottonwood	1	13				50	25	Fair	Fair	No	Planted	-118.664	34.10997
73	*Populus fremontii*	Western cottonwood	1	18.1				50	35	Fair	Fair	No	Planted	-118.664	34.10999
74	*Populus fremontii*	Western cottonwood	1	10.9				35	16	Poor	Fair	No	Planted	-118.664	34.11001
75	*Platanus racemosa*	California sycamore	1	3.6				7	5	Poor	Poor			-118.664	34.11007

APPENDIX D

Santa Monica Mountains Biological Assessment Checklist

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Santa Monica Mountains Biological Assessment Checklist	Page	Initials
Title Page	Title page	RM
A. Project name.	Title page	RM
B. County identification numbers (Project number, CUP number, APNs).	Title page	RM
C. Applicant name and contact information.	Title page	RM
E. Name and affiliation of preparer.	Title page	RM
F. Date.	Title page	RM
I. Project and Survey Description	Pg. 1	RM
A. Project description.	Pg. 1	RM
1. Project name, type of report, address of project.	Pg. 1	RM
2. County application identification numbers including APNs	Pg. 1	RM
3. Applicant name and contact information.	Title page	RM
4. Parcel and acreage information.	Pg. 1	RM
5. Location	Pg. 7	RM
a. Map of regional features showing project location, including watershed boundaries, proximity to public lands, streams, drainages, and roads in region.	Pgs. 3, 5, and 9	RM
b. Color aerial photograph(s) showing regional context of project, project parcel(s), existing development, open space, etc.	Pg. 5	RM
6. Detailed description of proposed project, including area of vegetation removal, modification, or disturbance, grading volumes, etc.	Pg. 1	RM
B. Description of major natural features. 1. Landforms and geomorphology. 2. Drainage and wetland features. 3. Soils (soil/geological map optional).	Pgs. 7 and 8	RM
C. Methodology of biological survey	Pgs. 11-14	RM
1. Date(s) of survey(s).	Pg. 11	RM
2. Detailed description of survey methods.	Pgs. 11-14	RM
II. Biological Characteristics of the site	Pgs. 18-43	RM
A. Flora.	Pgs. 18, 25, and 26	RM
1. Map of vegetation communities, specifying system used (The use of Sawyer et al. 2009 is recommended).	Pg. 21	RM
2. Map of project site showing the habitat areas (H1, H2, H2 “High Scrutiny”, H3 Habitat) from the LIP Biological Resources Map	Pg. 16	RM
3. Vegetation cover table, with acreages of each vegetation type (can be a legend in map).	Pg. 25	RM

4. Location, trunk diameter, and canopy extent mapped for each protected tree (oak, sycamore, walnut, bay) that is within 25 feet of any portion of the proposed development (onsite or offsite). Note: For jurisdictional oaks (>5" DBH) on or within 200' of property, an oak tree report is required. Include oak tree reports in an appendix.	Pg. 21 and Appendix C	RM
B. Fauna	Pg. 26	RM
1. Discussion of species observed; description of wildlife community.	Pg. 26	RM
C. Sensitive species.	Pg. 26	RM
1. Table of possible sensitive species and possible sensitive vegetation, including brief discussion of potential impacts to any sensitive species.	Pgs. 27-42	RM
2. Maps of occurrence for sensitive species observed	Pg. 21	RM
D. List of flora and fauna observed or known from site	Appendix A	RM
E. Survey Checklist (see Part B, Survey Checklist, above)	Included herein	RM
III. Bibliography	Pg. 59-61	RM
A. Bibliography of references cited in text	Pgs. 59-61	RM
IV. Appendices		
A. Site photographs (color)	Pg. 23	RM
B. Qualifications of biologists and other contributors	Attached along with checklist	RM
C. Oak tree report for sites with jurisdictional native oak trees (if applicable)		

RM = Randall McInvale - Dudek biologist

Contributing Biologist/ Arborist Qualifications

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John Davis IV – Senior Ecologist

John Davis IV is a senior ecologist in the Santa Barbara office with over 20 years' experience, specializing in biological assessments; special-status plant and wildlife species surveys; habitat restoration; and environmental regulations, permitting, and compliance. Mr. Davis IV's expertise is in identification and risk management of potential biological constraints for a diversity of land use projects, including energy, infrastructure, residential, commercial, and habitat restoration projects. He has effectively assisted clients with project design and agency negotiations, produced defensible biological technical reports, and managed and coordinated the biological resources sections of California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documents and technical biological reports for the Endangered Species Act (ESA), California Coastal Act (CCA), and Clean Water Act (CWA) permitting. Additionally, Mr. Davis IV peer reviews technical reports and CEQA/NEPA documents, responds to agency comments, and addresses requests for technical information during in the environmental permitting process. He also represents clients in project meetings, on-site visits with agency personnel, and during public hearings.

Mr. Davis IV has extensive experience surveying for a number of special-status invertebrate, reptile, amphibian, and mammal species. He is permitted by the U.S. Fish and Wildlife Service (USFWS) to conduct surveys for listed vernal pool branchiopods (fairy and tadpole shrimp) and the federally endangered Morro shoulderband snail (*Helminthoglypta walkeriana*). USFWS has also permitted him to perform habitat enhancement and construction-related activities for the Morro shoulderband snail and handle the federally threatened California red-legged frog (*Rana draytonii*). In addition, he is USFWS and California Department of Fish and Wildlife (CDFW)–qualified to survey for the San Joaquin kit fox (*Vulpes macrotis mutica*) and the desert tortoise (*Gopherus agassizii*) throughout their ranges. Other wildlife species surveyed include the blunt-nosed leopard lizard (*Gambelia sila*), flat-tailed horned lizard (*Phrynosoma mcallii*), fringe-toed lizards (*Uma* spp.), California tiger salamander (*Ambystoma californiense*), arroyo toad (*Bufo californicus*), western spadefoot (*Spea hammondii*), southwestern pond turtle (*Clemmys marmorata pallida*), southern steelhead (*Oncorhynchus mykiss gairdneri*), tidewater goby (*Eucyclogobius newberryi*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), and burrowing owl (*Athene cunicularia*). In addition, Mr. Davis IV also has conducted numerous focused floristic (rare plant) surveys, vegetation mapping, and wetland delineations in Southern and Central California.

Mr. Davis IV represents Dudek on several qualified biologist lists, including the Counties of San Luis Obispo, Santa Barbara, Ventura, and Los Angeles. He is also recognized as a qualified biologist by the Significant Ecological Area Technical Advisory Committee (SEATAC) for Los Angeles County.

EDUCATION

Cal Poly State University, San Luis Obispo
MS, Biology, 2003

San Diego State University, San Diego
BS, Ecology, 1998

CERTIFICATIONS

USFWS 10(A) Recovery Permit
No. TE-110095-2

- California red-legged frog
- Listed vernal pool branchiopods
- Morro shoulderband snail

CDFG Scientific Collecting Permit
SC-008527

- Focused floristic surveys
- Herpetological surveys
- Small mammal trapping

ESA Certified Ecologist

SEATAC Qualified Biologist

PADI Rescue Diver

NAUI Reef Check CA Ecodiver

Certified Caulerpa Surveyor

PROFESSIONAL AFFILIATIONS

Ecological Society of America

The Wildlife Society

Society for the Study of Amphibians and Reptiles

Salmonid Restoration Federation

Reef Check California

Ventura County Tracking Team

PROJECT EXPERIENCE

Development - Coastal Zone

Charles Myers Desalination Reactivation Plant. As biological task manager in providing technical services and permitting support in order to receive the necessary authorizations needed to place the desalination facility back into production. Mr. Davis IV peer review of marine biological reports; managed the preparation of a biological assessment for the snowy plover and tidewater goby and biological resources assessment report for a SWRCB State Revolving Grant application; coordination of CWA 401/404 permitting; providing technical responses and attendance at a hearing in support of a CDP; coordination with the City and leagal and project team, and attendance at regular City meetings and coordination with CCC, USACE, and U.S. Coast Guard.

Santa Barbara Master Plan Update, City of Santa Barbara – Airport Division. Serving as biological task manager for comprehensive special-status species and wetland inventories for the entire airport property. Dudek responsibility includes updating environmental conditions data for biological resources, providing constraints-related design guidance to the team, and conducting impact assessment and policy evaluation for assigned resource areas under CEQA and NEPA. The biological resources inventories occured. In 2013, the Master Plan Update underwent a City and Public comment period. In 2014, prepared a programmatic restoration plan to mitigate potential future wetland impacts, which was included into the ADEIR currently under the City's review.

Paradiso del Mare Residential Development, County of Santa Barbara, California. As biological task manager and lead biologist, coordinated and conducted focused biological surveys that included white-tailed kite, California red-legged frog, focused floristic (rare plant), and general wildlife surveys. A review of jurisdictional hydrologic features and re-mapping of vegetation communities was also completed as part of the effort. Managed and prepared the biological survey report and white-tailed kite technical memorandum and impact analysis; assisted habitat restoration ecologists in development of a conceptual restoration plan. These reports were submitted to the County of Santa Barbara in 2011. Coordinated with key County and the CCC staff on biological issues throughout the project approval and appeal process and prepared technical memorandium in response to public comments. Provided technical support at County and California Coastal Commission (CCC) meetings. Planning Commission approved the project in November 2013 and the appeal was upheld by the Board of Supervisors in February 2014. The project was not found to have substantial issue by the CCC in April of 2014.

California Red-legged Frog (*Rana draytonii*) – Over **225** survey hours:

- Central and Southern California Coastal Streams. Conducted numerous USFWS protocol surveys for California red-legged frog for projects throughout San Luis Obispo, Santa Barbara, and Ventura Counties. Positive sightings on Santa Margarita Ranch, Winchester Canyon, Sespe Wilderness; and Davenport, Chorro, Dairy, and Arroyo Grande Creeks. Also conducted preconstruction and translocation surveys for all life forms of the California red-legged frog prior to dewatering and culvert repairs in Santa Barbara County. For the Wincester Canyon bridge repair project, several juvenile and adult frogs were identified outside of the impact area and were left in place, while other frogs were safely transported to a suitable location in the creek away from construction activities.

White-Tailed Kite (*Elanus leucurus*) – Over **60** survey hours:

- Santa Barbara and Orange Counties. Conducted focused California Coastal Commission raptor protocol nesting and foraging habitat surveys for the white-tailed kite. Positive sightings occurred at the Paradiso del Mare, Santa Barbara Ranch, and Newport Banning Ranch project sites. Observed nest with six fledglings. Numerous incidental (non-focused)

observations made throughout Southern and Central California, not contributing to survey hours.

Long Range Development Plan, U.C. Santa Barbara, California. Project manager for biological studies conducted to address California Coastal Commission (CCC) permitting needs for the Long Range Development Plan EIR. Supervised biological surveys involving raptor foraging and nesting surveys, wetlands, and rare plants in accordance with standards established by the CCC. Peer reviewed all biological technical reports.

Newport Banning Ranch, Oranage County, California. Biological task lead from 2011 to 2013 for biological studies, agency coordination, and project support through the Coastal Development Permit (CDP) application submittal and responses to incomplete notices. As part of the CDP application, managed a grassland assessment and vegetation mapping, dry-season survey for fairy shrimp, a jurisdictional determination of seasonal features, least Bell's vireo, and raptor surveys. Coordianted with the CCC and USFWS. In 2014, continue to support vegetation mapping and ESHA analysis for the site and responses to incomplete notices from the CCC.

Santa Barbara Ranch, County of Santa Barbara, California. Managing biologist. Coordinated and performed survey for native grasslands, jurisdictional hydrologic features, and raptor nesting and foraging to address a Coastal Development Permit application for the development project. A biological technical report was submitted to the property owner in October 2011.

Paquita Drive Coastal Permitting, Residential/Private Client, Carpinteria, California. Prepared a biological assessment report for a 1.13-acre lot in support of coastal permitting. Two environmentally sensitive habitat areas (ESHA) were present on site: purple needle grass grassland and coast live oak woodland. Conducted an impact analysis for the residential development, a vegetation management plan was conducted, and mitigation measures to avoid or reduce impacts to ESHA's were included in the report. Coordinated with the county, architects, and client through the permitting process on biological issues.

Francis Property Low Effect-HCP, Community of Los Osos, County of San Luis Obispo, California. Conducted protocol Morro shoulderband dune snail (MSDS) surveys (5-surveys) on a 0.57-acre parcel at the corner of Via Vistosa Road and Baywood View Heights Drive. Live MSDS and shells were observed. Prepared a LE-HCP for future development of the property. In-leiu mitigation fees were paid to the U.S. Fish and Wildlife Service, Ventura Office.

Morro shoulderband dune snail (*Helminthoglypta walkeriana*) – Over **145** survey hours:

- County of San Luis Obispo. Conducted USFWS protocol surveys for the Morro shoulderband dune snail for residential, pubic works, military, transportation, and conservation projects in the Morro Bay and Los Osos area. Prepared Morro shoulderband dune snail low effect-habitat conservation plans and conducted annual surveys for these areas. Numerous positive sightings throughout the range. Has spent numerous hours inspecting specimens of *H. walkeriana*, *H. morroensis*, *H. umblicata*, and *H. fieldi* in the field and in a laboratory setting and demonstrated knowledge of the species and its native and adapted habitats. Mr. Davis IV was permitted by the U.S. Fish and Wildlife Service in 2004, when the "morroensis" form (currently *H. morroensis*), an inland and a clay-loam soil adapted species with similar physical characteristics as *H. walkeriana*, was determined by the USFWS not to receive protection under the Endanagered Species Act. *H. morroensis* was later found to be a separate species (Roth and Tubin 2004). The

Morro dune shoulderband snail (MDSS; *H. walkeriana*) only occurs only within the sand and dune soil habitats in the Los Osos/Morro Bay area.

218 Madera Street, Community of Los Osos, County of San Luis Obispo, California. Conducted USFWS Protocol Morro shoulderband dune snail surveys. Live MSDS and shells were observed. Received a "No-Take" concurrence from the U.S. Fish and Wildlife Serviced. Monitored development of a single family development on 0.5-acre lot in the coastal zone.

Morro Montana Property, Community of Los Osos, County of San Luis Obispo, California. Conducted USFWS Protocol Morro shoulderband dune snail surveys on an 18-acre property located on Pecho Road between Sea Wind Road and Seascape Place. Live MSDS and shells were observed throughout coast dune scrub habitat. Development plans are pending.

Hurley Property, Community of Los Osos, County of San Luis Obispo, California. Conducted USFWS Protocol Morro shoulderband dune snail surveys. MSDS shells observed.

1161 9th Street, Community of Los Osos, County of San Luis Obispo, California. Conducted USFWS Protocol Morro Shoulderband Dune Snail Surveys. MSDS shells observed.

Hord Residence Low Effect-HCP, Community of Los Osos, County of San Luis Obispo, California. Conducted annual Morro shoulderband dune snail survey and assessment of habitat condition per HCP conditions on 5.5-acres of coast dune scrub habitat. Residence located at 1725 El Morro Avenue; conservation easement located east of residence. Live MSDS and shells observed.

Alisal Creek, South Orange County Wastewater Authority. Conducted habitat assessments for steelhead and tidewater goby in 2013.

Southern Steelhead (Oncorhynchus mykiss)

- Central and Southern California. Conducted numerous CDFG stream rapid bioassessments, as well as bridge compliance monitoring, substrate analysis, and biological assessment in steelhead creeks and critical habitat. Numerous positive sightings within the region.

Firestone Drainage, City of Santa Barbara – Airport Division. Project manager for biological studies conducted in support of environmental permitting.

Habitat Restoration - Coastal Zone

Bacara Consent Orders, City of Goleta, California. As Biological Lead, developed a Habitat Restoration Plan to assist SB Luxury Resorts, LLC, in addressing California Coastal Commission (CCC) concerns at the Bacara Resort over installation of a wedding and event venue, in violation of provisions of the Coastal Development Permit (CDP) issued for construction of the resort. Biological issues involved removal of sensitive native vegetation and eucalyptus trees that potentially served as raptor nesting habitat and monarch butterfly roosting habitat. Developed the on-site restoration plan and the off-site mitigation plan restoration plan working collaborately with the California Coastal Commission, City of Goleta, and SB Luxury Resorts, LLC, and balancing restoration concerns with cultural concerns also associated with the site. The habitat restoration plan is expected to be implemented in 2014. Mr. Davis IV will be the project manager and lead resource specialist for the five year monitoring effort.

Western Goleta Slough Wetland Enhancement Project, Goleta, California. Served as project manager for a multidisciplinary team on the creation and enhancement of 20 acres of wetland and upland habitat on CDFG property. Coordinated with regulatory agencies on environmental and development issues and permitting. Supervised and prepared coastal (Coastal Development Permit with Hearing), wetland/stream (401/404/Streambed Alteration Agreement), and air pollution permit applications, as well as the restoration plan. All permits were granted for the project. Managed and coordinated with civil engineers, archaeologists, and geologists on the project design, cultural resources, soil contamination, and unexploded ordnance issues. CDFG was the lead agency for the initial study/mitigated negative declaration.

Development – Inland

Ferro Ditch Channel Improvements Project, Initial Study, County of Ventura, California. Prepared the biological resources section of the initial study for the Ventura County Watershed Protection District.

Yokohl Ranch, County of Tulare, California. Conducted a peer review of existing biological reports, specifically, special-status botanical resources and herpetofauna. A field reconnaissance on accessible portions of the 36,000-acre ranch followed in spring 2011. Designed and coordinated a spiny-sepaled button celery (*Eryngium spinosepalum*) density estimate and conservation area assessment in Phase I and Phase II of the proposed project area and adjacent hills.

Santa Margarita Ranch Agricultural Residential Subdivision Project and Future Plan EIR, County of San Luis Obispo, California. Managed and prepared the biological resources section of the EIR. Coordinated survey efforts for protocol California red-legged frog and listed vernal pool branchiopod (fairy shrimp), as well as rare plant and general wildlife surveys and jurisdictional wetland review. Attended meetings with county staff and regulatory agencies.

Listed Vernal Pool Branchiopods (fairy shrimp) – Over **200** survey hours:

- Central and Southern California. Conducted USFWS protocol surveys for listed vernal pool branchiopods for projects within San Luis Obispo, Santa Barbara, San Diego, Orange, and Riverside Counties. Positive sightings on UNOCAL Tank Farm Road, Carrizo Plain, Santa Maria Airport, Union Pacific Rail Road ROW, amongst other locations.

Santa Barbara County Housing Element and Action Plan EIR, Santa Barbara, California. Conducted field visits and prepared the biological resources section of the EIR. Coordinated and trained staff on special-status species assessment, sensitive biological resources, and jurisdictional boundaries. Analyzed potential policy and development impacts on 10 county-selected sites.

Stenner Creek, City of San Luis Obispo, California. Conducted a substrate analysis for the southern steelhead and prepared a technical report for National Oceanic and Atmospheric Administration (NOAA) Fisheries. Coordinated with NOAA fisheries, City of San Luis Obispo, and Whitaker Construction during monitoring of the highly visible construction of the Stenner Creek Bridge near the intersection of Foothill Boulevard and Santa Rosa Road/Highway 1. Conducted and designed restoration and revegetation projects and monitored a variety of construction activities to ensure compliance with federal, state, and local resource agency requirements.

Talley Farms, County of San Luis Obispo, California. Technical specialist and environmental monitor. Conducted California red-legged frog surveys and monitoring for construction of a bridge over Arroyo Grande Creek.

Colton Lee Manufactered Housing Community, Simi Valley, Ventura County, California. Conducted and prepared a habitat assessment for the western spadefoot to address CDFW comments on the project's EIR.

Energy

Aera Energy, LLC, Kern County, California. Biological task manager and field lead for new well site siting and construction on undeveloped land. In 2013, conducted San Joaquin kit fox spotlight, blunt-nosed leopard lizard, and Nelson's [San Joaquin] antelope squirrel surveys; kit fox and badger den and giant kangaroo rat precinct mapping; and, general wildlife surveys. A biological survey report and draft MND were also prepared. The MND is currently under review.

San Joaquin Kit Fox (*Vulpes macrotis mutica*) – Over **400** survey hours:

- San Joaquin Valley and San Luis Obispo and Santa Barbara Counties. Conducted USFWS protocol surveys (habitat assessments, spotlighting, camera and scent stations, and den surveys), construction monitoring, and non-protocol biological assessments within San Joaquin kit fox habitat. Positive sightings in the Carrizo Plain, San Luis Obispo County, and Cities of Bakersfield, McKittrick, Kern County, and other locations throughtout its range.

Blunt-Nosed Leopard Lizard (*Gambelia sila*) (Level 1I) – 53 survey days:

- San Joaquin Valley and Carrizo Plain. Served as project manager for the California Valley Solar Ranch. No blunt-nosed leopard lizards were observed in the 6 days. Conducted two reference site visits to the Elkhorn Plain. A total of eight lizards were observed by Mr. Davis IV. In 2013, as biological task manager for a Belridge Oil Field Lease project, observed a blunt-nosed lizard on two occasions. Also, observed a male blunt-nosed lizard at a CDFW reference site. Conducted protocol surveys, reference site inspections, and workshop survey tests in sites within the Carrizo Plain, Elkhorn Plain, McKittrick, Buttonwillow; and habitat assessments within its range. Attended the 2009 TWS blunt-nosed leopard lizard workshop in Kern County.

Calle Real Photovoltaic Solar Field, Endelos Energy, Santa Barbara County, California. Biological task manager that provided direction and oversight of pre-construction surveys (woodrat nest survey, nesting bird survey, rare plants and vegetation mapping) and preparation of a coastal sage scrub habitat restoration plan. Per the MND mitigation monitoring and reporting program, County of Santa Barbara - General Services, the Plan was required for removal of sensitive coastal sage scurb during construction of the Calle Real Photovoltaic Project. Habitat restoration was completed in 2012.

Tessera Solar, Calico Solar Project, San Bernardino County, California. Conducted focused floristic and desert tortoise surveys in support of Bureau of Land Management/California Energy Commission (BLM/CEC) permit conditions. Numerous tortoises, tortoise burrows, and signs were observed in April and May. The white margined beardtongue (*Penstemon albomarginatus*; List 1B.1) and small-flowered androstephium (*Androstephium breviflorum*; List 2.2) were observed and mapped during spring surveys. The survey area included 16,000 acres for desert tortoise and 8,000 acres for botanical surveys. All surveys performed by Mr. Davis IV occurred in 2010.

Desert Tortoise (*Gopherus agassizii*) – Over **240** survey hours:

- San Bernardino and Imperial Counties. Conducted USFWS protocol 100% coverage surveys, habitat assessments, and biological assessments for seven projects. Positive sightings occurred on the Calico Solar Farm, Johnson Valley Solar Project (project

abandoned), Fort Irwin, and Marine Corps Air Combat Center; Twentynine Palms, California.

SunPower's 225 MW California Valley Solar Ranch Project in Eastern San Luis Obispo County, California. As project manager and lead biologist, supervised field team consisting of 53 biologists performing focused surveys on a 5,227-acre site and two 3-mile-long transmission routes. Species surveys included floristic (rare plant), small mammal trapping, San Joaquin kit fox, blunt-nosed leopard lizard, burrowing owl, giant kangaroo rat (*Dipodomys ingens*) precinct mapping, wintering birds, wetland delineation, and vernal pool assessment. Orchestrated field surveys, data collection, technical report preparation, and agency and client coordination. A biological resources assessment report was submitted to the county in January 2009. A revised technical report containing all survey methodology and results was submitted to SunPower on October 2009 for delivery to the County of San Luis Obispo in support of revised a CUP application and later the county's CEQA review of the project.

Small Mammals – Over **120** survey hours; **12** trap nights:

- Central and Southern California. Trapped for Anacapa deer mouse (*Peromyscus maniculatus*) on middle Anacapa Island off the coast of Ventura; San Joaquin species in Carrizo Plain; coastal species on More Mesa, Santa Barbara County; and the state and federally endangered giant kangaroo rat on CDFG ecological reserve near Buttonwillow, Kern County. In addition, identified and mapped giant kangaroo precincts on over 2,000 acres in the Carrizo Plain. Conducted daytime surveys for the state threatened San Joaquin (Nelson's) antelope squirrel (*Ammospermophilus nelsoni*).

First Solar Electric's (formerly Nextlight) 250 MW Antelope Valley Solar One Project, Antelope Valley, Northern Los Angeles County, California. As managing biologist, supervised focused biological surveys, habitat/vegetation mapping, wintering bird surveys, botanical surveys, Joshua tree woodland assessment, and technical biological resources reporting for the County of Los Angeles. This included winter field surveys on a 2,000-acre site and preparation and submittal of a biological constraints report to the County of Riverside in February of 2009. As a SEATAC-qualified biologist, reviewed the biota report that was prepared by URS biologists and attended SEATAC meetings.

Solel's 550 MW Solar Thermal Site in Johnson Valley, San Bernardino, California. As managing biologist, supervised field crew of 30 biologists and performed USFWS protocol desert tortoise, focused botanical, jurisdictional determination, and wildlife and vegetation mapping surveys on a 9,315-acre site and 10-mile-long transmission and gas routes. Orchestrated survey efforts and data collection, and performed agency and client coordination. Prepared the biological survey work plan and coordinated with regulatory agencies on biological resource issues and potential mitigation. Field surveys were completed in June 2008. Project involvement was between January 2008 and November 2008. The project site was abandoned by Solel.

First Solar Electric, 50 MW PV Solar Site near Blythe, California. As managing biologist, supervised desert tortoise survey and technical biological resources reporting for USFWS, CDFG, and the County of Riverside. Coordinated with regulatory agencies on biological issues and mitigation. Provided guidance to a field crew of three biologists during USFWS protocol desert tortoise, floristic surveys, point bird counts, burrowing owl, and preconstruction surveys. Peer reviewed technical biological reports. The project initiated construction in 2009.

Pacific Valley's Solar Projects, Fresno and Madera Counties, California. Project manager and lead biologist for four 20-megawatt (MW) photovoltaic (PV) power plant projects in the

Central Valley: (1) Adera, (2) Placer-Rose, (3) Brannon, and (4) Three Rocks. Supervises and conducts focused biological surveys, coordinates with regulatory agencies, and prepares and reviews biological technical reporting. Surveys include rare plant, Swainson's hawk, and general wildlife. Performs habitat assessments for the San Joaquin kit fox and western burrowing owl, and maps vegetation communities/wildlife habitats and delineates hydrologic features. The biological resources assessment reports support a Conditional Use Permit (CUP) application submittal and CEQA review.

Swainson's Hawk (*Buteo swainsoni*) – Over **80** survey hours:

- Fresno and Los Angeles Counties. Conducted several focused habitat assessments and CDFG protocol nesting and habitat surveys. Positive sightings occurred in the Antelope Valley, Los Angeles County, and western Fresno County, as well as incidental observations throughout the San Joaquin Valley.

Pacific Valley's Ruby Solar Project, Antelope Valley, Northern Los Angeles County, California. As managing biologist, supervised and conducted focused biological surveys, coordinated with agencies and client, and prepared and reviewed reporting for a 20 MW PV power plant on a 160-acre site. Surveys included botanical (floristic), spring/nesting bird, burrowing owl, Swainson's hawk, and general wildlife. Habitat and Joshua tree (*Yucca brevifolia*) mapping was also performed. A biological resources assessment report was prepared in November 2010 to support a CUP application for the solar project.

Pacific Valley's Whitney Point and Westside Solar Projects, Fresno County, California. As managing biologist, supervised and conducted focused biological surveys, coordinated with agencies and client, and prepared and reviewed reporting for a 20 MW PV power plant on a 160-acre site. Surveys included botanical, Swainson's hawk, and general wildlife. A San Joaquin kit fox and burrowing owl habitat assessment and vegetation/habitat mapping were also performed. A biological resources assessment report was prepared in July 2010 in support of the CUP application for Fresno County. The projects were approved in July 2011.

Due Diligence/Fatal Flaw Analysis for Pacific Valley LLC in Fresno, Madera, Kern, Los Angeles, and San Bernardino Counties, California. As managing biologist, supervised reconnaissance field surveys, agency coordination, and biological constraints reporting for 16 potential solar project sites.

Due Diligence/Fatal Flaw Analysis for SunPower Corporation in San Luis Obispo County, California. As managing biologist, supervised reconnaissance field surveys, agency coordination, and biological constraints reporting for a solar project site in the Carrizo Plain, eastern San Luis Obispo County.

Due Diligence/Fatal Flaw Analysis for First Solar Electric (formally Nextlight), Los Angeles County, California. As managing biologist, supervised reconnaissance field survey, agency coordination, and biological constraints for a solar project site in the Antelope Valley, eastern Los Angeles County.

Due Diligence/Fatal Flaw Analysis for Solel, San Bernardino County, California. As managing biologist, supervised reconnaissance field survey, agency coordination, and biological constraints for three solar project sites.

Due Diligence/Fatal Flaw Analysis for WDG Partners, Riverside and San Bernardino Counties, California. As managing biologist, supervised reconnaissance field survey, agency coordination, and biological constraints for six solar project sites.

Due Diligence/Fatal Flaw Analysis for Southern California Edison, San Bernardino County, California. As managing biologist, supervised reconnaissance field survey, agency coordination, and biological constraints for a project site in Lucerne Valley.

Permitting

Westar Multi Use Village, City of Goleta. Agency coordination and permit application oversight for Water Quality Permit (non-federal jurisdiction), Central Coast Regional Water Quality Control Board. Submitted on August 13, 2013.

2081 Take Permit. Leatherneck Substation, San Bernardino County, California. Prepared application and assembled submittal package for Southern California Edison (SCE) to submit to the CDFG.

2081 Take Permit. Eldorado-Ivanpah Transmission Line, San Bernardino County, California. Prepared application and assembled submittal package for SCE to submit to CDFG.

North County Conservation Strategy, County of Santa Luis Obispo, California. Assisted in outline construction and peer review of the plan. Attended meetings with project manager.

Minimum Effect Habitat Conservation Plan, Los Osos, California. Attended meetings and coordinated with applicant and USFWS. Prepared the habitat conservation plan for the Morro shoulderband snail.

Water Quality and Waste Water

El Estero Wastewater Treatment Plant's Tertiary Filtration Replacement and Secondary Treatment Projects, City of Santa Barbara, Santa Barbara, California. Project manager of environmental technical studies that supported required documentation for CEQA, CDP, and State Water Resources Control Board (SWRCB) grant approvals. Biological and cultural resouces and a noise study were performed for the City. Managed and prepared a biological assessment, federal checklist, and tidewater goby techncial report. The City received conditions of approval in January 2014. Mr. Davis IV will be the project manager for the environmental compliance monitor that started in June 2014.

Environmental Protection Agency (EPA) 319(h) Morro Bay National Monitoring Program (1992–2002) in San Luis Obispo County, California. Managed data collection, management, and analysis for the program. Other responsibilities included annual report submittal to the EPA and presentations at National Nonpoint Source Monitoring Workshops. Data collection in the Morro Bay watershed consisted of weekly water quality sampling for 20 creek sites and annual CDFG rapid bioassessment for stream habitat quality and macroinvertebrate diversity. Creeks were also surveyed for changes in stream channel morphology, plant coverage, and stream substrate composition. All creeks are steelhead habitat and many or portions of many were are in the coastal zone. Focused studies included the effects of rangeland best management practices on water quality for a paired watershed and for upstream–downstream comparisons. Coordinated and performed water quality and benthic macro-invertebrate sampling, stream bank stability and stream bed sediment analysis, stream morphology assessment, long-term data management and statistical analysis and interpretation, land owner coordination, and professional and public information presentations.

Clean Water Act Compliance Monitoring, Moon Ditch and Wason Barranca, Ventura County Watershed Protection District, Ventura, California. Provided senior-level oversight and agency coordination for water quality, biological and BMP compliance, and reports required under the Los Angeles (Region 4) RWQCB Clean Water Act Section 401 Water Quality Certification for the Moon Ditch and Wason Barranca projects. Water quality data and site inspections were incorporated into monthly monitoring reports submitted to the RWQCB and a final report for the VCWPD.

Ferro Ditch MND/IS, Ventura County Watershed Protection District, Ventura, California. Lead biologist for preparation of MND/IS – Biological Resources Section for the replacement of the existing Ferro Ditch trapezoidal channel. The project involved increasing the capacity within the Ferro Ditch Channel to provide flood protection for 50-year storms. The project will deepen and widen approximately 0.3 miles of the existing Ferro Ditch earthen and concreted rock riprap channel, and line the banks and bottom with grouted rock riprap to prevent erosion.

Morro Bay-Cayucos Wastewater Treatment Plant Upgrade, City of Morro Bay, California. Provided senior-level peer review on an impact analysis of potential biological constraints conducted for the evaluation of ten site alternatives for construction of an updated WWTP, including the current site along Morro Creek and near the beach The analysis focused on resources highlighted in the County of San Luis Obispo and City of Morro Bay Local Coastal Programs.

Solvang Wastewater Treatment Plant Reinforced Vegetated Slope Protection, Solvang, California. Lead California red-legged frog surveyors for the City of Solvang's Wastewater Treatment Plant and Well 7A Reinforced Vegetated Slope Protection Project. USFWS (2005) protocol California red-legged frog surveys were conducted in within the Santa Ynez River and within in-stream pools of the secondary river channel. Although quality habitat was available, dominance of the aquatic environmental by the American bullfrog, crayfish, and native and non-native fish species resulted in an absence of the federally-threatened California red-legged frog. Provided senior peer review of technical reports for the project. The project was completed in 2013. Restoration monitoring is on-going through 2018.

Transportation

Borchard Road and Route 101 Drainage, City of Thousand Oaks, California. Project manager for the Borchard Road and Route 101 Drainage project. Dudek conducted pre-construction nesting bird surveys and habitat surveys prior to the start of construction to identify protected resources. Surveys were conducted in accordance with the California Department of Fish and Game Streambed Alteration Agreement. Coordination was performed with the City of Thousand Oaks, Caltrans, and the on-site construction contractor. Borchard Road-U.S. 101 Drainage Project, City of Thousand Oaks, Thousand Oaks, California. Performed pre-construction surveys and construction monitoring for a project providing improvements to a drainage ditch within the U.S. 101 right-of-way. Coordinated with Caltrans to implement conditions of the Streambed Alteration Agreement.

Ekwill Street and Fowler Road Extensions, City of Goleta, California. Biological task manager. The existing natural environment study (NES) was edited and later finalized in 2010, and the EIR/environmental assessment was completed in September 2011.

Tepusquet Road Crossing, County of Santa Barbara, California. Served as project manager and lead biologist. The existing NES and wetland delineation were edited and finalized at

the end of 2007. Coordinated with species experts and state and federal agencies. The project was permitted in 2008. Project was reviewed by California Department of Transportation (Caltrans), District 5.

San Miguel Ranch Highway 101 Off-Ramp, County of San Luis Obispo, California. Project manager and lead biologist for the preparation of a biological assessment that included the Caltrans right-of-way. The project consisted of widening the off-ramp and roadways for safer access to San Miguel Ranch, which is proposed to be subdivided. The project was conducted in coordination with Caltrans, District 5. The project is tied to the San Miguel Ranch development, which is currently on hold.

Calle Joaquin Road Realignment Project, City of San Luis Obispo, California. Prepared a biological assessment and conducted protocol fairy shrimp and focused floristic surveys. Coordinated with USFWS and U.S. Army Corps of Engineers regarding federally listed species. The project was reviewed by Caltrans, District 5, and completed in 2006.

Military

Bridge 101, 102, 106, and 107, Camp San Luis Obispo, California. Project manager, environmental compliance monitor, and restoration specialist for the demolition and construction of four bridges on Camp San Luis Obispo. Prepared, implemented, and monitored revegetation on creek banks for the military and ensured compliance during bridge activities on Chorro Creek and its tributaries.

Fort Hunter-Liggett, Monterey County, California. Performed long-term vegetation trend analysis using point line transects, yellow star-thistle (*Centaurea solstitialis*) mapping, Valley oak (*Quercus lobata*) burn frequency study, erosion site evaluation and prioritization, and ammunition bunker and stony valley oak restoration. Mapped special-status plant and wildlife locations and habitats, vegetation communities, exotic invasive plant distributions, and line transect locations using a Trimble Pathfinder Pro XR Global Positioning System (GPS).

Marine Corps Air Ground Combat Center, Twentynine Palms, California. Conducted creosote-ambrosia scrub restoration and mesquite mound recreation. Designed, managed, implemented, and monitored a perennial desert shrub (*mycorrhizae inoculum*) experiment and a survey of the mycorrhizal status of desert annuals.

Naval Submarine Base, Point Loma, San Diego County, California. Provided field support for maritime coastal sage restoration of Bay View, South Tank, and Erosion Slope at Point Loma Submarine Base.

Miramar Naval Air Station, San Diego County, California. Provided field support for coastal scrub and vernal pool restoration and management.

Botanical Experience

Ruby Solar Project, Antelope Valley, Los Angeles County, California. Provided project oversight and client and agency coordination. Conducted focused floristic surveys and vegetation mapping, and managed field biologists on additional focused biological surveys in support of the CUP application and CEQA review. Joshua tree woodland was the only sensitive plant/vegetation type encountered on site. A reference population of the alkaline mariposa lily (*Calochortus striatus*; List 1B.2) was also visited. The survey area included 160 acres.

Calico Solar Project, San Bernardino County, California. Conducted focused floristic and desert tortoise surveys in support of BLM/CEC permit conditions. The white margined beardtongue and small flowered androstephium (*Androstephium breviflorum*; List 2.2) were observed and mapped. The survey area included 8,000 acres for botanical surveys.

AV Solar One Project, Antelope Valley, Los Angeles County, California. Provided project oversight and client and agency coordination. Conducted focused floristic surveys and vegetation mapping, and managed field biologists on additional focused biological surveys in support of the CUP application and biological constraints analysis. Mr. Davis IV is a SEATAC-qualified biologist and served as peer reviewer for the biological constraints analysis and biota report. Two sensitive plant communities were observed on site: Joshua tree woodland and wildflower fields. No rare plants were observed. The surveys area included 2,000 acres and a 3-mile transmission line.

550 MW Solar Thermal Site, Johnson Valley, San Bernardino County, California. Supervised field crew of 30 biologists and conducted USFWS protocol desert tortoise, focused floristic, jurisdictional determination, wildlife, and vegetation mapping surveys on a 9,315-acre site and 10-mile-long transmission and gas routes. Prepared the biological survey work plan and coordinated with regulatory agencies on biological resource issues and potential mitigation. Field surveys were completed in June 2008. One rare plant was encountered: desert milkwort (*Polygala acanthoclada*; List 2.3).

Biddle Ranch, County of San Luis Obispo. Delineated Pismo clarkia (*Clarkia speciosa* ssp. *immaculate*; FE, SE, List 1B.1) populations for placement of construction fencing during preconstruction surveys. Conducted pre-construction focused floristic surveys and rare plant mapping of San Luis Obispo Indian paintbrush (*Castilleja densiflora* ssp. *obispoensis*; List 1B.2) and San Luis Obispo morning glory (*Calystegia subacaulis* ssp. *episcopalis*; List 1B.2) in annual grassland habitat, and the straight-awned spineflower (*Chorizanthe rectispina*; List 1B.1) and California spineflower (*Mucronea californica*; List 4.2) in open areas within coastal scrub and coast live oak habitats.

John French Property, City of San Luis Obispo, California. Surveyed and mapped Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*; List 1B.2) for a residential project in the Margarita Plan Area of the city. The survey area was approximately 200 acres.

Los Osos Bureau of Land Management Property, San Luis Obispo County, California. Provided floristic inventory; herbarium development; Morro shoulderband snail, federally endangered Morro manzanita (*Arctostaphylos morroensis*), and additional rare plant, wildlife, and vegetation surveys and mapping in San Luis Obispo County.

Los Osos BLM Property, San Luis Obispo County. Conducted a floristic inventory in coastal dune scrub and maritime chaparral, herbarium development, and Morro Manzanita (*Arctostaphylos morroensis*; FT, List 1B.1) and additional rare plant and vegetation surveys and mapping.

Jones Property, near Harmony, San Luis Obispo County, California. Conducted focused floristic surveys and vegetation mapping in coastal grasslands, coastal scrub, and bluff scrub habitats for residential development. Surveyed and mapped populations of San Luis Obispo Indian paintbrush and San Luis Obispo morning glory.

Agoura Hills, City of Agoura, Los Angeles County, California. Conducted focused floristic surveys and vegetation mapping in support of the Agoura Village Specific Plan. The canyon liveforever (*Dudleya cymosa ssp. agourensis*; FT, List 1B.2) and Lyon's pentachaeta (*Pentachaeta lyonii*; FE, List 1B.1)

were observed and recorded. Vegetation mapping included valley needlegrass grassland and valley oak savannah. The survey was conducted in 2007 and included an area of 300 acres.

Fort Hunter-Liggett, Monterey County, California. Conducted long-term vegetation trend analysis using point line transects, purple amole (*Chlorogalum purpureum* var. *Purpureum*; FT, List 1B.1) and USFWS protocol arroyo toad surveys, yellow star-thistle mapping, valley oak burn frequency study, erosion site evaluation and prioritization, and ammunition bunker and stony valley oak restoration.

Wetland Delineation and Jurisdication Determinations

- Paradiso del Mare Residential Development, County of Santa Barbara
- Santa Barbara Ranch, County of Santa Barbara
- Westar Property, City of Goleta
- High Speed Train, San Joaquin Valley
- California Valley Solar Ranch, County of San Luis Obispo
- Newhall Ranch, Bridge Constraints, County of Los Angeles
- Tepusquet River Road Crossing, County of Santa Barbara
- Santa Margarita Ranch EIR, County of San Luis Obispo
- San Miguel Ranch, County of San Luis Obispo
- John French Property, City of San Luis Obispo
- Holland Road Property, Community of Menifee, Riverside County.

OTHER RELEVANT EXPERIENCE

Specialized Trainings and Professional Attendence

- 2016: CLE International: California Coastal Law, Los Anegles. Faculty.
- 2016: Caulerpa Examinination, NOAA Fisheries, Long Beach. Passed.
- 2016: California Red Legged Frog Workshop, Elkhorn Slough Coastal Training
- 2014: Steelhead Symposium, Ventura, Salmonid Restoration Federation (SRF)
- 2014: Cypertracker Evaluation, Santa Barbara-Ventura County
- 2014: Management of the California Red-Legged Frog, Elkhorn Slough Coastal Training
- 2014: SWAMP, Course 4: Data Analysis, Sacramento
- 2014: Recovery Strategies for Coastal Salmonids, Santa Barbara (SRF)
- 2013: Big Gun Conservation Bank, Dudek and Westervelt Ecological Services
- 2013: Fish Passage Workshop, Ventura, California (SRF)
- 2012: Ecological Society of America, Portland, OR
- 2011: Partners in Amphibian and Reptile Conservation Annual Workshop, Tucson, Arizona
- 2011: Western Raptor Symposium, The Wildlife Society, Annual Conference, Riverside, California
- 2011: Chytrid Disease and White-Nose Syndrome Symposium, The Wildlife Society
- 2010: Desert Tortoise Handling Workshop, Desert Tortoise Council, Ridgecrest
- 2010: Sensitive Small Species of the San Joaquin Valley, The Wildlife Society San Joaquin Valley
- 2010: Desert Tortoise Symposium – Transmitter Survey, Desert Tortoise Council
- 2010: Flat-Tailed Horned Lizard Training, CDFG/BLM, El Centro, California

- 2009: Blunt-Nosed Leopard Lizard Workshop, The Wildlife Society San Joaquin Valley, Bakersfield, California
- 2009: Poaceae Workshop, UC Berkeley/Skyline Park, Jepson Herbarium Workshop
- 2009: Carex Workshop, Sagehen Creek Field Station, Jepson Herbarium Workshop
- 2008: San Luis Obispo County's Workshop for Biologists
- 2008: Endangered Species Act: Infrastructure Projects and California's Future, Continuing Legal Education (CLE) International, Sacramento, California
- 2008: Wetland Delineation Training (40 hours), Wetland Training Institute
- 2007: Ecological Soceity of America / Society for Ecological Restoration, San Jose
- 2007: San Luis Obispo County's Workshop for Biologists
- 2007: Oak Woodlands Workshop, Pasadena, California
- 2007: California Red Legged Frog Workshop, Elkhorn Slough, Watsonville, California
- 2006: California Tiger Salamander Workshop, Alameda County, California
- 2005: California Anostraca and Nostraca Identification Class
- 2003: County of San Luis Obispo's San Joaquin Kit Fox Workshop
- 2003: Rosgen's Stream Restoration Workshop, Breckenridge, Colorado
- 2002: Stream Restoration, Ann Riley, Regional Water Quality Control Board, San Luis Obispo, California
- 2001: Total Maximum Daily Load Workshop, Indianapolis, Indiana
- 2001: CDFG Stream Rapid Bioassessment, San Luis Obipso

Safety Trainings

- Oilfield Person Leading Work (2014)
- Oilfield Hazard Awareness, PASSPORT (Expires 2017)
- Aera Energy, LLC – Belridge Lease Orientation (2016)
- 2016: 8-Hour HAZWOPER Refresher (Expires June 2016)
- 2010: 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER)
- AOA Badge – Santa Barbara Airport

Ryan Gilmore

Biologist

Ryan Gilmore has 17 years' experience with jurisdictional wetlands and waters delineations; landscape scale planning studies, natural resource impact analyses, CEQA and NEPA compliance documents, and biological technical reports; vegetation mapping, habitat assessments and biological inventories; focused T&E and special-status plant and wildlife surveys; Habitat Management Plans (HMPs) and Habitat Mitigation Monitoring Plans (HMMPs); Restoration Success Monitoring; and Native Californian Aboriculture and Horticulture. Mr. Gilmore has a focused interest in wetlands science including vernal pool, estuarine, and wetlands habitat enhancement and creation.

EDUCATION

California State Polytechnic University (Cal Poly), Pomona

MA, Urban and Regional Planning, 2010

University of California, Santa Cruz
BA, Anthropology, 2000

CERTIFICATIONS/TRAINING

Certified Arborist International Society of Arboriculture (ISA) WE-9009A

Richard Chinn 38-Hour U.S. Army Corps of Engineers Wetland Delineation Training Program, 2012

Goldspotted Oak Borer Workshop, Descanso Gardens, 2011

Desert Tortoise Council, Desert Tortoise Surveying, Monitoring, and Handling Techniques Workshop, 2009

Identifying Hazards and Prevention of Accidents in Abandoned Mines and Confined Spaces, Chuck Christman, 2009

Stephen's Kangaroo Rat Field Training, Steven Montgomery, 2009

Occupational Health and Safety Administration 24-Hour Hazardous Waste Operations and Emergency Response Training

Cal Poly Pomona, CEQA Graduate Course, 2009

PROFESSIONAL AFFILIATIONS

ISA

Western Chapter of the ISA

Member of the Society for Ecological Restoration

California Native Plant Society (CNPS)

California Invasive Plant Council

California Native Grasslands Association

Project Experience

Sunrise Powerlink— San Diego Gas & Electric (SDG&E), San Diego County, California. Arborist independently responsible for conducting protocol gold-spotted oak borer (Agrilus auroguttatus) surveys within the Sunrise Powerlink mitigation site project boundaries. Developed pest management plan and monitoring for success. Conducted follow-up field visits and authored two reports for 2011 and 2012.

Tehachapi Renewable Transmission Project— Southern California Edison (SCE), Fremont Valley Ecological Reserve Potential Mitigation Area, Fremont Valley, San California. Served as support delineator/lead botanist. The proposed mitigation site is one of several locations that are proposed for Southern California Edison's Tehachapi Renewable Transmission Project. Supported a routine-level jurisdictional delineation of the proposed mitigation site and served as lead botanist for vegetation mapping of the proposed 800-plus acre mitigation site in 2012.

Whitewater River Stormwater Channel and Coachella Valley Stormwater Channel Jurisdictional Delineation and Permitting Project—Coachella Valley Water District, Riverside County, California. Served as a support delineator. The proposed project is to identify areas under USACE, U.S. Environmental Protection Agency (EPA), State Water Resources Control Board (SWRCB), and CDFG jurisdiction, for the purpose of obtaining a CWA 404 Regional General Permit, CWA 401 Permit, and CDFG Streambed Alteration Agreement for routine Operations and Maintenance activities within the Whitewater River Stormwater Channel and Coachella Valley Stormwater Channel, Coachella Valley, Riverside County, California approximately 55 river-miles.

Tehachapi Renewable Energy Project Biological Consulting Services—Southern California Edison (SCE), Los Angeles, San Bernardino, and Kern Counties, California. Served as biologist for mitigation planning. Responsible for writing regulated native trees sections of the habitat mitigation measures and monitoring plans to be utilized as a part of mitigation planning for the TRTP. Conducted a field review of a proposed mitigation site at the Whittier Narrows Dam Basin Recreation Area. Performed preliminary field investigations based on the presence of non-native and/or invasive plant species that could be removed to provide habitat enhancement. Within the proposed site, approximately 40.98 acres of upland and 56.1 acres of riparian vegetation communities were identified as having a moderate to high potential for restoration. Also conducted a field review of potential mitigation sites on the Angeles National Forest. Preliminary field investigations were performed based on the presence of non-native and/or invasive species that could be removed to provide habitat enhancement. Within the proposed sites, approximately 4.38 acres of upland and 2.5 acres of riparian vegetation communities were identified as having a moderate to high potential for restoration. Results of these reviews were incorporated into memos to be utilized as part of the mitigation planning for the project 2011.

Tehachapi Renewable Energy Project Biological Consulting Services—Southern California Edison (SCE), Los Angeles, San Bernardino, and Kern Counties, California. Served as lead arborist for the tree inventory on the TRTP Segments 4-11. The project involves the inventorying of regulated trees along approximately 175 miles of new and existing ROWs. This project involved the review of the jurisdictional tree ordinances as well as all environmental documents to create a strategy for the inventorying of regulated trees within the project boundaries. This included coordinating with multiple subcontractors to ensure quality data collection to provide the best possible tree inventory product. Responsibilities included writing the seven large tree inventory reports and working with the GIS manager to produce project maps. The field surveys took place in 2010 and 2011 resulting in the inventorying of over 160,000 trees.

Cajalco Road Widening Project—Riverside County Transportation Department, Corona, California. Served as a support delineator/biologist/botanist. The proposed project is to widen Cajalco Road from 2 to 4 lanes of travel. Supported a routine-level jurisdictional delineation of an approximately 23-mile project alignment, including multiple alternatives. Lead and supported protocol level botanical and burrowing owl surveys in 2012.

Vista Chino Bridge Construction Project—City of Palm Springs, Palm Springs, California. Served as biologist. The project involves the construction of a new bridge crossing in place of the existing Vista Chino low water crossing of the Whitewater River in the City of Palm Springs, California. Conducted focused surveys for burrowing owl (lead) and round-tailed ground squirrel (supported). The site was observed occupied for both species, including two breeding pairs of BUOW with fledglings.

San Gabriel Mountains Bighorn Sheep Study, SR 39— Caltrans District 7, Los Angeles County, California. Served as support surveyor. Conducted San Gabriel bighorn sheep (Ovis Canadensis nelson) monitoring studies to ascertain seasonal movements through a proposed highway corridor (SR 39) for areas of rock-fall protection in 2009. Duties included setting up and maintaining remote-triggered wildlife camera stations with a boom truck, and conducting remote observations of sheep movements within the project area. Reviewed downloaded camera photos for wildlife images and assisted with interpretation of wildlife photos. Developed an interview and training for department maintenance staff in order to document staff members' knowledge of bighorn sheep sightings, potential use areas, and road-crossing locations.

Rare Plant Survey for SR 58 Realignment and Widening (P.M. 0.0-12.9)—Caltrans District 8, San Bernardino County, California. Served as lead botanist. Conducted rare plant surveys for three alternatives proposed for the 12.9 mile realignment and widening project. Surveys revealed multiple locations of CNPS List 1B plants: Barstow woolly sunflower (*Eriophyllum mohavense*) and desert cymopterus (*Cymopterus deserticola*). The surveys also revealed multiple, large populations of CNPS List 4 plants: Mojave spineflower (Chorizanthe spinosa) and crowned muilla *(Muilla coronata*). All results were incorporated into a report in 2009.

Rare Plant Surveys at Camp Trask and Loomis Ranch— Angeles National Forest, Los Angeles County, California. Served as lead botanist. Conducted rare plant surveys for the Angeles National Forest. The project involved rare plant surveys at Camp Trask and Loomis Ranch as part of their hazardous fuels management program. The surveys revealed several locations of CNPS List 4.2 ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*) and CPNS List 1B.2 short-joint beavertail (*Opuntia basilaris* var. *brachyclada*). All results were incorporated into a report in 2010.

Big Tujunga Wash Mitigation Bank—Los Angeles County Department of Public Works, Los Angeles County, California. Served as biologist. Assisted with monitoring of the MMP for the Big Tujunga Wash Mitigation Bank. The detailed MMP includes a step-by-step description of the methodology, implementation, success and contingency measures, and QA/QC plan for habitat restoration, re-vegetation, and exotic plant eradication at the Big Tujunga Wash Mitigation Bank. A detailed report was completed in 2009 and 2010 incorporating functional and success analysis results of the riparian habitat within the mitigation bank. Responsibilities included monitoring native tree height and overall health to meet success standards.

Machado Lake and Wilmington Drain Ecosystem Rehabilitation—City of Los Angles, Los Angeles, California. Served as arborist. Residents of Los Angeles approved Proposition O in 2004 to improve water quality for water bodies in the City. The Machado Lake and Wilmington Drain projects are two projects with the goal of improving water quality and ecosystem health in Los Angeles. Arborist inventoried and assessed native and non-native riparian tree species throughout the project area. Also completed an inventory of park trees for inclusion into their master planning process.

Rare Plant Survey for SR 247 Verizon Fiber Optic Installation—Verizon, San Bernardino County, California. Served as lead botanist. Conducted rare plant surveys for a fiber optic line installation project 200 feet on both sides of SR 247 from SR 18/SR 247 intersection in Lucerne Valley to approximately 35 miles north in Barstow. Surveys revealed multiple locations of CNPS List 4 crowned muilla (*Muilla coronata*). Also completed a vegetation map for the entire project area utilized in habitat assessments for burrowing owl, desert tortoise, and Mojave ground squirrel. All results were incorporated into a report in 2009.

Relevant Previous Experience

Associate Biologist for ICF; Redlands, California. 2010 to Present. Mr. Gilmore conducted tree inventory surveys and authored reports, conducted goldspotted oak borer assessments and authored reports, conducted rare plant surveys and authored reports, conducted mitigation site assessments and authored reports for restoration mitigation planning, conducted vegetation mapping and authored reports, conducted restoration monitoring for implementation and success evaluation and authored reports, and conducted burrowing owl surveys. He also assisted in jurisdictional delineation surveys, WEAP planning, wildlife surveys (California gnatcatcher, round-tailed ground squirrel, and nesting bird), and construction monitoring.

Associate Biologist for ECORP Inc.; Redlands, California. 2009 to 2010. Mr. Gilmore conducted tree inventory surveys and authored reports, conducted rare plant surveys and authored reports, conducted general biological reconnaissance surveys, conducted restoration monitoring for implementation and success evaluation and authored reports, assisted in wildlife surveys (burrowing owl and Stephen's kangaroo rat), and conducted Nelson's bighorn sheep surveys and monitoring.

Lead Horticulturist for Rancho Santa Ana Botanic Garden; Claremont, California. 2002 to 2008. Mr. Gilmore was the key person in the maintenance of an 86-acre Native California botanical garden. He acted as arborist on grounds, maintaining the gardens collection of native trees, prepared planting plans consistent with the mission statement of the garden, maintained collections database, managed collection efforts in the field and with outside botanical institutions , organized grounds maintenance among volunteers, interns, and staff members, and reviewed EIRs and project reports for outside consultations. QAC Papa certified for Integrated Pest Management Program.

Seasonal Park Maintenance Aide for California State Parks; Santa Cruz, California. 2000. Served as a maintenance aide in open space and historical ranch parks. Duties included organizing grounds maintenance among volunteers and court referrals, hazardous fuels clearance for wildfire management, and invasive plant species removal programs.

Student Horticulturist for University of California, Santa Cruz; Santa Cruz, California. 2000. Served as a student horticulturist for the university arboretum.

Volunteer for Rancho Santa Ana Botanic Garden; Claremont, California. 1996. Served as a student volunteer for grounds maintenance in a native Californian botanic garden.

Randall McInvale

Planner III/Biologist

Randall McInvale is a planner III/biologist with more than 10 years' experience working on biological resource surveys, regulatory permitting, and habitat restoration projects. He has been involved in a variety of restoration projects for wetlands creation and enhancement, upland habitat restoration, salt marsh wetlands, and sensitive plant and animal species. Mr. McInvale has experience conducting biological resource surveys, California Rapid Assessment Method (CRAM) assessments, environmental assessments, vegetation mapping, and sensitive plant and wildlife surveys throughout Northern and Southern California. He has knowledge of geospatial analysis, including Global Positioning Systems (GPS) and geographical information systems (GIS), technical report writing, and permit applications. He is currently working on a variety of biological and habitat restoration projects in several capacities at Dudek.

EDUCATION

University of California, Davis

BS, Environmental Biology and Management, 2006

CERTIFICATIONS

QSP, No.25207

CDFW Plant Voucher Collection Permit, No. 2081(a)-14-023-V

CRAM Trained Practitioner in Riverine and Estuarine Modules

SWAMP BMI Trained Practitioner

Blunt-Nosed Leopard Lizard Level 2 Surveyor

PROFESSIONAL AFFILIATIONS

California Society for Ecological Restoration (SERCAL)

The Wildlife Society

Project Experience

Development

Plum Canyon 40 Residential Development, Plum Canyon 40 LLC, Los Angeles County, California. Completed a wetland delineation and jurisdictional determination on an approximately 12-acre project site to determine impacts to jurisdictional waters associated with the project. Prepared and submitted permit application packages to the U.S. Army Corps of Engineers (ACOE) under section 404 of the Clean Water Act (CWA), California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement (SAA) under section 1602 of Department of Fish and Game (DFG) Code, and Regional Water Quality Control Board (RWQCB) Water Quality Certification (WQC) under section 401 of the CWA and participated in coordination with these agencies to secure the permits prior to project initiation. Completed western spadefoot toad (*Spea hammondii*) surveys and assisted in the preparation of a technical report included in the CDFW application package submittal.

Paradiso del Mare Ranch Estates, CPH Dos Pueblos Associates, Santa Barbara County, California. Assisted in wetland delineation and jurisdictional determination on an approximately 140-acre site in the coastal zone in 2015 and 2016. Participated in white-tailed kite (*Elanus leucurus*) nesting season surveys. Coordinated with regulatory agencies including the ACOE, CDFW, and RWQCB and assisted with the preparation of an approved jurisdictional determination (AJD). Prepared and submitted the permit application package for the CDFW SAA and coordinated with the agency to secure the permit prior to project initiation.

Brown Road and Point Sal Road Parking Upgrade and Culvert Repair Project, Santa Barbara County, California. Completed biological resource surveys and a wetland delineation and jurisdictional determination on an approximately 1.3-acre project site on and adjacent to an unnamed tributary to the Santa Maria River. Prepared and submitted permit application packages to the ACOE under section 404 of

the CWA, CDFW SAA under section 1602 of DFG Code, and RWQCB WQC under section 401 of the CWA. Permit coordination on-going prior to project initiation.

Charles Meyer Desalination Facility, City of Santa Barbara, California. Compiled required information from numerous technical reports and prepared the permit applications for the ACOE under section 10 of the Rivers and Harbors Act and RWQCB WQC under section 401 of the CWA and participated in coordination with these agencies to secure the permits prior to project initiation. Provided third-party review of technical report and project plans related to maintenance and operation activities. Completed monitoring visits to the work locations to ensure compliance with the permit requirements.

Travel Village Bank Protection Project, Los Angeles County, California. Completed biological resource surveys and a wetland delineation and jurisdictional determination on an approximately 3,600 linear foot bank protection project on the Santa Clara River. Prepared a biological resources technical report and wetland delineation report for the project. Prepared and submitted the permit application package for the CDFW SAA and coordinated with the agency to secure the permit prior to project initiation.

Travel Village Riprap Removal Project, Los Angeles County, California. Completed a wetland delineation and jurisdictional determination for targeted removal of riprap material on a portion of the Santa Clara River. Prepared a biological resources technical report and wetland delineation report for the project. Prepared and submitted permit application packages to the ACOE under section 404 of the CWA, CDFW SAA under section 1602 of DFG Code, and RWQCB WQC under section 401 of the CWA and participated in coordination with these agencies to secure the permits prior to project initiation.

Newhall Ranch Project, Newhall Land and Farming Company, Counties of Los Angeles and Ventura, California. Participated in rare plant surveys for San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) and slender mariposa lily (*Calochortus clavatus* var. *gracilis*), along with several other rare plant species. Assisted with the collection of baseline data for the Middle Canyon Spring complex including stream flow, soil characteristics, groundwater sampling, and leaf-area index (LAI) data collection. Responsible for report preparation documenting LAI data collection for the long-term monitoring program. Assisted with the production of several conceptual mitigation plans for proposed impacts to ACOE, CDFW, and RWQCB jurisdictional areas. Completed CRAM assessments for the Salt Creek Advanced Mitigation project. Conducts on-going long-term monitoring of mitigation/restoration projects associated with current projects.

Tejon Mountain Village (TMV), Tejon Mountain Village LLC, Kern County, California. Served as the on-site biological and regulatory compliance monitor for the Beartrap Turnout Improvement Project, which is the first phase in the construction of the TMV development. Participated in pre-construction meetings and provided environmental awareness training to the construction contractors, including compliance information associated with regulatory agency permits and the TMV environmental impact report. Completed a CRAM assessment for the Cuddy Creek mitigation project. Coordinated with the construction contractor on project revisions and assisted in the acquisition of a permit amendment from CDFW for changes to the project description. Responsible for production of post-construction reports and as-built construction drawings.

Tejon Ranch Commerce Center, Tejon Ranch Company, Kern County, California. Serves as the on-site biological monitor for multi-phase commerce center construction project. Directs pre-construction

meetings discussing on-site biological resources and associated mitigation measures necessary to ensure compliance with resource agency permits. Manages on-site biological resource issues and coordinates with construction personnel and land managers to ensure that biological resources are protected throughout the duration of the project. Conducts reconnaissance-level and protocol-level surveys for special-status species potentially occurring on site, including California burrowing owl (*Athene cunicularia*) and San Joaquin kit fox (*Vulpes macrotis mutica*). Compiles biological survey and monitoring reports following completion of each phase of the project.

Bacara Resort and Spa, City of Goleta, California. Served as a field biologist for the Bacara Resort and Spa expansion project. Performed a rare plant survey as well as vegetation mapping of the proposed Bacara expansion project site. Assisted with the production of a biological technical report detailing the results of plant and wildlife surveys conducted on the project site.

Habitat Restoration and Regulatory Compliance

Chapala One Creek Restoration Project, Chapala One Homeowners Association, Santa Barbara County, California. Served as the habitat restoration specialist/compliance monitor for the mitigation project. Performed monitoring of the mitigation/restoration project site on a quarterly basis. Duties included the collection of qualitative and quantitative data on the condition of the site. Made recommendations on necessary remedial measures to ensure project success. Compiled and submitted quarterly and annual monitoring reports to the client and resource agencies involved in the project. The project received regulatory agency sign-off in 2014.

Tejon Mountain Village, Tejon Mountain Village LLC, Kern County, California. Serves as the habitat restoration monitor for the Beartrap Turnout Improvement Project on-site restoration and off-site enhancement mitigation project. Monitored the pre-construction vegetation and soil salvage operations and stream diversion. Coordinated and monitored the post-construction salvaged vegetation and soil replacement and re-contouring of the restoration site. Monitored the container plant and hydroseed installation and coordinated the installation of perimeter fencing at the on-site restoration area to preclude impacts from livestock that range on Tejon Ranch. Monitored perimeter fence installation at off-site enhancement sites which was designed to preclude use of the enhancement sites by livestock and feral pigs. Monitored native seed imprinting and container plant installation in off-site enhancement areas. Conducts on-going long-term monitoring of the mitigation project and compiles quarterly and annual reports for the client and resource agencies.

Arroyo Simi Bank Stabilization Project, City of Simi Valley, Ventura County, California. Served as the biological and regulatory compliance monitor and habitat restoration specialist for the bank stabilization and restoration project. Responsibilities included monitoring of construction in the Arroyo Simi Creek to repair and stabilize the creek bank. Participated in pre-construction meetings with stakeholders to coordinate project activities as to avoid impacts to biological resources. Performed daily site visits to ensure compliance with regulatory agency requirements and weekly progress meetings to ensure project compliance. The restoration component of the project consisted of conducting a site assessment of restoration opportunities adjacent to the bank stabilization project site, preparation of mitigation figures, and coordinating with contractors before and during construction to ensure adherence to construction plans and regulatory agency requirements. Served as the long-term mitigation monitor during the 5-year maintenance and monitoring period. The project received regulatory agency sign-off in 2015.

Creek Restoration Project, Dos Pueblos High School, Santa Barbara County, California. Served as the habitat restoration specialist for the mitigation project. Performed monitoring of the mitigation/restoration project site on a quarterly basis. Duties included the collection of qualitative and quantitative data on the condition of the site. Made recommendations on necessary remedial measures to ensure project success. Compiled and submitted quarterly and annual monitoring reports to the client and resource agencies involved in the project. This project received regulatory agency sign-off in 2011.

Rivercourt Restoration Project, JSB Development, Los Angeles County, California. Served as the habitat restoration specialist for the mitigation project which included 5-year long-term monitoring of a riparian mitigation project on the Santa Clara River. Monitoring consisted of performing quarterly monitoring visits to assess the progress of the mitigation site and its success based on established performance criteria. Additionally, annual data collection and compilation of monitoring reports was completed and the reports were submitted to the client as well as the responsible agencies. The project received regulatory agency sign-off in 2014.

Energy

Aera Energy T-11 Block 12 Project, Western Kern County, California. Participated in biological surveys and production of a biological technical report for a proposed 193 acre oil development. In 2013, performed protocol level surveys for blunt-nosed leopard lizard (*Gambelia sila*), San Joaquin kit fox, and burrowing owl. Also completed surveys for San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) and giant kangaroo rat (*Dipodomys ingens*) including identification and delineation of precincts. Prepared portions of the biological technical report document including sections on San Joaquin antelope squirrel and giant kangaroo rat in support of the Section 2081 permit application and project environmental impact report (EIR). Participated in the preparation of avoidance and/ or relocation plans for the above species in support of Section 2081 permit compliance. In 2015 and 2016, performed pre-construction surveys for blunt-nosed leopard lizard prior to project initiation.

Western San Joaquin Valley Energy Project, Kern, Tulare, and Fresno Counties, California. Participated in planning, coordinating, and conducting surveys over a large part of the western San Joaquin Valley covering potential development and mitigation lands associated with a large habitat conservation plan. In 2016, co-led blunt-nosed leopard lizard surveys with a team of 75+ biologists. The project sought to identify the potential for occurrence of blunt-nosed leopard lizard, San Joaquin kit fox, Nelson's antelope squirrel, giant kangaroo rat, Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*), burrowing owl, San Joaquin Le Conte's thrasher (*Toxostoma lecontei*), and rare plants on potential development lands and to assess the suitability of additional properties as mitigation lands for these species. Mr. McInvale participated in blunt-nosed leopard lizard surveys as a Level 2 surveyor. He conducted burrow surveys to assess the potential for several of the covered species to occur within the survey areas including San Joaquin kit fox, Nelson's antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, short-nosed kangaroo rat, and burrowing owl. He compiled survey data and co-wrote the biological technical reports associated with the potential development and mitigation sites.

In-House Consulting Biologist, Southern California Edison (SCE), Los Angeles, Santa Barbara, Ventura, Tulare, Kern, and San Bernardino Counties, California. Served as an in-house consultant for SCE in the Operations and Maintenance (O&M) group within the Corporate Environmental Health and Safety (CEH&S) division for 18 months. Responsible for biological review of all O&M projects with potential to impact biological resources in three of eight SCE service regions. Served as environmental lead in two of

the regions and was responsible for issuing environmental compliance requirements to field crews and for coordination with project planners and field crews on potential impacts and project schedules. Led training sessions for SCE and contractor crews on resource protection both in the office and in the field. Participated in regional project coordination meetings with construction coordinators, managers, engineers, and field crews. Aided with project design to reduce impacts to environmental resources. Worked closely with other SCE and in-house consulting staff including archaeologists, engineers, and permitting specialists within CEH&S to ensure regulatory compliance on all projects.

Adera Solar Project, Madera County, California. Completed pre-construction surveys for Swainson's hawk (*Buteo swainsoni*) in accordance with the CDFW 2010 protocol. Nest-monitoring visits were conducted weekly during the breeding season for active nests to determine nestling development and behavior. Completed a wetland delineation/jurisdictional determination for waterways adjacent to the project site to confirm impact boundaries.

San Joaquin Valley Solar Projects, Pacific Valley LLC, Madera, Western Fresno and Kern Counties, California. Performed biological services for potential solar projects during the planning, pre-construction phase, and construction phase. Performed and reported on focused surveys for Swainson's hawk, San Joaquin kit fox, burrowing owl, blunt-nosed leopard lizard, and other sensitive species. Coordinated with developer and contractors on resource avoidance. Prepared survey and monitoring reports for County and resource agency submittal.

Tehachapi Renewable Transmission Project, SCE, Los Angeles and Riverside Counties, California. Participated in rare plant surveys in multiple segments of a new 500-kilovolt (kV) transmission line. Extensive surveys were conducted in the Angeles National Forest as well as in surrounding state, county, and private land. Completed mapping of rare plant occurrences and detailed data collection as required by SCE and the California Public Utilities Commission (CPUC).

Power Pole Installation and Replacement Projects, SCE, Los Angeles, Santa Barbara, Ventura, Tulare, San Bernardino, Riverside, Inyo, Mono, and Kern Counties, California. Serves as a field biologist for various power pole installation and replacement projects on private and public lands. Conducts field surveys to identify and collect biological resource data along power line corridors prior to improvement activities taking place. Completes post-survey biological assessments, biological technical reports, and formal memos detailing the findings of surveys and research specific to project locations including California Natural Diversity Database (CNDDB) figures and special-status species occurrence data.

Hazard Tree Removal Project, SCE, San Bernardino and San Jacinto Mountains, California. Serves as a biological monitor for hazard tree removal. The project involves the removal of bark-beetle-infested trees, drought-stressed trees, and other damaged trees from the vicinity of SCE poles, lines, and other facilities. The project area encompasses an estimated 62,000 acres of tree removal, 22,000+ power poles, and 538 linear miles of utility lines. Project responsibilities include monitoring tree removal activities and conducting wildlife surveys, botanical surveys, habitat assessments, and surveys for sensitive and U.S. Forest Service (USFS)-threatened, endangered, and sensitive species throughout the project area.

Emergency Wildfire Pole Replacement Projects, SCE, Los Angeles, San Bernardino, and Riverside Counties, California. Serves as a field biologist and biological monitor for emergency pole replacement projects. Following wildfire damage, Mr. McInvale conducted biological resource surveys to ensure that

pole replacement projects would not impact sensitive biological resources. He surveyed areas surrounding individual poles and segments of distribution lines damaged by fire. He also completed post-survey reports detailing survey results and potential biological resource issues on site.

Concepcion 16 kV Transmission Line Deteriorated Pole Project, SCE, Santa Barbara County, California. Served as a field biologist and biological monitor for the deteriorated pole replacement project. Conducted general biological investigations and focused surveys within environmentally sensitive habitat for the federally endangered species Gaviota tarplant (*Deinandra increscens ssp. villosa*) along the Concepcion 16 kV distribution line. Biologist on rare plant surveys, vegetation mapping, and construction monitoring intended to repair, upgrade, and replace facilities to ensure service reliability.

Resource Management

Tejon Mountain Village Conceptual Wetlands Mitigation and Monitoring Plan, Tejon Mountain Village LLC, Kern County, California. Serves as a habitat restoration specialist for the proposed project. Conducted a site assessment including GPS mapping of potential restoration areas available on the Tejon Mountain Village project site. Assisted with the development of the conceptual mitigation plan for submittal to Tejon Mountain Village LLC.

Jurisdictional Determination on Castaic Lake, Tejon Mountain Village LLC, Kern County, California. Served as a field biologist on the jurisdictional delineation. Assisted in formal (routine) wetland delineation in accordance with the U.S. Army Corps of Engineers 2006 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Assisted in report preparation, writing, and figure construction.

Jurisdictional Determination on Bouquet Canyon Creek, Santa Clarita, Los Angeles County, California. Served as a field biologist on the jurisdictional delineation. Assisted in formal (routine) wetland delineation in accordance with the U.S. Army Corps of Engineers 2006 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Assisted in report preparation, writing, and figure construction.

Angeles National Forest Station Fire Biological Monitoring, SCE, Los Angeles County, California. Served as a biological monitor for the road repair project. Following wildfire damage, performed biological and regulatory compliance monitoring of road repair activities on USFS lands. Coordinated with heavy equipment operators to ensure that sensitive resources were not impacted during necessary construction and repair activities. Consulted with SCE biologists to maintain compliance with regulatory agency permits.

Wetland Restoration, Bioengineering Associates Inc., Napa, Solano, and Mendocino Counties, California. Served as a restoration crew member on various wetland restoration projects. Constructed river and stream as well as upland wetland restoration projects on a seasonal crew in Northern California. Assisted with on-site design and client relations.

Salt Marsh Wetland Research, University of California, Davis, Alameda, San Mateo, and San Francisco Counties, California. Served as a student assistant for a wetland research laboratory. Collected and analyzed samples and data relating to invasive species recruitment and its effects on the ecosystem in the greater San Francisco Bay region. Assisted in the production of reports and articles distributed within the project and to the general scientific community. Conducted field surveys of plant and animal species and produced maps and figures using GPS and GIS equipment.

Mitigation and Encroached Tree Plan & Annual Report

APPENDIX E-2

MITIGATION AND ENCROACHED TREE PLAN & ANNUAL REPORT

24600 THOUSAND PEAKS ROAD
CALABASAS, CALIFORNIA
R2014-03698

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MITIGATION PLANS AND MAPS

SEPTEMBER 2021

RESPONSIBILITIES OF ARBORIST OF RECORD (AOR)

The person/agency responsible for the mitigation shall provide DRP with a letter stating that they are Arborist of Record (AOR) and are responsible for the following mitigation tasks:

- Fencing at the TPZ that protects the retained native trees including the encroached trees during construction (usually 5-ft. chain link supported by steel stakes, with no entry) previous to any vegetation removal and/or grading. This shall be maintained throughout construction.
- Supervision of all construction work within the TPZs (shall be an arborist or arborist designee, designated in writing to DRP)
- Removal of invasive plants per instructions
- Planting of the mitigation trees per instructions
- Care of the mitigation trees during 10 years
- Planting of replacement trees for mitigation and encroached trees that die
- Ensure that all trees encroached, retained, and newly planted are tagged with the id number in the field. Tags are required to be waterproof and need to have the same number as what is in the following table of tree characteristics.
- Annual reports on the encroached and mitigation trees provided to the Permitee and DRP

MITIGATION PROGRAM AND ANNUAL REPORT INSTRUCTIONS

1. At the end of 10 years, a total of 205 Trees must survive among the mitigation trees.

2. At the end of 10 years, the survival of replacement trees for the Encroached that have died is required. (All encroached trees that have died shall be replaced at a ratio of 1:10.)

- For encroached tree deaths, the mitigation/replacement will need to be followed for all 10 years from the time of planting.
- For replacement tree death compensatory plantings, the replacement is followed up to the term of mitigation. Eg. Say tree #13 dies in year two. A replacement is installed in the same year and followed for 8 years more, a total of 10 years

3. For each annual report, show the previous years' data and then record the data for that year. *Condition* can be what the monitor determines is best, but a key to condition should be provided. The *Notes* column to be used when a tree dies. The *Notes* column should include information on replacement mitigation numbers and species for a tree that died.

4. After planting of new mitigation trees, the trees shall be geo-referenced to latitude and longitude to 5 decimals. Note the true date of installation (Month/Day/Year) of new mitigation trees in the *Status* column of the report. This information should be included on the annual report submitted following the planting of the trees.

5. For Seedling sized plants, give dimensions of DBH when it can be measured at 1" diameter @ 4.5' from the ground.

6. Mitigation Oaks shall include the planting of one acorn within the irrigation zone of the Oak sapling, as noted in County Code 22.44.950.o.3.a

SUMMARY OF MITIGATION

The project site contains 109 trees comprised of 33 protected trees and 76 non-protected trees that meet the minimum size criteria identified by the LUP. The 33 protected trees are comprised of 7 coast live oaks and 26 western cottonwood. The remaining 76 trees do not meet the minimum size criteria identified by LUP. Overall, 62 trees will be retained on site, 31 will require removal (including 3 dead trees), and 16 trees will be encroached upon to accommodate project construction. Of the 31 tree removals; 17 are regulated, and will require a 10:1 mitigation rate. Of the 16 encroached trees, 5 are regulated, which require mitigation. Two of the regulated encroached trees have >30% encroachment and will require a 10:1 mitigation rate. Three of the regulated encroached trees have <10% encroachment and will require a 5:1 mitigation rate. Based on the LUP native tree protection policy, 205 native trees are required as mitigation for the anticipated protected tree impacts. Of the 205 native trees required for mitigation, 28 native seedlings were inventoried on the existing property, and as such, it is recommended that these 28 native seedlings be protected in placed, and used as credit towards the existing mitigation requirements. To that end, 177 trees will be required as mitigation plantings. However, due to site constraints, the total number of trees that can be reasonably accommodated on site is 48 trees. The location of the recommended trees, mitigation species, and replacement quantities, that can be accommodated on-site, are presented in Appendix D, Landscape Plan. The number of proposed tree plantings that can be accommodate on-site is lower than that required by the LUP. As such, Dudek recommends that the project applicant work with the county to identify off-site mitigation planting locations and/or pay an in-lieu of fee that accommodates the remaining 129 required mitigation trees that cannot be accommodated at on-site locations

Protected Trees Removed:

- Number of native protected trees removed: 17
  - 16 Populus fremontii
  - 1 Quercus agrifolia
- Number of mitigation trees required for removal of native trees : **170**
  - 10 to 1 mitigation replacement rate for removed native trees

Protected Trees Encroached:

- Number of native protected trees encroached: 5
  - <10% Encroached: 3 total (Tree Nos. 105,110,111)
  - >30% Encroached: 2 total (Tree Nos. 26, 64)
- Number of mitigation trees required for encroachment of native trees : **35**
  - 10 to 1 mitigation replacement rate from native trees encroached >30%
  - 5 to 1 mitigation replacement rate for native trees encroached <10%

Trees Retained:

- Number of on-site native trees retained and protected due to size: **11**
  - (Tree Nos. 1, 10, 12, 20, 26, 40, 105, 106, 107, 110, 111)
- Number of native trees retained as mitigation trees: **28**
  - (Tree Nos. 13, 15, 41, 42, 43, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 97, 98, 100, 101, 102)

Summary of mitigation tree statistics

- Total mitigation trees: 205
- Retained mitigation trees: 28
- On-Site Planted mitigation trees: 48 (Tree Nos. 112 through 159)
- Off-site Planted mitigation trees (by Off-site Mitigation Provider): 129
- Number dead trees removed (Non-project related death): 3
    - 1 Platanus racemosa (Tree No. 75)
    - 2 Populus fremontii (Tree Nos. 69, 109)

NOTE:

1. There are four unnumbered "Voluntary" trees identified on Sheet L-2.1 Planting Plan. (One Quercus species and three Platanus species). These trees are not to be counted towards Mitigation trees and do not require monitoring.

MITIGATION & ENCROACHED TREE ANNUAL REPORT FOR 24600 THOUSAND PEAKS ROAD

NOTE:

At the end of 10 years, a total of 110 Trees must survive among the mitigation trees.

TREE NO.	PROTECTED/ MITIGATION	SPECIES	ON-SITE / OFF-SITE	LOCATION LONGITUDE	LOCATION LATITUDE	STATUS	MITIGATION RATE	2021 (DATE: AUGUST 2021)					2022 (DATE:_____)				
								TRUNK DIA. @ 4.5 FT FROM GROUND (IN INCHES)	NUMBER OF TRUNKS	HEIGHT	CONDITION / COMMENTS	NOTES	TRUNK DIA. @ 4.5 FT FROM GROUND (IN INCHES)	NUMBER OF TRUNKS	HEIGHT	CONDITION / COMMENTS	NOTES
1	P	Quercus agrifolia	On-site	-118.66494	34.10886	Preserve		6, 7	2	18'	Good						
2	P	Quercus agrifolia	On-site	-118.66495	34.10888	1.57% - Encroached		1,2	2	10'	Good						
10	P	Quercus agrifolia	On-site	-118.66480	34.10901	Preserve		5, 5	2	14'	Good						
12	P	Populus fremontii	On-site	-118.66485	34.10904	Preserve		11	1	45'	Poor						
13	M	Quercus agrifolia	On-site	-118.66487	34.10904	Preserve		4	1	19'	Good						
15	M	Quercus agrifolia	On-site	-118.66484	34.10923	Preserve		2	1	10'	Good						
20	P	Populus fremontii	On-site	-118.66477	34.10934	Preserve		11	1	35'	Poor						
26	P	Populus fremontii	On-site	-118.66503	34.10951	48.9% Encroached	10 to 1	14	1	60'	Poor						
38	P	Quercus agrifolia	Off-site	-118.66565	34.10885	Preserve		5	1	14'	Good						
39	P	Populus fremontii	Off-site	-118.66569	34.10886	Preserve		14	1	50'	Poor						
40	P	Quercus agrifolia	On-site	-118.66520	34.10877	Preserve		3, 4, 5	3	18'	Good						
41	M	Quercus agrifolia	On-site	-118.66522	34.10881	Preserve		2, 2	2	9'	Fair						
42	M	Quercus agrifolia	On-site	-118.66522	34.10881	Preserve		2, 3	2	11'	Fair						
43	M	Quercus agrifolia	On-site	-118.66485	34.10892	Preserve		4,4	2	16'	Fair						
64	P	Populus fremontii	Off-site	-118.66491	34.10968	38.73% - Encroached	10 to 1	17	1	65'	Fair						
76	M	Quercus agrifolia	On-site	-118.66491	34.10891	Preserve		n/a	Seedling <1"	2'	Good						
77	M	Quercus agrifolia	On-site	-118.66490	34.10893	Preserve		n/a	Seedling <1"	0.2'	Good						
78	M	Quercus agrifolia	On-site	-118.66490	34.10896	Preserve		n/a	Seedling <1"	4'	Good						
79	M	Quercus agrifolia	On-site	-118.66485	34.10894	Preserve		n/a	Seedling <1"	1.5'	Good						
80	M	Quercus agrifolia	On-site	-118.66482	34.10897	Preserve		n/a	Seedling <1"	3'	Good						
81	M	Quercus agrifolia	On-site	-118.66492	34.10899	Preserve		n/a	Seedling <1"	3'	Good						
82	M	Quercus agrifolia	On-site	-118.66480	34.10900	Preserve		n/a	Seedling <1"	3'	Good						
83	M	Quercus agrifolia	On-site	-118.66481	34.10900	Preserve		n/a	Seedling <1"	5'	Good						
84	M	Quercus agrifolia	On-site	-118.66481	34.10895	Preserve		n/a	Seedling <1"	3'	Good						
85	M	Quercus agrifolia	On-site	-118.66477	34.10897	Preserve		n/a	Seedling <1"	1'	Good						
86	M	Quercus agrifolia	On-site	-118.66485	34.10903	Preserve		n/a	Seedling <1"	2'	Good						
87	M	Quercus agrifolia	On-site	-118.66482	34.10908	Preserve		n/a	Seedling <1"	1'	Good						
88	M	Quercus agrifolia	On-site	-118.66482	34.10909	Preserve		n/a	Seedling <1"	3'	Good						
89	M	Quercus agrifolia	On-site	-118.66484	34.10908	Preserve		n/a	Seedling <1"	3'	Good						
90	M	Quercus agrifolia	On-site	-118.66483	34.10911	Preserve		n/a	Seedling <1"	4'	Good						
91	M	Quercus agrifolia	On-site	-118.66481	34.10911	Preserve		n/a	Seedling <1"	3'	Good						
92	M	Quercus agrifolia	On-site	-118.66484	34.10923	Preserve		0.5, 0.5	2	8'	Fair						
93	M	Quercus agrifolia	On-site	-118.66531	34.10950	Preserve		1, 0.5, 0.8	3	9'	Fair						
94	M	Quercus agrifolia	On-site	-118.66533	34.10952	Preserve		n/a	Seedling <1"	2'	Good						
96	P	Populus fremontii	Off-site	1862660.94210	6360177.08414	Preserve		1	1	9'	Good						
97	M	Salix laevigata	On-site	-118.66549	34.10877	Preserve		3, 3	2	18'	Good						
98	M	Salix laevigata	On-site	-118.66543	34.10877	Preserve		4, 3, 2, 2	4	18'	Fair						
99	P	Salix laevigata	Off-site	1862642.55680	6360161.05178	Preserve		3	1	16'	Good						

TREE NO.	PROTECTED/ MITIGATION	SPECIES	ON-SITE / OFF-SITE	LOCATION LONGITUDE	LOCATION LATITUDE	STATUS	MITIGATION RATE	2021 (DATE: AUGUST 2021)					2022 (DATE:_____)				
								TRUNK DIA. @ 4.5 FT FROM GROUND (IN INCHES)	NUMBER OF TRUNKS	HEIGHT	CONDITION / COMMENTS	NOTES	TRUNK DIA. @ 4.5 FT FROM GROUND (IN INCHES)	NUMBER OF TRUNKS	HEIGHT	CONDITION / COMMENTS	NOTES
100	M	Quercus agrifolia	On-site	-118.66520	34.10881	Preserve		n/a	Seedling <1"	3'	Good						
101	M	Quercus agrifolia	On-site	-118.66514	34.10883	Preserve		n/a	Seedling <1"	3'	Good						
102	M	Quercus agrifolia	On-site	-118.66501	34.10884	Preserve		n/a	Seedling <1"	6'	Good						
105	P	Populus fremontii	On-site	-118.66447	34.10984	Preserve		12	1	60'	Poor						
106	P	Populus fremontii	On-site	-118.66445	34.10983	Preserve		17.5	1	65'	Poor						
107	P	Populus fremontii	On-site	-118.66447	34.10981	Preserve		13	1	60'	Poor						
110	P	Populus fremontii	On-site	-118.66440	34.10987	Preserve		7.2	1	30'	Poor						
111	P	Populus fremontii	On-site	-118.66438	34.10987	Preserve		14.5	1	45'	Poor						
112	M	Quercus agrifolia	On-site			To Be Planted		24" Box Multi	2 to 3		Good						
113	M	Quercus agrifolia	On-site			To Be Planted		24" Box Multi	2 to 3		Good						
114	M	Quercus agrifolia	On-site			To Be Planted		24" Box Multi	2 to 3		Good						
115	M	Quercus agrifolia	On-site			To Be Planted		1 Gal	1		Good						
116	M	Quercus agrifolia	On-site			To Be Planted		1 Gal	1		Good						
117	M	Quercus agrifolia	On-site			To Be Planted		1 Gal	1		Good						
118	M	Quercus agrifolia	On-site			To Be Planted		1 Gal	1		Good						
119	M	Quercus agrifolia	On-site			To Be Planted		1 Gal	1		Good						
120	M	Quercus agrifolia	On-site			To Be Planted		1 Gal	1		Good						
121	M	Platanus racemosa	On-site			To Be Planted		1 Gal	1		Good						
122	M	Platanus racemosa	On-site			To Be Planted		1 Gal	1		Good						
123	M	Platanus racemosa	On-site			To Be Planted		1 Gal	1		Good						
124	M	Platanus racemosa	On-site			To Be Planted		1 Gal	1		Good						
125	M	Platanus racemosa	On-site			To Be Planted		1 Gal	1		Good						
126	M	Platanus racemosa	On-site			To Be Planted		1 Gal	1		Good						
127	M	Platanus racemosa	On-site			To Be Planted		1 Gal	1		Good						
128	M	Populus fremontii	On-site			To Be Planted		1 Gal	1		Good						
129	M	Populus fremontii	On-site			To Be Planted		1 Gal	1		Good						
130	M	Populus fremontii	On-site			To Be Planted		1 Gal	1		Good						
131	M	Populus fremontii	On-site			To Be Planted		1 Gal	1		Good						
132	M	Populus fremontii	On-site			To Be Planted		1 Gal	1		Good						
133	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
134	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
135	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
136	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
137	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
138	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
139	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
140	M	Sambucus nigra ssp Caerulea	On-site			To Be Planted		1 Gal	1		Good						
141	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
142	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
143	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
144	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						

TREE NO.	PROTECTED/ MITIGATION	SPECIES	ON-SITE / OFF-SITE	LOCATION LONGITUDE	LOCATION LATITUDE	STATUS	MITIGATION RATE	2021 (DATE: AUGUST 2021)					2022 (DATE:_____)				
								TRUNK DIA. @ 4.5 FT FROM GROUND (IN INCHES)	NUMBER OF TRUNKS	HEIGHT	CONDITION / COMMENTS	NOTES	TRUNK DIA. @ 4.5 FT FROM GROUND (IN INCHES)	NUMBER OF TRUNKS	HEIGHT	CONDITION / COMMENTS	NOTES
145	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
146	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
147	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
148	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
149	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
150	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
151	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
152	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
153	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
154	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
155	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
156	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
157	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
158	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						
159	M	Heteromeles arbutifolia	On-site			To Be Planted		1 Gal	1		Good						

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
1. ALL TREE SYMBOLS WITH DASHED-LINE CIRCLES ARE TO REMAIN.
2. ALL TREE SYMBOLS WITH SOLID LINE CIRCLES ARE TO BE REMOVED.

EXISTING ON-SITE TREES TO REMAIN

SYMBOL	PLANT NAME	QUANT.
	EXISTING POPULUS FREMONTII TO REMAIN	11
	EXISTING QUERCUS AGRIFOLIA TO REMAIN	32
	EXISTING SALIX LAEVIGATA TO REMAIN	3

NOTE:
1. FOR NATIVE TREES THAT WILL BE RETAINED, CHECK FOR MISSING OR WORN TAGS AND APPLY DURABLE TAG WITH CONSECUTIVE NUMBERS. THESE WILL NEED TO BE TAGGED IN THE FIELD.
2. INSTALL PROTECTIVE FENCING AT 15-FT FROM TRUNK OR 5-FT FROM CANOPY, WHICHEVER DISTANCE IS MORE.
3. WORK WITHIN FENCING WILL BE SUPERVISED BY: ARBORIST OF RECORD OR BIOLOGIST OF RECORD (AOR OR BOR) TO PRESERVE FOLIAGE AND ROOTS. FENCING IS TO BE REINSTALLED AFTER WORK COMPLETES AND RETAINED THROUGH ALL CONSTRUCTION. SEE 'BEST MANAGEMENT...TRENCHING' ON SHEET L-3.1.

EXISTING TREES TO BE REMOVED

SYMBOL	PLANT NAME	QUANT.
	PINUS HALEPENSIS ALEPPO PINE	26
	KOELREUTERIA BIPINNATA CHINESE FLAME TREE	1
	CUPRESS SARGENTII SARGENT CYPRESS	1
	SCHINUS MOLLE PERUVIAN PEPPER	7
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	1 DEAD
	POPULUS FREMONTII WESTERN COTTONWOOD	17 +2 DEAD
	PISTACIA CHINESIS CHINESE PISTACHE	2
	QUERCUS AGRIFOLIA COAST LIVE OAK (1 UNDER-SIZED)	2
	TAMARIX PARVIFLORA TAMARISK	1

NOTE: SEE REMOVAL INSTRUCTIONS ON THE LEFT.

EXISTING INVASIVE SPECIES TO BE REMOVED

SYMBOL	PLANT NAME	QUANT.
	SCHINUS MOLLE PERUVIAN PEPPER (FROM BIOLOGICAL ASSESSMENT FIGURE 5)	7
1	CORTADERIA SELLOANA PAMPAS GRASS	4
2	SCHINUS MOLLE PERUVIAN PEPPER (FROM NTRPP FIGURE 4)	6
3	SCHINUS TEREBINTHIFOLIUS BRAZILIAN PEPPERTREE	2
4	SPARTIUM JUNCEUM SPANISH BROOM GROUPING	2
5	TAMARIX RAMOSISSIMA SALT CEDAR	1
6	AILANTHUS ALTISSIMA TREE OF HEAVEN GHOUPING	1

NOTE: SEE REMOVAL INSTRUCTIONS ON THE LEFT.

REMOVAL OF NON-NATIVE / INVASIVE SPECIES

1. REMOVE ALL NON-NATIVE AND INVASIVE PLANT SPECIES FROM THE RE-VEGETATED NATIVE AREAS OF ZONES B & C, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING OBSERVED SPECIES:
   - -SCHINUS MOLLE
   - -CENTAUREA MELITENSIS
   - -SONCHUS ASPER
   - -HIRSCHFELDIA INCANA
   - -SALSOLA TRAGIUS
   - - ACACIA SPECIES
   - -SPARTIUM JUNCEUM
   - -LYSIMACHIA ARVENSIS
   - -AILANTHUS ALTISSIMA
   - -TAMARIX RAMOSISSIMA
   - -PINUS HALEPENSIS
   - -AGROSTIS VIRIDIS
   - -BROMUS MADRITENSIS SSP. RUBENS
   - -BROMUS DIANDRUS
   - -PIPTATHERUM MILEACEUM
2. USE TREE REMOVAL METHODS THAT PRESERVE BATS AND BIRDS THAT SEQUESTER IN FOLIAGE.
   - -BRING DOWN TREES OR STRUCTURES IN A CONTROLLED MANNER USING HEAVY MACHINERY. IN ORDER TO ENSURE THE OPTIMUM WARNING FOR ANY ROOSTING BATS AQR SMALL BIRDS THAT MAY STILL BE PRESENT, THE TREES OR STRUCTURES SHALL BE NUDGED LIGHTLY TWO OTO THREE TIMES, WITH A PAUSE OF APPROXIMATELY 30 SECONDS BETWEEEN EACH NUDGE TO ALLOW BATS AND BIRDS TO BECOME ACTIVE. TREES OR STRUCTURES MAY THEN BE PUSHED OR PULLED TO THE GROUND SLOWLY. FELLED TREES SHALL REMAIN IN PLACE FOR 48 HOURS TO ALLOW SMALL BIRDS AND BATS TO ESCAPE.
3. FOR MOST INVASIVE PLANTS, SPECIFIC MANUAL REMOVAL WITH SHOVELS INCLUDING ROOTS IS BEST. TRANSPORT ALL INVASIVE PLANT PARTS IN CLOSED CONTAINERS TO A LANDFILL. DO NOT MULCH, AS MANY OF THESE CAN REGROWN FROM PLANT PARTS. FOR CERTAIN RECALCITRANT INVASIVE PLANTS, CHEMICAL MAY BE USED AS SPECIFIED IN THE NTRPP.

INSTRUCTIONS PER SPECIFIC INVASIVE PLANTS ARE THE FOLLOWING:

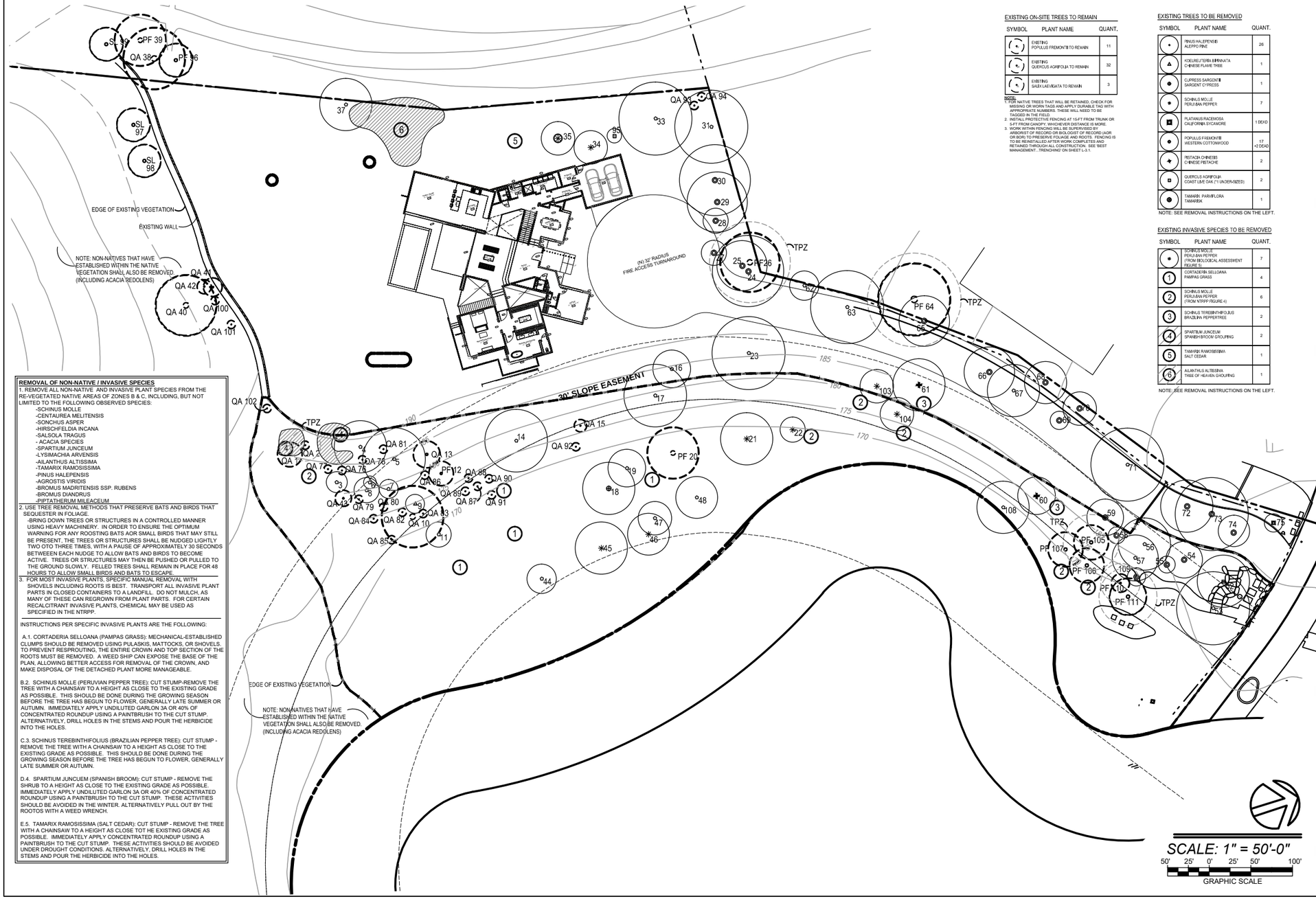
A.1. CORTADERIA SELLOANA (PAMPAS GRASS): MECHANICAL-ESTABLISHED CLUMPS SHOULD BE REMOVED USING PULASKIS, MATTOCKS, OR SHOVELS. TO PREVENT RESPROUTING, THE ENTIRE CROWN AND TOP SECTION OF THE ROOTS MUST BE REMOVED. A WEED SHIP CAN EXPOSE THE BASE OF THE PLAN, ALLOWING BETTER ACCESS FOR REMOVAL OF THE CROWN, AND MAKE DISPOSAL OF THE DETACHED PLANT MORE MANAGEABLE.

B.2. SCHINUS MOLLE (PERUVIAN PEPPER TREE): CUT STUMP-REMOVE THE TREE WITH A CHAINSAW TO A HEIGHT AS CLOSE TO THE EXISTING GRADE AS POSSIBLE. THIS SHOULD BE DONE DURING THE GROWING SEASON BEFORE THE TREE HAS BEGUN TO FLOWER, GENERALLY LATE SUMMER OR AUTUMN. IMMEDIATELY APPLY UNDILUTED GARLON 3A OR 40% OF CONCENTRATED ROUNDUP USING A PAINTBRUSH TO THE CUT STUMP. ALTERNATIVELY, DRILL HOLES IN THE STEMS AND POUR THE HERBICIDE INTO THE HOLES.

C.3. SCHINUS TEREBINTHIFOLIUS (BRAZILIAN PEPPER TREE): CUT STUMP - REMOVE THE TREE WITH A CHAINSAW TO A HEIGHT AS CLOSE TO THE EXISTING GRADE AS POSSIBLE. THIS SHOULD BE DONE DURING THE GROWING SEASON BEFORE THE TREE HAS BEGUN TO FLOWER, GENERALLY LATE SUMMER OR AUTUMN.

D.4. SPARTIUM JUNCUEM (SPANISH BROOM): CUT STUMP - REMOVE THE SHRUB TO A HEIGHT AS CLOSE TO THE EXISTING GRADE AS POSSIBLE. IMMEDIATELY APPLY UNDILUTED GARLON 3A OR 40% OF CONCENTRATED ROUNDUP USING A PAINTBRUSH TO THE CUT STUMP. THESE ACTIVITIES SHOULD BE AVOIDED IN THE WINTER. ALTERNATIVELY PULL OUT BY THE ROOTOS WITH A WEED WRENCH.

E.5. TAMARIX RAMOSISSIMA (SALT CEDAR): CUT STUMP - REMOVE THE TREE WITH A CHAINSAW TO A HEIGHT AS CLOSE TOT HE EXISTING GRADE AS POSSIBLE. IMMEDIATELY APPLY CONCENTRATED ROUNDUP USING A PAINTBRUSH TO THE CUT STUMP. THESE ACTIVITIES SHOULD BE AVOIDED UNDER DROUGHT CONDITIONS. ALTERNATIVELY, DRILL HOLES IN THE STEMS AND POUR THE HERBICIDE INTO THE HOLES.



SCALE: 1" = 50'-0"
50' 25' 0' 25' 50' 100'
GRAPHIC SCALE

Gaudet Design Group
Landscape Architecture
322 Tejon Place
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Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

EXISTING PLANT DISPOSITION PLAN

ISSUE

1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
4	09-06-18	BIOLOGY COMMENTS
5	11-08-18	BIOLOGY COMMENTS
6	11-10-18	PLNCHK COMMENTS
7	04-17-19	PLNCHK COMMENTS
8	07-16-19	PLNCHK COMMENTS
9	09-18-19	PLNCHK COMMENTS
10	02-17-20	PLNCHK COMMENTS
11	05-26-20	PLNCHK COMMENTS
12	08-01-20	FM COMMENTS
13	08-03-20	FM COMMENTS
14	01-11-21	PLNCHK COMMENTS
15	05-11-21	TREE REDUCTION
16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 4 of 14

L-1.2

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

MITIGATION TREE PLANTING

28 EXISTING MITIGATION TREES ON-SITE

9 QUERCUS AGRIFOLIA. 1 GAL (ON-SITE)
7 PLATANUS RACEMOSA. 1 GAL (ON-SITE)
5 POPULUS TRICHOCARPA. 1 GAL (ON-SITE)
8 SAMBUCUS NIGRA SSP CAERULEA. 1 GAL (ON-SITE)
19 HETEROMELES ARBUTIFOLIA. 1 GAL (ON-SITE)

129 NATIVE TREES PLANTED BY AN OFF-SITE MITIGATION PROVIDER, COORDINATED WITH THE LOS ANGELES COUNTY (<1 YEAR OLD SEEDLING SIZE)

205 TOTAL MITIGATION TREES REQUIRED

NOTE: FOR EACH MITIGATION OAK, PLANT AN ACORN OF THE SAME SPECIES (QUERCUS AGRIFOLIA) AND AMEND THE SOIL WITH OAK LEAF MULCH OR MULCH FROM NATIVE PLANTS OF THE SANTA MONICA MOUNTAINS WITHIN THE IRRIGATION CIRCLE. MULCH TO BE 4 INCHES DEEP AND TO SPREAD TO A 15' RADIUS FROM THE TRUNK. NO MULCH OR SOIL SHOULD CONTACT THE TRUNK. THE SLOPE OF DIRT SHALL BE AWAY FROM THE TRUNK.

OBSERVED EXISTING NATIVE PLANT SPECIES TO REMAIN ON SITE

Adenostoma fasciculatum	Keckiella cordifolia
Artemisia californica	Lonicera subspicata
Baccharis pilularis	Malacothamnus fasciculatus
Ceanothus species	Malosma laurina
Cercocarpus betuloides	Marah macrocarpa
Claytonia perfoliata	Populus fremontii
Eriogonum fasciculatum	Pseudognaphalium species
Eriophyllum confertiflorum	Rhamnus crocea
Helianthus annus	Rhus integrifolia
Heteromeles arbutifolia	Rhus ovata
Hypericum species	Salvia mellifera
Isocoma menziesii	Solanum xanti
	Toxicoscordion fremontii

EXISTING TREES TO REMAIN

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
	EXISTING SALIX LAEVIGATA TO REMAIN	3	---	EXISTING	LOW PF 0.1	B
	EXISTING POPULUS FREMONTII TO REMAIN	11	---	EXISTING	MED PF 0.4	B
	EXISTING QUERCUS AGRIFOLIA TO REMAIN	32	---	EXISTING	LOW PF 0.1	B - 30

TREE LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
DV	DODONAEA VISCOSA 'PURPUREA' PURPLE HOPSEED BUSH	3	24" BOX	DETAIL 'A' SHEET L-2.4	MED PF 0.4	A/B
	HETEROMELES ARBUTIFOLIA TOYON	19	<1 Y.O., SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	7	<1 Y.O., SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	3	36" BOX	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	POPULUS TRICHOCARPA BLACK COTTONWOOD	5	<1 Y.O., SEEDLING	DETAIL 'A' SHEET L-2.4	MED PF 0.4	A/B/C
	QUERCUS AGRIFOLIA COAST LIVE OAK PLANT ACORN OF THE SAME SPECIES WITHIN THE IRRIGATION CIRCLE OF EACH OAK (NOTE: DO NOT PLANT UNDERSTORY WITHIN 15-FT OF AN OAK TRUNK. THE UNDERSTORY SHALL BE OAK LEAF MULCH)	9	<1 Y.O., SEEDLING SOURCED FROM SANTA MONICA MTNS	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B - 30
	QUERCUS AGRIFOLIA COAST LIVE OAK PLANT ACORN OF THE SAME SPECIES WITHIN THE IRRIGATION CIRCLE OF EACH OAK (NOTE: DO NOT PLANT UNDERSTORY WITHIN 15-FT OF AN OAK TRUNK. THE UNDERSTORY SHALL BE OAK LEAF MULCH)	1	24" BOX MULTI-TRUNK	DETAIL /A/ SHEET L-2.4	LOW PF 0.1	B - 30
	SAMBUCUS NIGRA SSP CAERULEA ELDERBERRY	8	<1 Y.O., SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C

SHRUB LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
AA	AGAVE AMERICANA CENTURY PLANT	13	15 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW VERY LOW PF 0.1	A/B
AC	ARTEMISIA CALIFORNICA CALIFORNIA SAGEBRUSH	15	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	C
AF	ADENTOSTOMA FASCICULATUM CHAMISE	23	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	C
AH	ALYOGYNE HUEGELII BLUE-HIBISCUS	19	15 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
BP	BACCHARIS PILULARIS DWARF COYOTE BUSH	51	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B/C
CE	CEANOTHUS CUSPIDATUS HARMLEAF CEANOTHUS	52	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
CG	CORIOPSIS GIGANTEA SEA DAHLIA	11	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
CO	CEANOTHUS CUSPIDATUS HARMLEAF CEANOTHUS	52	5 GAL @ 60" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
EC	EPILOBIUM CANUM V. CANUM CALIFORNIA FUCHSIA	6	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
EG	ELYMUS GLAUCUS WESTERN RYE GRASS	51	1 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
JP	JUNCUS PATENS RUSH	86	5 GAL @ 42" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B-15
L	LONANDRA LONGIFOLIA BREEZE DWARF MATRUSH	6	5 GAL @ 24" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B
MP	MAHONIA PINNATA BARBERRY	25	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	B
MU	MUHLENBERGIA RIGENS DEER GRASS	36	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	LOW PF 0.2	A/B-10
NP	NASSELLA PULCHRA PURPLE NEEDLE GRASS	42	1 GAL AS SHOWN	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	A/B/C
PD	PHORMIUM 'DAZZLER' NEW ZEALAND FLAX	34	5 GAL @ 36" OC	DETAIL 'B' & 'C' SHEET L-2.4	MEDIUM PF 0.4	A/B
RC	ROMNEYA COULTERI MATILIJA POPPY	42	5 GAL @ 48" OC	**DETAIL** 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	B
RH	RHAMNUS CALIFORNICA COFFEEBERRY	10	5 GAL @ 48" OC	DETAIL 'B' & 'C' SHEET L-2.4	VERY LOW PF 0.1	B

GROUNDCOVER LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	SPACE	REFERENCE	WATER NEEDS	ZONE
	PCA GRAVEL FIRE/HIKER ACCESS PATH, MIN. 5' WIDE 3" THICK LAYER	CCQ	---	---	---	---	---
	EXISTING NATIVE IRRIGATED SLOPE PLANTING TO REMAIN. REMOVE INVASIVE & NON-NATIVE SPECIES. TO BE EVALUATED IN DURING ON-SITE FIRE DEPARTMENT INSPECTION.	(3218 SF)	---	---	---	---	---
	AGROSTIS PALLENS NATIVE BENTGRASS	CCQ	SOD	---	---	LOW PF 0.3	A/B
	BUFFALO 'VERDE' GRASS (SODDED TURF)	3747 SF	SOD	---	---	MEDIUM PF 0.4	A/B
	CERASTIUM TOMENTOSUM SNOW-IN-SUMMER	257 SF	1 GAL	24" OC	---	MEDIUM PF 0.4	A/B
*	LOCAL NATIVE SEED MIX: ACMISPON GLABER POA SECUNDA NASSELLA PULCHRA HORDEUM S. CALIFORN. LUPINUS SUCCULENTUS	CCQ	APPLY @ A RATE OF 45-50 LBS LIVE SEED PER ACRE	---	---	LOW PF 0.2	B/C
*	SANTA MONICA MOUNTAIN MIX BY S&S SEEDS ACMISPON GLABER, BROMUS CARINATUS, BROMUS CARINATUS CUCAMONGA, CAMISSONOPSIS CHEIRANTHIFOLIA, CLARKIA PURPUREA, ERIGONUM CINEREUM, ERIOPHYLLUM CONFERTIFLORUM, ESCHSCHOLZIA CALIFORNICA, LUPINUS SUCCULENTUS, MELICA IMPERFECTA, NIMULUS AURANTIACUS LONGIFLORUS, PENSTEMON SPECTABILIS, STIPA LEPIDA, STIPA PULCHRA, VERBENA LASIOSTACHYS	CCQ	APPLY @ A RATE OF 45-50 LBS LIVE SEED PER ACRE	---	NOTE: 1. PHYSICALLY CONDITION THE SLOPE BY WEEDING, CONDITIONING POCKETS FOR THE SEEDS AND/OR NATIVE PLANT MULCH, THEN SEEDING. 2. MOW AFTER SEED SET WHEN SEEDS DRY. 3. SEEDING WILL FOLLOW WEEDING, WEEDING WILL BE NEEDED UNTIL MOST OF THE PLANTS ARE NATIVE.	LOW PF 0.2	B/C
	LOCAL NATIVE SEED MIX: ACMISPON GLABER, ARTEMISIA CALIFORNICA** BROMUS CARINATUS, CLARKIA PURPUREA ELYMUS CONDENSATUS, EXCELLIA FARINOSA ** ERIGONUM FASCICULATUM, ERIGONUM FAS. VAR. FASCICULATUM** ERIOPHYLLUM CONFERTIFLORUM, LUPINUS SUCCULENTUS, PENSTEMON, HETEROPYLUS, SALVIA LEUCOPHYLLA, SALVIA APIANA** SALVIA MELLIFERA** SOLIDAGO VELUTINA SSP CALIFORNICA**	CCQ	APPLY @ A RATE OF 45-50 LBS LIVE SEED PER ACRE	---	1. PHYSICALLY CONDITION THE SLOPE BY WEEDING, CONDITIONING POCKETS FOR THE SEEDS AND/OR NATIVE PLANT MULCH, THEN SEEDING. 2. MOW AFTER SEED SET WHEN SEEDS DRY. 3. SEEDING WILL FOLLOW WEEDING, WEEDING WILL BE NEEDED UNTIL MOST OF THE PLANTS ARE NATIVE. 4. WOODY PLANT SPECIES MAY REQUIRE SELECTIVE THINNING POST GERMINATION.	LOW PF 0.2	C
	OAK LEAF MULCH 3" MINIMUM LAYER	CCQ	---	---	---	---	---

CCQ: CONTRACTOR TO COMPUTE QUANTITY
*PBL: REQUIRE ANNUAL MOWING TO 3" MAX HEIGHT
**WOODY SPECIES. MAY REQUIRE SELECTIVE THINNING POST GERMINATION

GUIDELINES FOR IRRIGATION & MITIGATION OF NATIVE PLANTS IN LANDSCAPES FOR THE SANTA MONICA MOUNTAINS

IRRIGATION
INITIALLY, IRRIGATION IS REQUIRED TO ESTABLISH NATIVE PLANTS. AFTER HEALTHY ESTABLISHMENT, IRRIGATION MAY OCCUR IN TIMES OF DROUGHT, ABOUT ONCE A MONTH IN THE SUMMER FOR PLANTS OTHER THAN OAKS.

AN IRRIGATION SYSTEM NEEDS TO BE INSTALLED ACCORDING TO THE APPROVED FUEL MODIFICATION PLAN, USUALLY FOR A 100-FOOT HORIZONTAL DISTANCE AROUND ANY STRUCTURES (OR UP TO PARCEL BOUNDARIES); IRRIGATION IS REQUIRED TO MAINTAIN PLANT HEALTH. IT NEEDS TO BE IN PLACE AND SUFFICIENT FOR FIRE PROTECTION AND TESTED TWICE A YEAR, BEFORE AND FOLLOWING FIRE SEASON, AND REPAIRED AT THOSE TESTING TIMES.

NATIVE PLANT IRRIGATION REGIMES:

OAK TREE IRRIGATION AND MAINTENANCE:
ARRANGE SOIL AROUND THE BASE OF TREES TO SLOPE AWAY SO THAT RAINFALL DRAINS AWAY FROM THE TRUNK; AVOID PONDING AT THE BASE OF THE TRUNK. LEAVE 6- TO 10-FEET AROUND THE TRUNK CLEARED OF NON-NATIVES AND WITHOUT IRRIGATION. PROTECTIVE NATIVE PLANT MULCH CAN COVER THIS AREA AND PROTECT THE ROOTS. OAK LEAF MULCH IS PREFERRED. IRRIGATION CAN BE DONE WITH HOSES ONCE A MONTH AT SIX FEET FROM THE TRUNK IN THE NORMAL RAINFALL MONTHS, OCTOBER-MARCH, UNTIL TREE IS ESTABLISHED (SEVERAL YEARS), AND THEN ONLY ONCE OR TWICE IN SUMMER IN TIMES OF SEVERE DROUGHT. AFTER ESTABLISHMENT, ONLY RAINFALL SHOULD IRRIGATE OAKS. NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE OAKS MAY BE IRRIGATED ONCE IN MID-SUMMER USING A DRIP IRRIGATION SOAKER HOSE ALONG THE DOWNSLOPE PERIPHERY OF THE CANOPY DRIP LINE. THIS WILL USUALLY BE ALONG HALF OF THE CANOPY DRIP LINE. IRRIGATE UNTIL MOISTURE REACHES SIX-INCH DEPTH.
TEMPORARY IRRIGATION SYSTEMS SHALL BE REMOVED WHEN OAKS ARE ESTABLISHED.

NATIVE PLANT ZONE IRRIGATION AND MAINTENANCE:
PLANTS IN THESE ZONES ARE WATERED LIKE OAKS (BUT TYPICALLY AT 3-FEET OR MORE FROM THE TRUNKS AT EDGES OF A PLANT BASIN) UNTIL ESTABLISHED, ONCE A MONTH OCTOBER-MARCH, AND THEN ONLY ONCE OR TWICE IN SUMMER UNTIL ESTABLISHED (SEVERAL YEARS). USUALLY, ONLY RAINFALL SHOULD IRRIGATE NATIVE PLANTS AFTER ESTABLISHMENT, AND NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE SHRUBS MAY BE IRRIGATED AS NEEDED IN SUMMER.
TEMPORARY IRRIGATION SYSTEM SHALL BE REMOVED ONCE NATIVE PLANTS ARE ESTABLISHED.

DO NOT REMOVE IRRIGATION AROUND STRUCTURES IN ZONES A AND B, BECAUSE IT IS REQUIRED FOR FIRE SAFETY. OBSERVE THE IRRIGATION REGIME FOR NATIVE PLANTS IN THE LANDSCAPE AND THE ENVIRONMENT OF THE SANTA MONICA MOUNTAINS.

MITIGATION:
REMOVALS AND ENCROACHMENTS OF PROTECTED OAKS (AND OTHER NATIVE TREES) MAY ENTAIL PLANTING IN THE LANDSCAPE. FOLLOW IRRIGATION REGIMES ABOVE FOR NATIVE MITIGATION PLANTS. THE PLAN MUST FOLLOW LIP MITIGATION REQUIREMENTS FOR NATIVE TREES: HTTP://PLANNING.LACOUNTY.GOV/ASSETS/UPL/PROJECT/COASTAL_ADOPTED-LIP-MAPS.PDF.

SEE SECTION 22.44.1920 K, PP. 527-530, OF THE LIP FOR TREE MITIGATION REQUIREMENTS (INCLUDES ENCROACHMENTS INTO PROTECTED ZONES).

FOR OFF-SITE MITIGATION, PLANTINGS SHOULD BE IN PERMANENTLY PROTECTED AREAS SUCH AS GOVERNMENT LAND OR LAND PROTECTED BY A CONSERVATION EASEMENT OR OWNED BY A LAND CONSERVATION MANAGEMENT GROUP.

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Tel: 310.828.4908

PROJECT

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SHEET TITLE

PLANTING LEGEND & NOTES

ISSUE		
1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
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8	07-16-19	PLNCHK COMMENTS
9	09-18-19	PLNCHK COMMENTS
10	02-17-20	PLNCHK COMMENTS
11	05-26-20	PLNCHK COMMENTS
12	06-01-20	FM COMMENTS
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16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

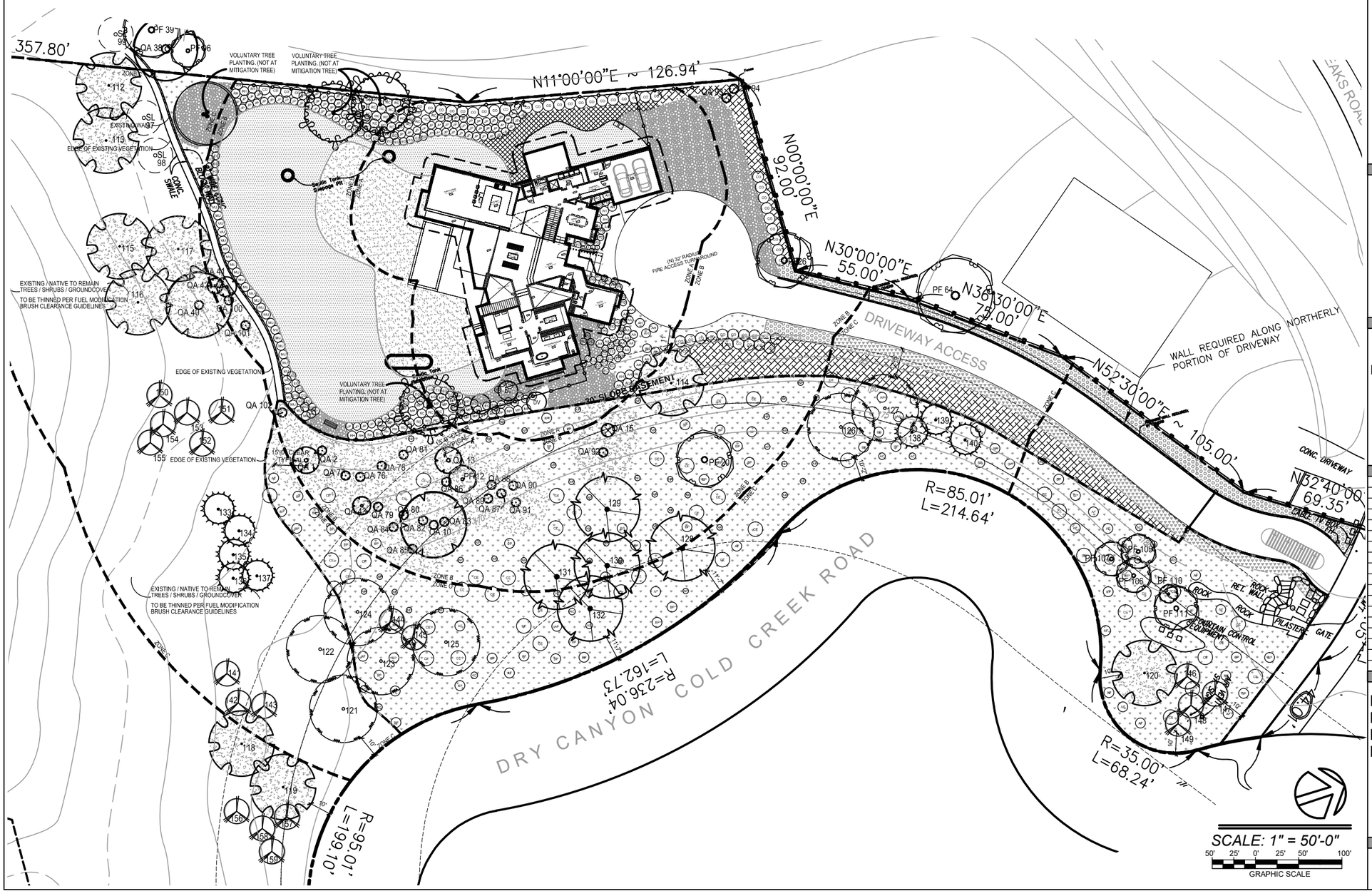
PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 6 of 14

L-2.0

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
1. SEE SHEET L-2.0 FOR PLANTING LEGEND AND NOTES.
2. SEE SHEET L-2.3 FOR PLANTING INSTRUCTIONS.
3. SEE SHEETS L-3.0 TO L-3.3 FOR IRRIGATION INSTRUCTIONS



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322 Tejon Place
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Tel: 310.828.4908

PROJECT

24600 THOUSAND PEAKS RD
CALABASAS, CA 91302

APN: 4455-052-002

SHEET TITLE

PLANTING PLAN

ISSUE		
1	08-11-15	FUEL MODIFICATION
2	03-28-18	BIOLOGY COMMENTS
3	05-16-18	BIOLOGY COMMENTS
4	09-06-18	BIOLOGY COMMENTS
5	11-08-18	BIOLOGY COMMENTS
6	11-10-18	PLNCHK COMMENTS
7	04-17-19	PLNCHK COMMENTS
8	07-16-19	PLNCHK COMMENTS
9	09-18-19	PLNCHK COMMENTS
10	02-17-20	PLNCHK COMMENTS
11	05-26-20	PLNCHK COMMENTS
12	06-01-20	FM COMMENTS
13	06-03-20	FM COMMENTS
14	01-11-21	PLNCHK COMMENTS
15	05-11-21	TREE REDUCTION
16	09-07-21	PLNCHK COMMENTS

PHASE

Fuel Modification & Native Tree Replacement Planting Program

PLOT DATE 09-07-2021
DRAWN BY: TP
CHECKED BY: DG

SHEET 7 of 14

L-2.1

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
SEE SHEET L-2.2 FOR THE REQUIREMENTS OF THE MITIGATION PLANS AND ANNUAL REPORTING.

MITIGATION TREE PLANTING

28 EXISTING MITIGATION TREES ON-SITE

9 QUERCUS AGRIFOLIA. 1 GAL (ON-SITE)
7 PLATANUS RACEMOSA. 1 GAL (ON-SITE)
5 POPULUS TRICHOCARPA. 1 GAL (ON-SITE)
8 SAMBUCUS NIGRA SSP CAERULEA. 1 GAL (ON-SITE)
19 HETEROMELES ARBUTIFOLIA. 1 GAL (ON-SITE)

129 NATIVE TREES PLANTED BY AN OFF-SITE MITIGATION PROVIDER, COORDINATED WITH THE LOS ANGELES COUNTY (<1 YEAR OLD SEEDLING SIZE)

205 TOTAL MITIGATION TREES REQUIRED

NOTE: FOR EACH MITIGATION OAK, PLANT AN ACORN OF THE SAME SPECIES (QUERCUS AGRIFOLIA) AND AMEND THE SOIL WITH OAK LEAF MULCH OR MULCH FROM NATIVE PLANTS OF THE SANTA MONICA MOUNTAINS WITHIN THE IRRIGATION CIRCLE. MULCH TO BE 4 INCHES DEEP AND TO SPREAD TO A 15' RADIUS FROM THE TRUNK. NO MULCH OR SOIL SHOULD CONTACT THE TRUNK. THE SLOPE OF DIRT SHALL BE AWAY FROM THE TRUNK.

MITIGATION TREE TAGGING
1. ALL RETAINED NATIVE TREES, ENCROACHED TREES, AND NEW MITIGATION TREES TO BE NUMBERED ACCORDING TO THIS PLAN, AND TAGGED WITH DURABLE TAGS (3" X 2" THICK ALUMINUM SHEET, INSCRIBED, AND TIED TO TREE OR EQUAL TO LAST A MINIMUM OF 10 YEARS IN THE FIELD)
2. ANY NEW REQUIRED MITIGATION TREES SHOULD BE ADDED TO THE PLAN AND PROVIDED WITH UNIQUE NUMBERING AND TAGS.

EXISTING TREES TO REMAIN

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
	EXISTING SALIX LASIOLEPIS TO REMAIN	3	---	EXISTING	LOW PF 0.1	B
	EXISTING POPULUS FREMONTII TO REMAIN	11	---	EXISTING	MED PF 0.4	B
	EXISTING QUERCUS AGRIFOLIA TO REMAIN	32	---	EXISTING	LOW PF 0.1	B - 30

ON-SITE MITIGATION TREE LEGEND

SYMBOL	PLANT NAME	QUANT.	SIZE	REFERENCE	WATER NEEDS	ZONE
	HETEROMELES ARBUTIFOLIA TOYON	19 (TREES #34-52)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	POPULUS TRICHOCARPA BLACK COTTONWOOD	5 (TREES #125-132)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	MED PF 0.4	A/B/C
	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	7 (TREES #121-127)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C
	QUERCUS AGRIFOLIA COAST LIVE OAK PLANT ACORN OF THE SAME SPECIES WITHIN THE IRRIGATION CIRCLE OF EACH OAK (NOTE: DO NOT PLANT UNDERSTORY WITHIN 15-FT OF AN OAK TRUNK. THE UNDERSTORY SHALL BE OAK LEAF MULCH.)	9 (TREES #112-120)	<1 Y.O. SEEDLING SOURCED FROM SANTA MONICA MTNS	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B - 30
	SAMBUCUS NIGRA SSP CAERULEA ELDERBERRY	8 (TREES #133-140)	<1 Y.O. SEEDLING	DETAIL 'A' SHEET L-2.4	LOW PF 0.1	B/C

LEGEND

SYMBOL	
	ENCROACHED TREES

EXISTING INVASIVE SPECIES TO BE REMOVED

SYMBOL	PLANT NAME	QUANT.
	SCHINUS MOLLE PERUVIAN PEPPER (FROM BIOLOGICAL ASSESSMENT FIGURE 5)	8
1	CORTADERIA SELLOANA PAMPAS GRASS	4
2	SCHINUS MOLLE PERUVIAN PEPPER (FROM NTRPP FIGURE 4)	6
3	SCHINUS TEREBINTHIFOLIUS BRAZILIAN PEPPERTREE	2
4	SPARTIUM JUNCEUM SPANISH BROOM GROUPING	2
5	TAMARIX RAMOSISSIMA SALT CEDAR	1
6	ALANTHUS ALTISSIMA TREE OF HEAVEN GROUPING	1

SCALE: 1" = 50'-0"
50' 25' 0' 25' 50' 100'
GRAPHIC SCALE

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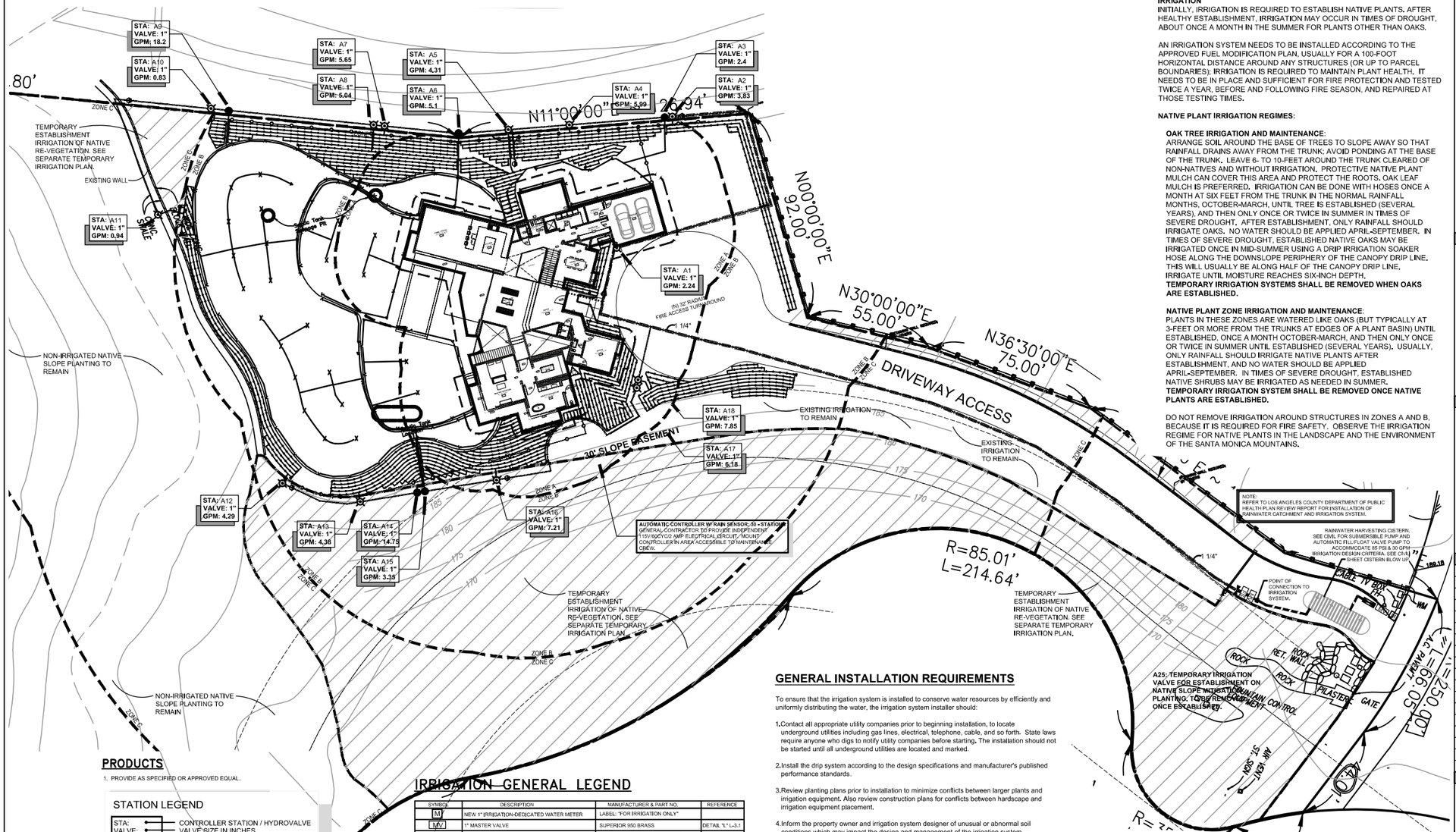
L-2.1B

NOTE
USE OF RODENTICIDES PROHIBITED. ACCEPTABLE NON-PERVASIVE METHODS INCLUDE TRAPPING AND FUMIGATION

NOTE
SEE L-3.1 FOR RAINWATER HARVESTED IRRIGATION INSTALLATION REQUIREMENTS



GUIDELINES FOR IRRIGATION & MITIGATION OF NATIVE PLANTS IN LANDSCAPES FOR THE SANTA MONICA MOUNTAINS
(TO BE FOLLOWED OUTSIDE OF FUEL MOD ZONE A)

IRRIGATION
INITIALLY, IRRIGATION IS REQUIRED TO ESTABLISH NATIVE PLANTS. AFTER HEALTHY ESTABLISHMENT, IRRIGATION MAY OCCUR IN TIMES OF DROUGHT, ABOUT ONCE A MONTH IN THE SUMMER FOR PLANTS OTHER THAN OAKS.

AN IRRIGATION SYSTEM NEEDS TO BE INSTALLED ACCORDING TO THE APPROVED FUEL MODIFICATION PLAN, USUALLY FOR A 100-FOOT HORIZONTAL DISTANCE AROUND ANY STRUCTURES (OR UP TO PARCEL BOUNDARIES); IRRIGATION IS REQUIRED TO MAINTAIN PLANT HEALTH. IT NEEDS TO BE IN PLACE AND SUFFICIENT FOR FIRE PROTECTION AND TESTED TWICE A YEAR, BEFORE AND FOLLOWING FIRE SEASON, AND REPAIRED AT THOSE TESTING TIMES.

NATIVE PLANT IRRIGATION REGIMES:

OAK TREE IRRIGATION AND MAINTENANCE:
ARRANGE SOIL AROUND THE BASE OF TREES TO SLOPE AWAY SO THAT RAINFALL DRAINS AWAY FROM THE TRUNK; AVOID PONDING AT THE BASE OF THE TRUNK. LEAVE 6- TO 10-FEET AROUND THE TRUNK CLEARED OF NON-NATIVES AND WITHOUT IRRIGATION. PROTECTIVE NATIVE PLANT MULCH CAN COVER THIS AREA AND PROTECT THE ROOTS. OAK LEAF MULCH IS PREFERRED. IRRIGATION CAN BE DONE WITH HOSES ONCE A MONTH AT SIX FEET FROM THE TRUNK IN THE NORMAL RAINFALL MONTHS, OCTOBER-MARCH, UNTIL TREE IS ESTABLISHED (SEVERAL YEARS), AND THEN ONLY ONCE OR TWICE IN SUMMER IN TIMES OF SEVERE DROUGHT. AFTER ESTABLISHMENT, ONLY RAINFALL SHOULD IRRIGATE OAKS. NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE OAKS MAY BE IRRIGATED ONCE IN MID-SUMMER USING A DRIP IRRIGATION SOAKER HOSE ALONG THE DOWNSLOPE PERIPHERY OF THE CANOPY DRIP LINE. THIS WILL USUALLY BE ALONG HALF OF THE CANOPY DRIP LINE. IRRIGATE UNTIL MOISTURE REACHES SIX-INCH DEPTH.
TEMPORARY IRRIGATION SYSTEMS SHALL BE REMOVED WHEN OAKS ARE ESTABLISHED.

NATIVE PLANT ZONE IRRIGATION AND MAINTENANCE:
PLANTS IN THESE ZONES ARE WATERED LIKE OAKS (BUT TYPICALLY AT 3-FEET OR MORE FROM THE TRUNKS AT EDGES OF A PLANT BASIN) UNTIL ESTABLISHED, ONCE A MONTH OCTOBER-MARCH, AND THEN ONLY ONCE OR TWICE IN SUMMER UNTIL ESTABLISHED (SEVERAL YEARS). USUALLY, ONLY RAINFALL SHOULD IRRIGATE NATIVE PLANTS AFTER ESTABLISHMENT, AND NO WATER SHOULD BE APPLIED APRIL-SEPTEMBER. IN TIMES OF SEVERE DROUGHT, ESTABLISHED NATIVE SHRUBS MAY BE IRRIGATED AS NEEDED IN SUMMER.
TEMPORARY IRRIGATION SYSTEM SHALL BE REMOVED ONCE NATIVE PLANTS ARE ESTABLISHED.

DO NOT REMOVE IRRIGATION AROUND STRUCTURES IN ZONES A AND B, BECAUSE IT IS REQUIRED FOR FIRE SAFETY. OBSERVE THE IRRIGATION REGIME FOR NATIVE PLANTS IN THE LANDSCAPE AND THE ENVIRONMENT OF THE SANTA MONICA MOUNTAINS.

PRODUCTS
1. PROVIDE AS SPECIFIED OR APPROVED EQUAL.

STATION LEGEND

STA: — CONTROLLER STATION / HYDROVALVE
VALVE: — VALVE SIZE IN INCHES
GPM/DRIP: — GALLONS PER MINUTE/DRIP

IRRIGATION HEAD LEGEND

SYMBOL	MANUFACTURER	NOZZLE	GPM	RADIUS	BODY	DETAIL
▽	HUNTER	90 DEG MP 1000	.20	8' - 15'	PROS-4	DETAIL F L-3.1
V	HUNTER	180 DEG MP 1000	.40	8' - 15'	PROS-4	DETAIL F L-3.1
X	HUNTER	360 DEG MP 1000	.75	8' - 15'	PROS-4	DETAIL F L-3.1
▽	HUNTER	90 DEG PRO ADJ 6A	.37	6'-8'	PROS-6	DETAIL F L-3.1
V	HUNTER	180 DEG PRO ADJ 6A	.60	6'-8'	PROS-6	DETAIL F L-3.1

IRRIGATION GENERAL LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER & PART NO.	REFERENCE
M	NEW 1" IRRIGATION-DEDICATED WATER METER	LABEL: "FOR IRRIGATION ONLY"	
MV	1" MASTER VALVE	SUPERIOR 950 BRASS	DETAIL "L" L-3.1
	1" BACK FLOW DEVICE	FEBCO 825Y RP BACKFLOW DEVICE	DETAIL "A" L-3.1
	POINT OF CONNECTION (FIELD VERIFY)		
	30 STA. IRRIGATION CONTROLLER - WALL MOUNT	HUNTER IC-600-SS WITH (4) 6-STATION MODULE ICM-600 AND (1) SOLAR SYNC (ET RAIN SENSOR) SOLARSYNC-SEN	DETAIL "B" L-3.1
	HOSE BIB	CHAMPION	DETAIL "C" L-3.1
	1" REMOTE CONTROL VALVES CONNECT TO MAIN LINE	HUNTER PGV-101	DETAIL "D" L-3.1
	DRIP LINE CONTROL VALVE, CONNECT TO CISTERN AUTOMATIC FILL/FLOAT VALVE	HUNTER ICZ-101 DRIP ZONE CONTROL KIT	DETAIL "E" L-3.1
	DRIP LINE	HUNTER PLD -10-18 WITH FLUSH CAP 4" BELOW GRADE	DETAIL "G,H,I" L-3.1
	TREE DRIP LINE "LOOP" W/ END FLUSH CAPS	HUNTER PLD -10-18 WITH FLUSH CAP 1" BELOW GRADE	DETAIL "G,H,I" L-3.1
	PRESSURE SUPPLY LINE USING SCH 40 PVC	1-1/2" SCH. 40 PVC	DETAIL "J" L-3.1
	LATERAL LINE & SIZE	1" SCH. 40 PVC	DETAIL "J" L-3.1
	IRRIGATION SLEEVE	CL 200	DETAIL "K" L-3.1

GENERAL INSTALLATION REQUIREMENTS

To ensure that the irrigation system is installed to conserve water resources by efficiently and uniformly distributing the water, the irrigation system installer should:

1. Contact all appropriate utility companies prior to beginning installation, to locate underground utilities including gas lines, electrical, telephone, cable, and so forth. State laws require anyone who digs to notify utility companies before starting. The installation should not be started until all underground utilities are located and marked.
2. Install the drip system according to the design specifications and manufacturer's published performance standards.
3. Review planting plans prior to installation to minimize conflicts between larger plants and irrigation equipment. Also review construction plans for conflicts between hardscape and irrigation equipment placement.
4. Inform the property owner and irrigation system designer of unusual or abnormal soil conditions which may impact the design and management of the irrigation system.
5. Test the irrigation system to verify that it meets the design criteria.
6. Explain to the property owner or his/her agent the location and operation of all components of the system.
7. Provide the property owner or his/her agent with a copy of the controller program you have set and recommendations for operation of the system for maximum water conservation.
8. Provide the property owner or his/her agent with keys, tools, warranties and operating instructions for all equipment.
9. Furnish the owner of the system an *as-built* record set of drawings. Within this set of drawings, describe the system layout and components including all changes from the original design.
10. Install Air Relief Valve in 6" circular, plastic vault box at high point at all drip irrigation circuits.
11. Add 'Micro Mist' irrigation as necessary for annual color planting.

DESIGN NOTES
1. IRRIGATION VALVES, MAIN-LINE & LATERAL LINE LAYOUT IS DIAGRAMMATIC. ACTUAL INSTALLATION WILL VARY. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IF DISCREPANCIES EXIST.
2. SYSTEM DESIGNED FOR MAX. 20 GPM @ 85 PSI.
3. PLACE ALL VALVES IN SHRUB PLANTING AREAS WHERE POSSIBLE.
4. ALL 24-VOLT WIRING SHALL BE #14 UFUL DIRECT-BURIAL, SOLID COPPER.
5. ALL PIPE AND WIRING UNDER PAVED SURFACE SHALL BE IN CLASS 200 PVC SLEEVES, WHETHER OR NOT SHOWN (SEE PIPE SIZE SCHEDULING BELOW).

PIPE SIZING SCHEDULE

GPM	SIZE	SLEEVE SIZE	NO. OF WIRE
0-4	1/2"	2"	0-7
5-8	3/4"	2"	0-7
8-13	1"	2"	8-14
14-23	1-1/4"	2-1/2"	15-20
24-32	1-1/2"	2-1/2"	
33-53	2"	3"	
54-74	2-1/2"	6"	

SCALE: 1" = 50'-0"
50' 25' 0' 25' 50' 100'
GRAPHIC SCALE

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L-3.0

NOTE
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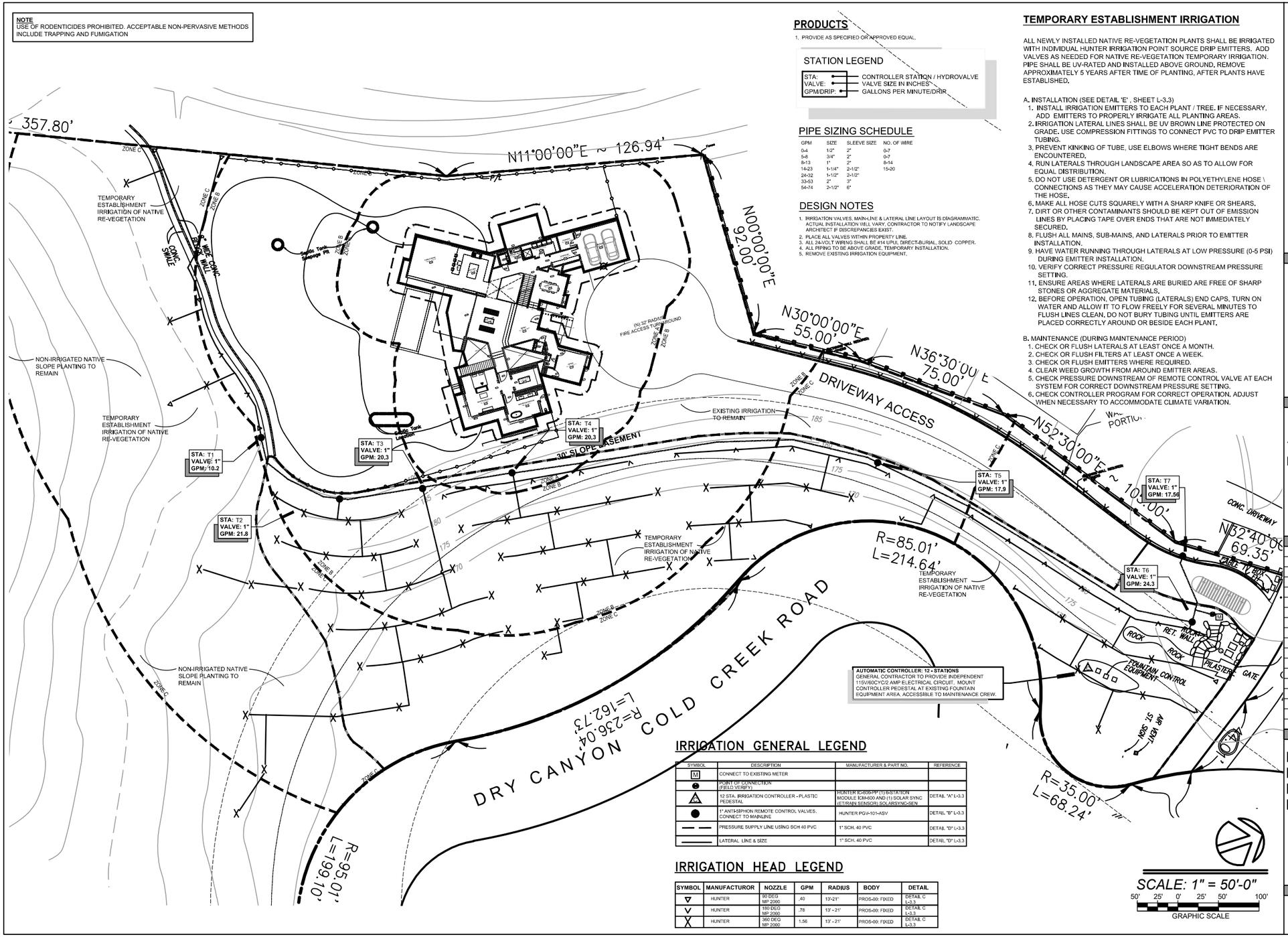

PRODUCTS

1. PROVIDE AS SPECIFIED OR APPROVED EQUAL.

STATION LEGEND

STA:	CONTROLLER STATION / HYDROVALVE
VALVE:	VALVE SIZE IN INCHES
GPM/DRIP:	GALLONS PER MINUTE/DRIP

PIPE SIZING SCHEDULE

GPM	SIZE	SLEEVE SIZE	NO. OF WIRE
0-4	1/2"	2"	0-7
5-8	3/4"	2"	0-7
9-13	1"	2"	8-14
14-23	1-1/4"	2-1/2"	15-20
24-32	1-1/2"	2-1/2"	
33-53	2"	3"	
54-74	2-1/2"	6"	

DESIGN NOTES

1. IRRIGATION VALVES, MAIN-LINE & LATERAL LINE LAYOUT IS DIAGRAMMATIC. ACTUAL INSTALLATION WILL VARY. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IF DISCREPANCIES EXIST.
2. PLACE ALL VALVES WITHIN PROPERTY LINE.
3. ALL 24-VOLT WIRING SHALL BE #14 UPUL DIRECT-BURIAL, SOLID COPPER.
4. ALL PIPING TO BE ABOVE GRADE, TEMPORARY INSTALLATION.
5. REMOVE EXISTING IRRIGATION EQUIPMENT.

TEMPORARY ESTABLISHMENT IRRIGATION

ALL NEWLY INSTALLED NATIVE RE-VEGETATION PLANTS SHALL BE IRRIGATED WITH INDIVIDUAL HUNTER IRRIGATION POINT SOURCE DRIP EMITTERS. ADD VALVES AS NEEDED FOR NATIVE RE-VEGETATION TEMPORARY IRRIGATION. PIPE SHALL BE UV-RATED AND INSTALLED ABOVE GROUND, REMOVE APPROXIMATELY 5 YEARS AFTER TIME OF PLANTING, AFTER PLANTS HAVE ESTABLISHED.

A. INSTALLATION (SEE DETAIL 'E' , SHEET L-3.3)
1. INSTALL IRRIGATION EMITTERS TO EACH PLANT / TREE. IF NECESSARY, ADD EMITTERS TO PROPERLY IRRIGATE ALL PLANTING AREAS.
2. IRRIGATION LATERAL LINES SHALL BE UV BROWN LINE PROTECTED ON GRADE. USE COMPRESSION FITTINGS TO CONNECT PVC TO DRIP EMITTER TUBING.
3. PREVENT KINKING OF TUBE, USE ELBOWS WHERE TIGHT BENDS ARE ENCOUNTERED.
4. RUN LATERALS THROUGH LANDSCAPE AREA SO AS TO ALLOW FOR EQUAL DISTRIBUTION.
5. DO NOT USE DETERGENT OR LUBRICATIONS IN POLYETHYLENE HOSE \ CONNECTIONS AS THEY MAY CAUSE ACCELERATION DETERIORATION OF THE HOSE.
6. MAKE ALL HOSE CUTS SQUARELY WITH A SHARP KNIFE OR SHEARS.
7. DIRT OR OTHER CONTAMINANTS SHOULD BE KEPT OUT OF EMISSION LINES BY PLACING TAPE OVER ENDS THAT ARE NOT IMMEDIATELY SECURED.
8. FLUSH ALL MAINS, SUB-MAINS, AND LATERALS PRIOR TO EMITTER INSTALLATION.
9. HAVE WATER RUNNING THROUGH LATERALS AT LOW PRESSURE (0-5 PSI) DURING EMITTER INSTALLATION.
10. VERIFY CORRECT PRESSURE REGULATOR DOWNSTREAM PRESSURE SETTING.
11. ENSURE AREAS WHERE LATERALS ARE BURIED ARE FREE OF SHARP STONES OR AGGREGATE MATERIALS.
12. BEFORE OPERATION, OPEN TUBING (LATERALS) END CAPS, TURN ON WATER AND ALLOW IT TO FLOW FREELY FOR SEVERAL MINUTES TO FLUSH LINES CLEAN. DO NOT BURY TUBING UNTIL EMITTERS ARE PLACED CORRECTLY AROUND OR BESIDE EACH PLANT.

B. MAINTENANCE (DURING MAINTENANCE PERIOD)
1. CHECK OR FLUSH LATERALS AT LEAST ONCE A MONTH.
2. CHECK OR FLUSH FILTERS AT LEAST ONCE A WEEK.
3. CHECK OR FLUSH EMITTERS WHERE REQUIRED.
4. CLEAR WEED GROWTH FROM AROUND EMITTER AREAS.
5. CHECK PRESSURE DOWNSTREAM OF REMOTE CONTROL VALVE AT EACH SYSTEM FOR CORRECT DOWNSTREAM PRESSURE SETTING.
6. CHECK CONTROLLER PROGRAM FOR CORRECT OPERATION. ADJUST WHEN NECESSARY TO ACCOMMODATE CLIMATE VARIATION.

IRRIGATION GENERAL LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER & PART NO.	REFERENCE
M	CONNECT TO EXISTING METER		
P	POINT OF CONNECTION (FIELD VERIFY)		
C	12 STA. IRRIGATION CONTROLLER - PLASTIC PEDESTAL	HUNTER IC-600-PP (12)-6STATION MODULE ICM-600 AND (1) SOLAR SYNC (ET/RAIN SENSOR) SOLARSYNC-SEN	DETAIL "A" L-3.3
	1" ANTI-SIPHON REMOTE CONTROL VALVES. CONNECT TO MAINLINE	HUNTER PGV-101-ASV	DETAIL "B" L-3.3
	PRESSURE SUPPLY LINE USING SCH 40 PVC	1" SCH. 40 PVC	DETAIL "D" L-3.3
	LATERAL LINE & SIZE	1" SCH. 40 PVC	DETAIL "D" L-3.3

IRRIGATION HEAD LEGEND

SYMBOL	MANUFACTUROR	NOZZLE	GPM	RADIUS	BODY	DETAIL
▽	HUNTER	90 DEG MP 2000	.40	13'-21"	PROS-00: FIXED	DETAIL C L-3.3
V	HUNTER	180 DEG MP 2000	.78	13' - 21"	PROS-00: FIXED	DETAIL C L-3.3
X	HUNTER	360 DEG MP 2000	1.56	13' - 21"	PROS-00: FIXED	DETAIL C L-3.3

SCALE: 1" = 50'-0"
50' 25' 0' 25' 50' 100'
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DRAWN BY: TP
CHECKED BY: DG

SHEET 12 of 14

L-3.2

Conceptual Native Tree Replacement Plan

APPENDIX E-3

Conceptual Native Tree Replacement Plan

Thousand Peaks Mitigation

Los Angeles County

July 13, 2021

Revised

September 16, 2021

Prepared for:

Los Angeles County

Department of Regional Planning

Attn: Martin Gies

Prepared by:

TreePeople Land Trust

23075 Mulholland Highway

Calabasas, CA 93012

Attn: Kevin Gaston, Deputy Director

Introduction

This project involves the establishment of 168 replacement native tree species less than one year old, grown in TreePeople nursery facility, or sourced from local native plant distributor. The tree mitigation is required for impacts to native species identified in that certain Protected Tree Report dated May, 2021, completed by Dudek consultants for John Andrews Architects (the "Permittee"). Permittee desires to construct a single-family residence at 24600 Thousand Peaks Road, in Los Angeles County, California (APN: 4455-052-002). Mitigation for trees impacted was determined by consultant on behalf of Permittee based on Santa Monica Mountains Land Use Plan (LUP) compensatory requirements[1].

TreePeople Land Trust ("TPLT") is providing this plan to establish 168 replacement trees in the Cold Creek Valley Preserve. The revegetation site is located on protected open space managed by TPLT (APN: 4455-022-029) located approximately 0.25 miles SE of the junction of Stunt Road and Mulholland Highway. The revegetation site is located within the Cold Creek watershed, a sub-watershed of the Malibu Creek watershed (HUC 1807010401), which flows into the Santa Monica Bay. A vicinity map of the project site is attached as **Figure 1**.

Mitigation Site Description

The mitigation site consists of open space habitat centrally located in the Cold Creek Valley Preserve. The site is east of Dry Creek, before its confluence with Cold Creek. It encompasses a disturbed section of grassland habitat bordered on all sides by dense chaparral. The vegetation community is largely disturbed and dominated by non-native annual species such as wild oats (*Avena sp.*), tocalote (*Centaurea melitensis*), and ripgut brome (*Bromus diandrus*). Occasional native species such as miniature lupine (*Lupinus bicolor*) and fiddleneck (*Amsinckia menziessi*) are found scattered throughout the site.

The site was once part of the Stunt Family Ranch, and has a long history of human-induced disturbance. Due to the mitigation site's close proximity to the Cold Creek riparian corridor, which offers high ecological functionality, native wildlife is often known to frequent the area. Scat, lays, and other signs of mule deer, including direct observation, suggests that revegetation of the site will provide ecological benefit to a wide variety of species.

Proposed Replacement Plan

Plantings

To provide compensatory mitigation for the trees impacted during Permittee's construction, and allow additional buffer in the event of replacement tree mortality, 169 native tree saplings will be planted from DP1 containers following approval of Permittee's development. LUP compensatory mitigation requires that 129 trees be established off-site and survive beyond the project monitoring period of ten years. An additional 39 native tree species will be established in Year 1 to allow a buffer in the event of replacement tree mortality. The incorporation of 39 additional trees to be planted will account for 30% mortality throughout the life of the mitigation project and ensure that a minimum of 129 trees survive to maturity by the close of monitoring at Year 10. Species and count of trees to be established is summarized in **Table 1**.

[1] County of Los Angeles. 2018. Santa Monica Mountains Land Use Plan. Amended February 2018.

Table 1
Replacement Tree Species & Quantity

Tree Species	Mitigation Trees	Mortality Buffer Trees	Total Trees
Ceanothus megacarpus	27	8	35
Ceanothus spinosus	27	8	35
Heteromeles arbutifolia	15	5	20
Quercus agrifolia	21	6	27
Quercus berberidifolia	23	7	30
Sambucus nigra ssp Caerulea	16	5	21
Total			**168**

When possible, saplings will be grown from seed collected from the Cold Creek watershed and propagated at TPLT nursery facilities. Mitigation oaks (*Quercus sp.*) will include the planting of one additional acorn within the irrigation zone of the oak sapling, as noted in County Code 22.44.950.o.3.a. All trees will be planted onsite during the fall of Year 1. Due to the potential threat of rodent predations, the plantings will be installed within one-inch mesh, poultry netting cages. The cages are closed at the bottom end and extend approximately ten-inches below ground and ten-inches above ground. The below-ground portion will protect plantings from gophers, which exist onsite, and the above-ground portion will protect plantings from rabbits, ground squirrels, and deer herbivory.

All plantings will be completed by TPLT staff trained in the identification of native and non-native species. **Figure 2** shows the proposed locations of replacement plantings.

Mulch
Oak leaf mulch will be taken from the surrounding area and used to control invasive weeds around the plantings and inoculate the replacement plantings with beneficial bacterial and fungal communities.

Irrigation
TPLT manages an existing revegetation effort to the northwest of the mitigation site. An existing one-inch PVC waterline is present approximately 200 feet from the western boundary of the mitigation site and will be extended to supply irrigation for plantings. Approximately 616 feet of proposed one-inch irrigation line will be installed to reach all sections of the mitigation site. TPLT will utilize drip irrigation to increase watering and labor efficiency. One emitter will be installed for each planting, with rates ranging from 0.5 gallons per hours (gph) to two gph depending on onsite soils. Courser soil textures will allow for increased emitter rates as percolation increases with coarseness of soil material. Irrigation will not be fully-automated, TPLT staff will turn on the irrigation manually. Irrigation rates will vary by season, with increased irrigation during the summer months.

Irrigation will be shut off no later than Year 8 to allow a minimum of two full years without supplemental irrigation before the project is closed.

Weed Maintenance
TPLT staff will mechanically remove non-native species growing within the immediate vicinity of plantings. Weed maintenance will reduce the competition for light, water, and nutrients and encourage growth of the replacement plantings.

Monitoring Plan

The site will be monitored for ten years as required by the development standards outlined in the Santa Monica Mountains Local Implementation Plan. TPLT shall submit annual reports to the Department of Regional Planning describing the overall condition of the site and health of replacement plantings. All annual reports will include, at minimum, the following information:

- Description of maintenance activities completed that year;
- Evaluation of replacement planting health;
- Any mortality of replacement plantings and subsequent remediation efforts;
- Color photographs of the site and select replacement plantings.

The monitoring report submitted at the end of year 1 will also include an as-built plan for the monitoring and enforcement of permit conditions. The as-built plan will include the geo-tagged location of replacement plantings and a comparison to the proposed planting plan shown in **Figure 2**.

Performance Standards

Survivorship of 129 replacement plantings shall be required at the end of the ten-year monitoring period. Species required to survive will be based on the original mitigation tree quantity, excluding additional buffer plantings (see **Table 1**). If any additional mortalities occur beyond the accounted for 30% buffer before the end of Year 10, each mortality shall be replaced at a ratio of 1:1.

Figures and Photos

Figure 1: Vicinity Map

N

0 0.1 0.2 0.4 0.6 0.8 Miles

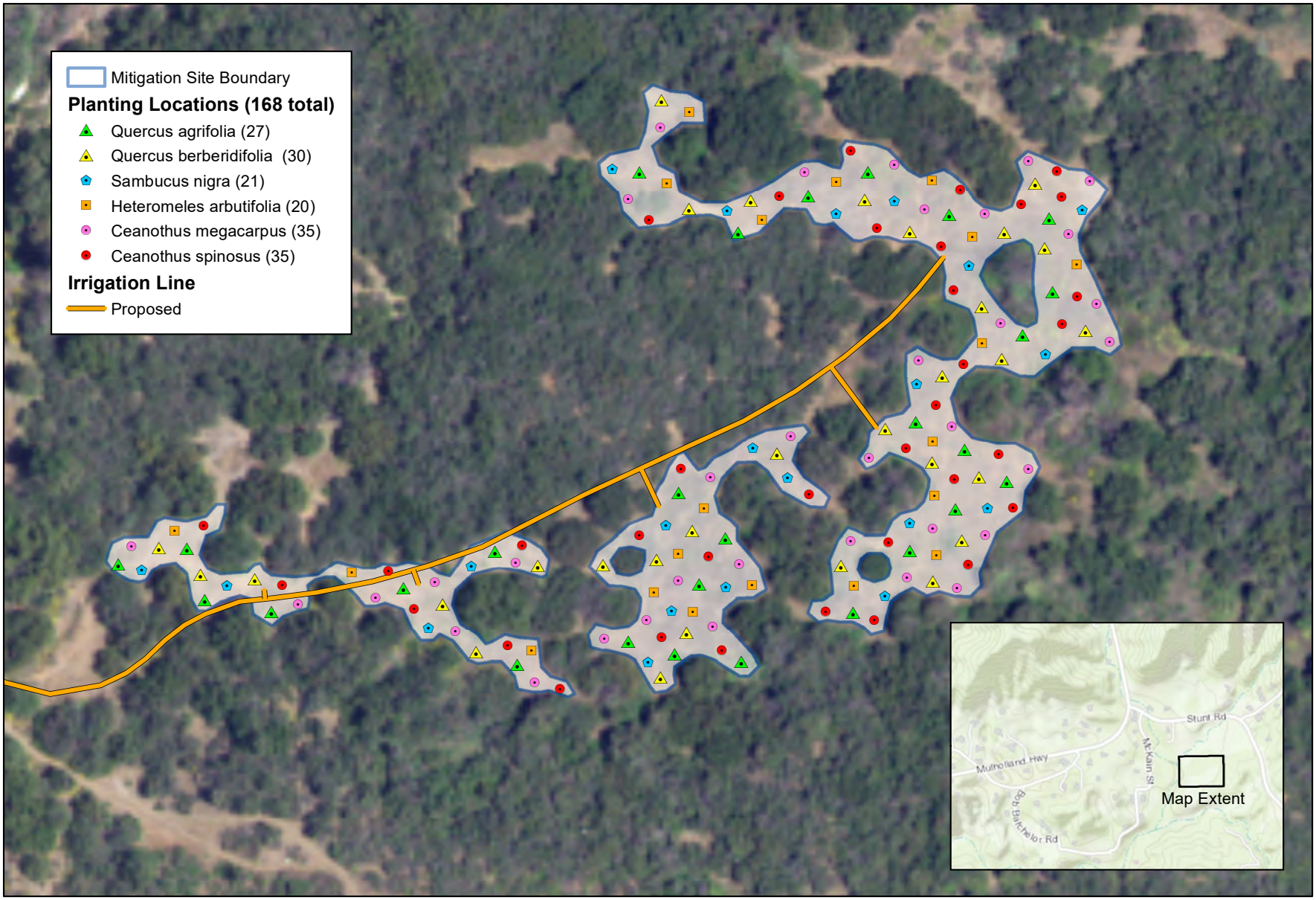
1:19,632

Basemap:
US Topo Malibu Quad (2019)

This map contains data from various federal, state, and local sources.
TPLT is not responsible for accuracy of data presented herein.
Use for general planning purposes only.
Data: 7/10/2021 Author: Walt Householder

TreePeople LAND TRUST

Figure 2: Proposed Planting Plan



Basemap: CA Department of Fish and Wildlife
NAIP 2020 Aerial Imagery

This map contains data from various federal, state, and local sources.
TPLT is not responsible for accuracy of data presented herein.
Use for general planning purposes only.
Data: 9/16/2021 Author: Walt Householder

TreePeople LAND TRUST

Figure 3: Photo Points Map

N

0 15 30 60 90 120 Feet

1:700

Basemap: CA Department of Fish and Wildlife
NAIP 2020 Aerial Imagery

This map contains data from various federal, state, and local sources.
TPLT is not responsible for accuracy of data presented herein.
Use for general planning purposes only.
Data: 9/16/2021 Author: Walt Householder

TreePeople
LAND TRUST

Photo 1: view of western section of mitigation zone facing southeast.

Photo 2: view of central mitigation zone facing southeast.

Photo 3: view of central mitigation zone facing northeast.

Photo 4: view of central mitigation zone facing southeast.

Photo 5: view of eastern mitigation zone facing southeast.

Photo 6: view of eastern mitigation zone facing northeast.

Photo 7: view of eastern mitigation zone facing southeast.

Photo 8: view of eastern mitigation zone facing northeast.

Photo 9: view of eastern mitigation zone facing northwest.

Phase I(a) Cultural Resource Assessment

APPENDIX F

January 12, 2017

John Andrews Architects
2109 Stoner Avenue,
LosAngeles, CA 90025

Attn: Ms. Stephanie Robbins

Subj: Phase I(a) Cultural Resources Assessment of 24600 Thousand Peaks Road, Los Angeles, California (*Envicom Project #17-771-101)*

Dear Ms. Robbins,

In January of 2017, Envicom Corporation (Envicom) completed a Phase I cultural resource assessment for 24600 Thousand Peaks Road in Los Angeles County, California. The project is currently an undeveloped parcel that is planned to have a single family residence and associated outbuildings and landscaping constructed (**Figure 1, Figure 2**, and **Figure 3)**. Located in the unincorporated County of Los Angeles near the City of Calabasas, the project consists of the construction and operation of an 18-foot tall, 8,981 sq. ft., two-story, single-family residence with a basement, swimming pool/spa, and attached 840 square foot four (4) car garage located on a previously graded building pad. Thousand Peaks Road is currently a private, gated roadway that does not have public access. The project is also located near Dry Canyon Cold Creek Road and Mulholland Highway.

The project is fully contained on the Malibu Beach United States Geological Survey (USGS) quadrangle map. The general location is as follows:

Latitude: 34° 6'30.27"N
Longitude: 118°39'51.68”W
Township: 1S
Range: 17W
Section: 4
Quad: Malibu Beach

The Phase I Cultural Resource Assessment included a cultural resource record search conducted by the South Central Coastal Information Center (SCCIC), and a Native American cultural resource record search conducted by the California Native American Heritage Commission (NAHC). Additional databases examined during the Phase I assessment included historic regional maps, historic USGS maps, and historic Google Earth images. The purpose of the record searches is to identify any known cultural resources that have been previously recorded within the proposed project area, to provide cultural resource context for the project, and to assess the overall cultural resource sensitivity of the project region. A cultural resource is often defined as any building, structure, object, or archaeological site older than 50-years in age, and can include historic or prehistoric locations of human habitation.

The Phase I Cultural Resource Assessment also included a physical survey, or inspection, of the project property to determine if previously unrecorded cultural resources could be identified from surface observation. During the pedestrian field survey, where any previously identified cultural resources from the SCCIC or from other database searches exist, they are also relocated and assessed. If new cultural resources are identified, it becomes the responsibility of the project proponent to authorize a qualified cultural resources expert to complete a State of California Department of Parks and Recreation cultural resource site form that provides enough information on the site to present an adequate understanding of the site conditions, the site boundary, the general time period of the newly identified cultural resource, any visible major site features, and the types of artifacts present.

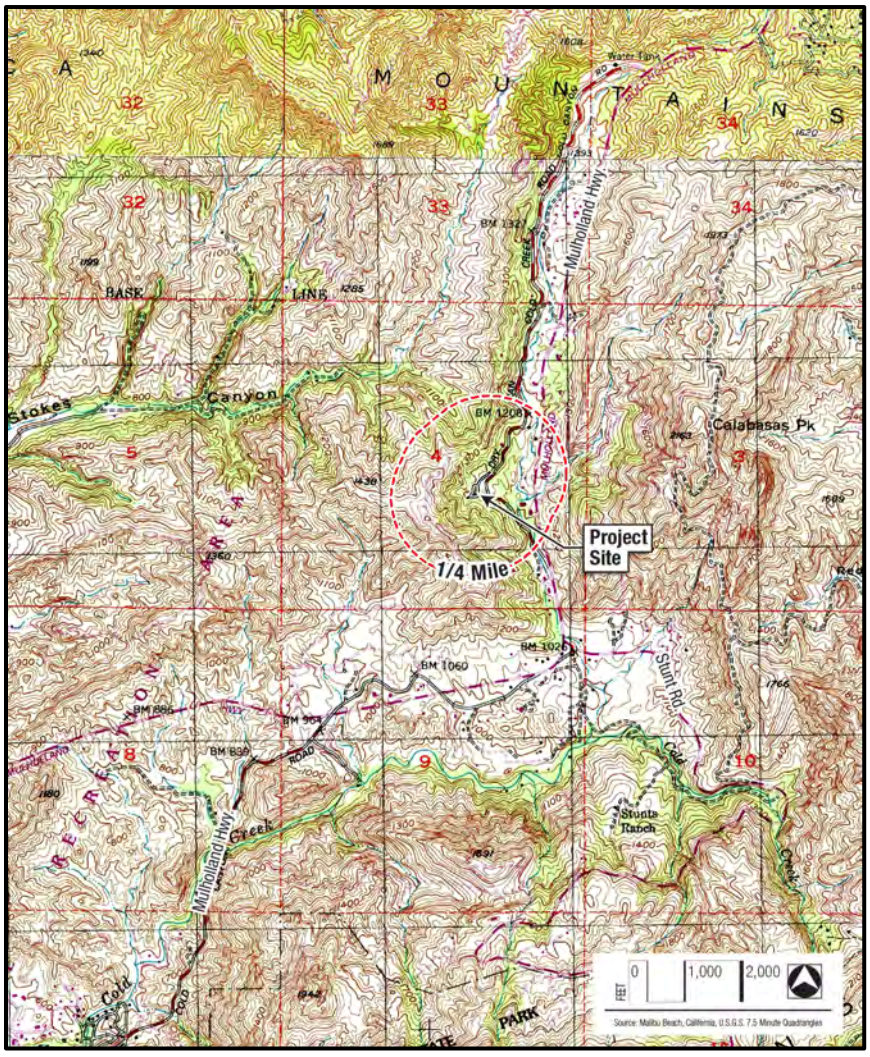


Figure 1: Project Property along Thousand Peaks Road near Mulholland Highway, Los Angeles County, California (1981 USGS Malibu Beach Quadrangle Topographic Map).

Figure 2: Project Location along 24600 Thousand Peaks Road (2017 Google Earth Map).

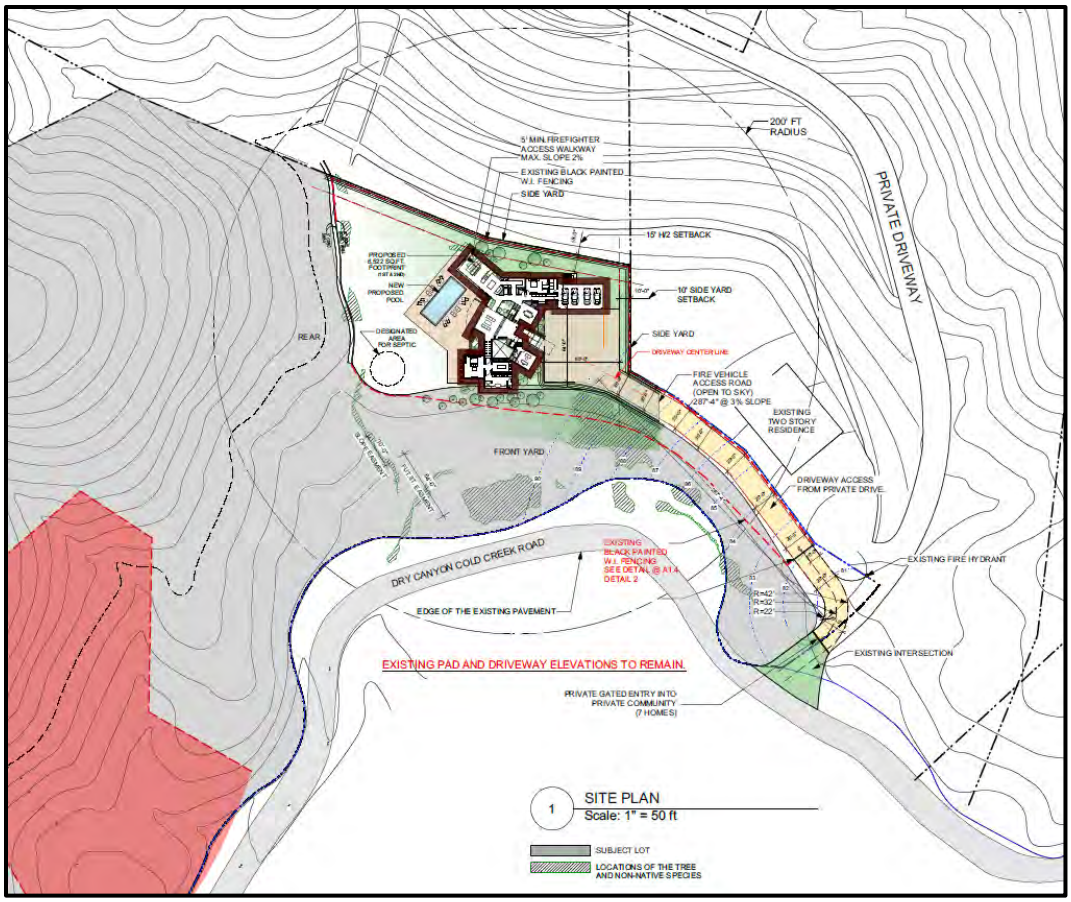


Figure 3: Project Site Plan.

RECORD SEARCH RESULTS

On December 4, 2017, Envicom contacted the SCCIC with a request to search their database for cultural resources within the project property, plus a 0.25-mile study area for regional context (see Figure 1). The record search included a request for all complete site records for cultural resources within the project property, as well as copies of any cultural resource technical reports that intersect the property location. The NAHC was also contacted on December 4, 2017, with a similar record search request.

Envicom received the cultural resource records search results from the SCCIC on December 18, 2017. The record search results provided a map of all known cultural resources located within the project property and within the 0.25-mile study area, as well as all previously published cultural resource reports within both areas. The SCCIC report determined that ***no previously identified cultural resources*** were located within the project property boundary.

The SCCIC record search result indicated that only a single cultural resource (P-19-001218; limited scatter of prehistoric stone tool waste material) was previously recorded in 1985 at the extreme edge of the 0.25-mile study area.

The SCCIC record search results indicated only one (1) previously completed cultural resource report (LA-00996) was included the subject property in the report boundary. A further six (6) previously completed cultural resource reports were located partially within the project 0.25-mile study area, but not within the subject property. None of these reports identified cultural resources that were adjacent to the subject property. A list of these reports are provided in **Appendix A**.

The one (1) cultural resource report (LA-00996) that included the entirety of the subject property dealt with the original 1981 subdivision of the original 75-acre property, of which the subject property is a subdivided parcel. The reference is as follows:

Singer, Clay A.
1981 *Cultural Resource Survey and Impact Analysis for Tentative Tract No. 40545 in Cold Canyon, Calabasas, Los Angeles County, California.* Published by the Author.

The report does not indicate that the project property contained cultural resources, nor does the report indicate that cultural resources were adjacent to and/or near the project property, nor is the area identified as being sensitive for historic or prehistoric cultural resources.

The results from the 2017 NAHC record search were received on December 19, 2017, with negative findings. The SCCIC and NAHC findings, therefore, support the conclusion that the project property is located in an area that is ***not-sensitive for prehistoric or older historic cultural resources***. This finding will also be reflected in the final recommended regulatory compliance.

Examination of historic maps that contain the project property included eighteen (18) historic USGS maps, dating between 1903 and 1995, and three (3) local Calabasas maps from 1903, 1908, and 1947. Dry Canyon Road exists on all the older maps, but no historic development took place in the area until 1981, when a series of smaller roads started branching off of Dry Canyon Road (**Figure 4**). No houses were shown in the project area through the end of the historic USGS maps in 1995.

Examination of historic aerial imagery on Google Earth dating back to 1989, shows the project area was graded and prepared for construction prior to that date, with, presumably, parcels being sold separately from that time to present (**Figure 5**). Between 1994 and 2002, a residence located immediately north of the project property was developed on the prepared area shown in Figure 5. No major changes are shown from the original pre-1989 grading to present within the subject property. However, the clear evidence that the entire project property was cleared, grubbed, and graded prior to 1989 means that prehistoric or historic cultural resources are unlikely to be encountered by construction. Further, the lack of any historic development in the project area until the 1980s supports a finding that the project is located in an area that is ***not-sensitive for older historic cultural resources***. This finding will also be reflected in the final recommended regulatory compliance.

Copies of the request letter to the SCCIC and to the NAHC are included in **Appendix B** of this report. The response letter from the NAHC is also included in Appendix B. The author's resume is provided in **Appendix C**. Envicom did not contact Native American groups on the NAHC list, as communication with Tribal Group representative under Assembly Bill-52 is the responsibility of the Lead/Permitting Agency (in this case the County of Los Angeles) if required as part of this project. SCCIC findings provided to lead agencies regarding a cultural resource's physical location and details are considered confidential by state law and are, therefore, not included in this report.

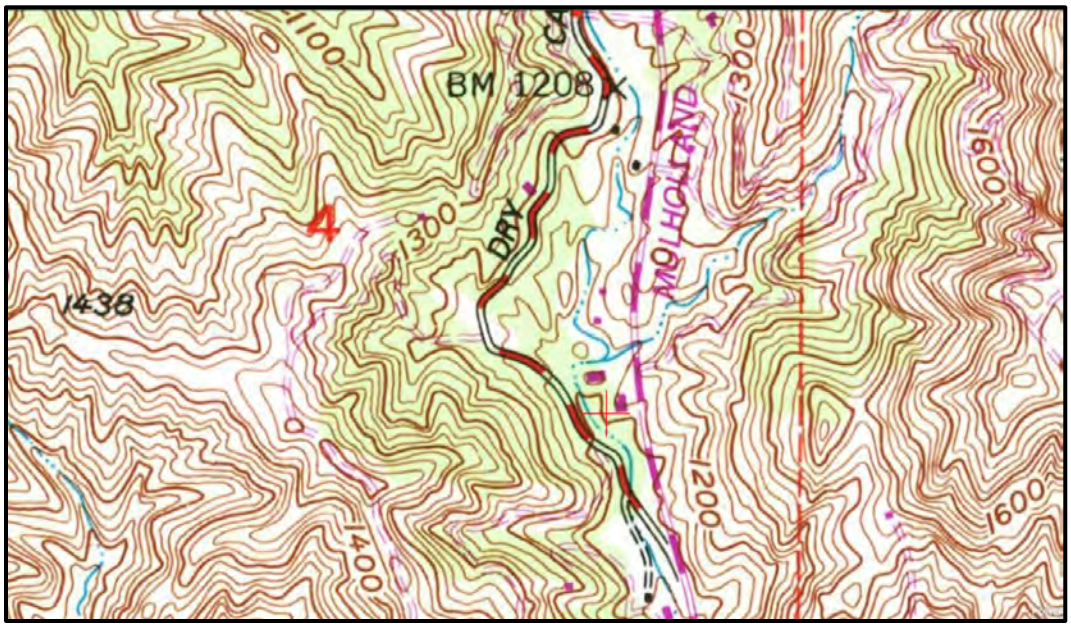


Figure 4: 1950 Malibu Beach USGS Map
(property is left of Dry Canyon Cold Creek Road at figure center).

Figure 5: 1989 USGS Aerial Photo of project area, with the subject parcel within the lower half of the graded area at the photo center.

PEDESTRIAN SURVEY RESULTS

Ms. Debbie Balam and Ms. Eve Clifford, two Envicom archaeologists, surveyed the property area on December 20, 2017. The project property had clearly been graded and grubbed in the past, and currently was in a pre-construction state with no visible vegetation and evidence of mowing (**Figure 6**, **Figure 7**, and **Figure 8**). Ground visibility was excellent, with between 60 and 80% visibility across the property. No artifacts were observed on the property surface that were of either prehistoric or older historic origin. No midden or prehistoric features were observed. The pedestrian survey conclusion was that the property was ***negative for cultural resources***.

Figure 6: Project property, facing north (adjacent residence is visible in the upper-left of the photo).

Figure 7: Project Property, facing east.

Figure 8: Project Property, facing west.

PALEONTOLOGICAL ASSESSMENT

The project is located within the Transverse Ranges of Southern California, which consist of generally east-west trending mountains and valleys created by north-south compressive deformation linked to the movement of the San Andreas Fault and the motion of the Pacific Plates. More specifically, the project is located within the Santa Monica Mountains, near a local valley drainage.

Examination of the 1993 Thomas W. Dibblee, Jr. Malibu Beach geological map for the project area identified that the entire project area is within the "tcvb" Conejo Valley volcanic rock unit. This specific type of volcanic rock unit is known for basalt and breccias, which are weak in resisting erosion. Due to this weakness, much of the surface consists of weathered volcanic material (**Figure 9**). The project property is, therefore, located within an area that should be considered ***not sensitive for paleontological fossil resources***. Due to the primary volcanic nature of the underlying bedrock, therefore, paleontological monitoring is not advised.

However, the volcanic area that contains the project property is surrounded by regions of fossil-bearing older alluvial material (Qoa) and marine sandstone of the Topanga Formation (Ttuc/Ttus), indicating that elements of either of these rock units may be encountered during construction since geological mapping is based on general findings across large regions, not on

specific findings that represent 100% coverage of the landscape. A paleontological discovery contingency, therefore, should be included in the final planning documents.

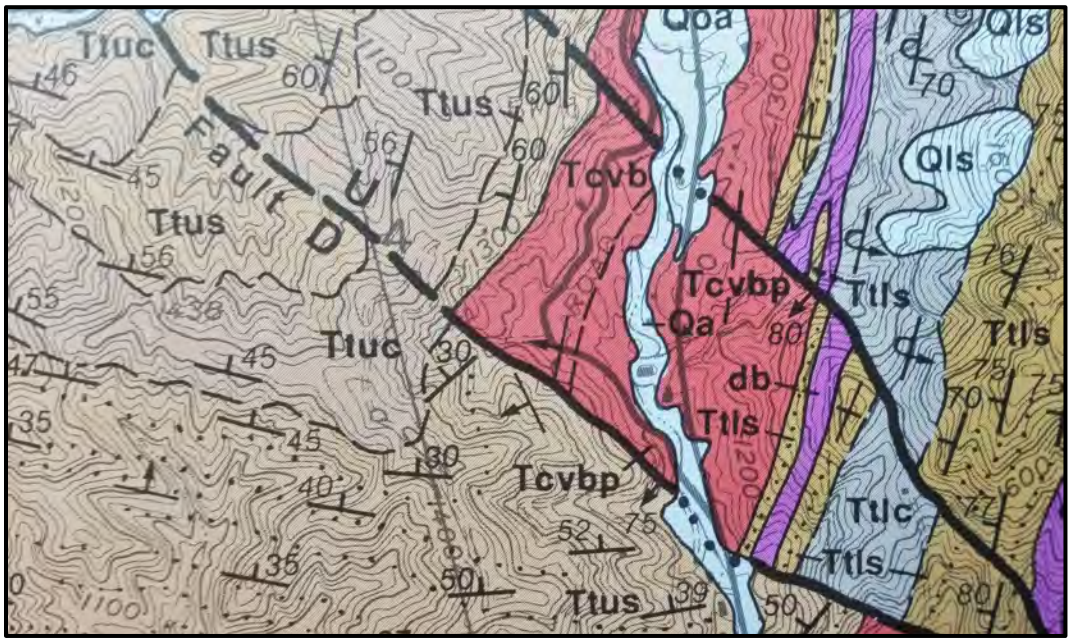


Figure 9: The 1993 Dibblee Malibu Beach Geological Map
(project area is within the red shading in the center of the figure).

CONCLUSION

The results of the SCCIC and the NAHC record searches were negative for cultural resources within, adjacent, or near to the project property, nor was the surrounding area found to be sensitive for cultural resources. The examination of numerous historic maps was also negative for older historic cultural resources. Finally, the surface survey was negative for prehistoric or older cultural resources within the project property. Monitoring by an archaeological or Native American monitor is, therefore, not recommended due to the lack of sensitivity for cultural resources and the extensive previously impacted and graded state of the landscape.

RECOMMENDATIONS

Based on the findings above, Envicom Corporation recommends the following cautionary project compliance measures:

Recommended Regulatory Compliance 1: Inadvertent Discovery of Archaeological Resources

The inadvertent discovery of archaeological resources is always a possibility during ground disturbances; California Penal Code Section 622.5 addresses these findings. If buried materials of potentially-archaeological significance are inadvertently discovered within an undisturbed context during any earth-moving operation associated with the proposed project, then all work in

that area shall be halted or diverted away from the discovery to a distance of 50-feet until a qualified senior archaeologist can evaluate the nature and/or significance of the find(s). If, upon assessment by a qualified senior archaeologist, the find is not determined to be significant, then construction may resume.

If the find is determined to be potentially significant, then the Lead/Permitting Agency will be immediately notified of the discovery. Construction will not resume in the locality of the discovery until consultation between the senior archaeologist, the project manager, the Lead/Permitting Agency, the Applicant's representative, and all other concerned parties, takes place and a reaches a conclusion that is approved by the Lead/Permitting Agency.

If a significant cultural resource is discovered during earth-moving, complete avoidance of the find is preferred. However, further survey work, evaluation tasks, or data recovery of the significant resource may be required by the Lead/Permitting Agency if the resource cannot be avoided. In response to the discovery of significant cultural resources, the Lead/Permitting Agency may also add additional regulatory compliance for use during further site development, which may include cultural and/or Native American monitoring.

Any monitoring required will be outlined in a Construction Phase Monitoring Plan, which will also be submitted to the Lead/Permitting Agency for review prior to the recommencement of ground-disturbance activities. Any Evaluation, Data Recovery, Site Management, or Monitoring Plans or Reports generated in response to the discovery of a significant cultural resource will be submitted to the Lead/Permitting Agency for review and final curation as part of the project record. All such documents associated with the discovery of cultural resources will be transmitted to the appropriate State of California archaeological site record and information centers.

Recommended Regulatory Compliance 2: Inadvertent Discovery of Paleontological Resources

The inadvertent discovery of paleontological resources (fossils) is always a possibility during ground disturbances. If buried materials of potentially-paleontological significance are inadvertently discovered within an undisturbed context during any earth-moving operation associated with the proposed project, then all work in that area shall be halted or diverted away from the discovery to a distance of 50-feet until a qualified paleontologist can evaluate the nature and/or significance of the find(s). If, upon assessment by a qualified paleontologist, the find is not determined to be significant, then construction may resume.

If the find is determined to be potentially significant, then the Lead/Permitting Agency will be immediately notified of the discovery. Construction will not resume in the locality of the discovery until consultation between the senior archaeologist, the project manager, the Lead/Permitting Agency, the Applicant's representative, and all other concerned parties, takes place and a reaches a conclusion that is approved by the Lead/Permitting Agency.

If a significant paleontological resource is discovered during earth-moving, complete avoidance of the find is preferred. However, further assessment and evaluation tasks, or data recovery of the significant resource may be required by the Lead/Permitting Agency if the resource cannot be avoided. In response to the discovery of significant paleontological resources, the Lead/Permitting Agency may also add additional regulatory compliance for use during further site development, which may include paleontological monitoring.

Any monitoring required will be outlined in a Construction Phase Monitoring Plan, which will also be submitted to the Lead/Permitting Agency for review prior to the recommencement of ground-disturbance activities. Any Evaluation, Data Recovery, Site Management, or Monitoring Plans or Reports generated in response to the discovery of a significant cultural resource will be submitted to the Lead/Permitting Agency for review and final curation as part of the project record. All such documents associated with the discovery of paleontological resources will be transmitted to the appropriate State of California paleontological site record and information centers.

Recommended Regulatory Compliance 3: Inadvertent Discovery of Human Remains

The inadvertent discovery of human remains is always a possibility during ground disturbances; State of California Health and Safety Code Section 7050.5 addresses these findings. This code section states that in the event human remains are uncovered, no further disturbance shall occur until the County Coroner has made a determination as to the origin and disposition of the remains pursuant to PRC Section 5097.98. The Coroner must be notified of the find immediately, together with the Lead/Permitting Agency and the property owner.

If the human remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials and an appropriate re-internment site. The Lead/Permitting Agency and a qualified archaeologist shall also establish additional appropriate regulatory compliance for further site development, which may include archaeological and Native American monitoring or subsurface testing, conducted and paid for by the applicant. All responses to the discovery of human remains will be outlined in a Recovery and/or Management Plan submitted to the Lead/Permitting Agency for review. Any required monitoring will be outlined in a Construction Phase Monitoring Plan, which will also be submitted to the Lead/Permitting Agency for review prior to the recommencement of ground-disturbance activities.

Envicom appreciates the opportunity to complete this Phase I Cultural Resource Assessment for 24600 Thousand Peaks Road project. Should you have any questions, don't hesitate to contact me.

Sincerely,

Dr. Wayne Bischoff
Director of Cultural Resources

ATTACHMENTS:
Appendix A: List Of Previous Completed Cultural Resource Reports Within The Project Study Area
Appendix B: NAHC and SCCIC Request Letters and NAHC Response Letter
Appendix C: Resume of Dr. Wayne Bischoff (author)

Appendix A
List of Previous Completed Cultural Resource Reports Within the Project Study Area

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-00260		1980	Wlodarski, Robert J.	An Evaluation of the Impact Upon Cultural Resources by the Proposed Development of 2+ Acres in Dry Canyon, Santa Monica Mountains, Los Angeles County, California.	Unknown	
LA-00523		1979	Van Horn, David M.	Archaeological Survey Report: a 125 Acre Parcel Located Near Malibu in the County of Los Angeles, Ca.	Archaeological Associates, Ltd.	
LA-00996		1981	Singer, Clay A.	Cultural Resource Survey and Impact Assessment for Tentative Tract No. 40545 in Cold Canyon, Calabasas, Los Angeles County, California		
LA-01474		1985	Dillon, Brian D.	An Archaeological Survey and Impact Assessment of Tentative Parcel Map 16409, on Mulholland Highway Near Coldcreek Canyon Road in the Malibu Community of Los Angeles County, California		19-001218
LA-01539		1986	Dillon, Brian D.	Archaeological Boundary Test Excavations at CA-LAN-1218, the Coldcreek Canyon Site	Brian Dillon	19-001218
LA-04650	Cellular -	1999	Duke, Curt	Cultural Resource Assessment for Pacific Bell Mobile Services Facility La 873-873-01, County of Los Angeles, California	LSA Associates, Inc.	
LA-06940		2004	Foster, John M.	Archaeological Investigation for Stunt Prescribed Burn Project	Greenwood and Associates	

Appendix B
NAHC and SCCIC Request Letters and NAHC Response Letter

December 4, 2017

Native American Heritage Commission
1550 Harbor Boulevard, Room 100
West Sacramento, CA 95691

Subj: **Proposal for a Phase I(a) Cultural Resources Assessment and Biological Inventory of 24600 Thousand Peaks Boulevard, Los Angeles, California (*Envicom Project #17-771-101)***

Greetings,

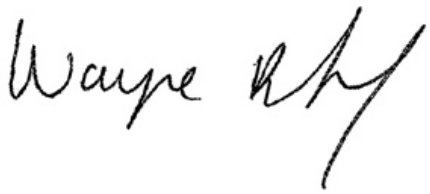
Envicom is requesting a record review of your records for cultural resources for the Project area, plus a **0.25-mile buffer**. We also request a list of Tribal Group representatives for the area in case we need to contact their offices.

The Project is located at:

Latitude: 34° 6'30.27"N
Longitude: 118°39'51.68"W
Township: 1S
Range: 17W
Quad: Malibu Beach

Envicom appreciates the NAHC's help with this request. For correspondence or questions regarding this Project, please contact Wayne Bischoff at 818-879-4700 (wbischoff@envicomcorporation.com).

Sincerely,



Dr. Wayne Bischoff
Director of Cultural Resources

Attachment:
Project vicinity map on 1:24,000 topographic map

Project Site
1/4 Mile
Mulholland Hwy.
Stokes Canyon
BASE LINE
Calabasas Pk
Stunt Rd
Stunts Ranch
Cold Creek
FEET 0 1,000 2,000
Source: Malibu Beach, California, U.S.G.S. 7.5 Minute Quadrangles

December 4, 2017

Stacy St. James, Coordinator
South Central Coastal Information Center
C.S.U.F, Dept. of Anthropology, MH 426
800 N. State College Blvd.
Fullerton, CA 92834-6846

Attn: Ms. St. James

Subj: **Proposal for a Phase I(a) Cultural Resources Assessment and Biological Inventory of 24600 Thousand Peaks Boulevard, Los Angeles, California (*Envicom Project #17-771-101)***

Dear Ms. St. James:

Envicom is requesting an **EXPEDITED** record search of the SCCIC database for cultural resources within the attached Project area, plus a **0.25-mile buffer**. The Project is located at:

Latitude: 34° 6'30.27"N
Longitude: 118°39'51.68"W
Township: 1S
Range: 17W
Quad: Malibu Beach

We are requesting to receive the following: Resource Database Printout (list), Resource Database Printout (details), Resource Digital Database (spreadsheet), Report Database Printout (list), Report Database Printout (details), Historical Maps.

We also request the complete reports and/or site records for any cultural resources found within the project area only.

Envicom appreciates the SCCIC's help with this request. For correspondence or questions regarding this Project, please contact Wayne Bischoff at 818-879-4700 (wbischoff@envicomcorporation.com).

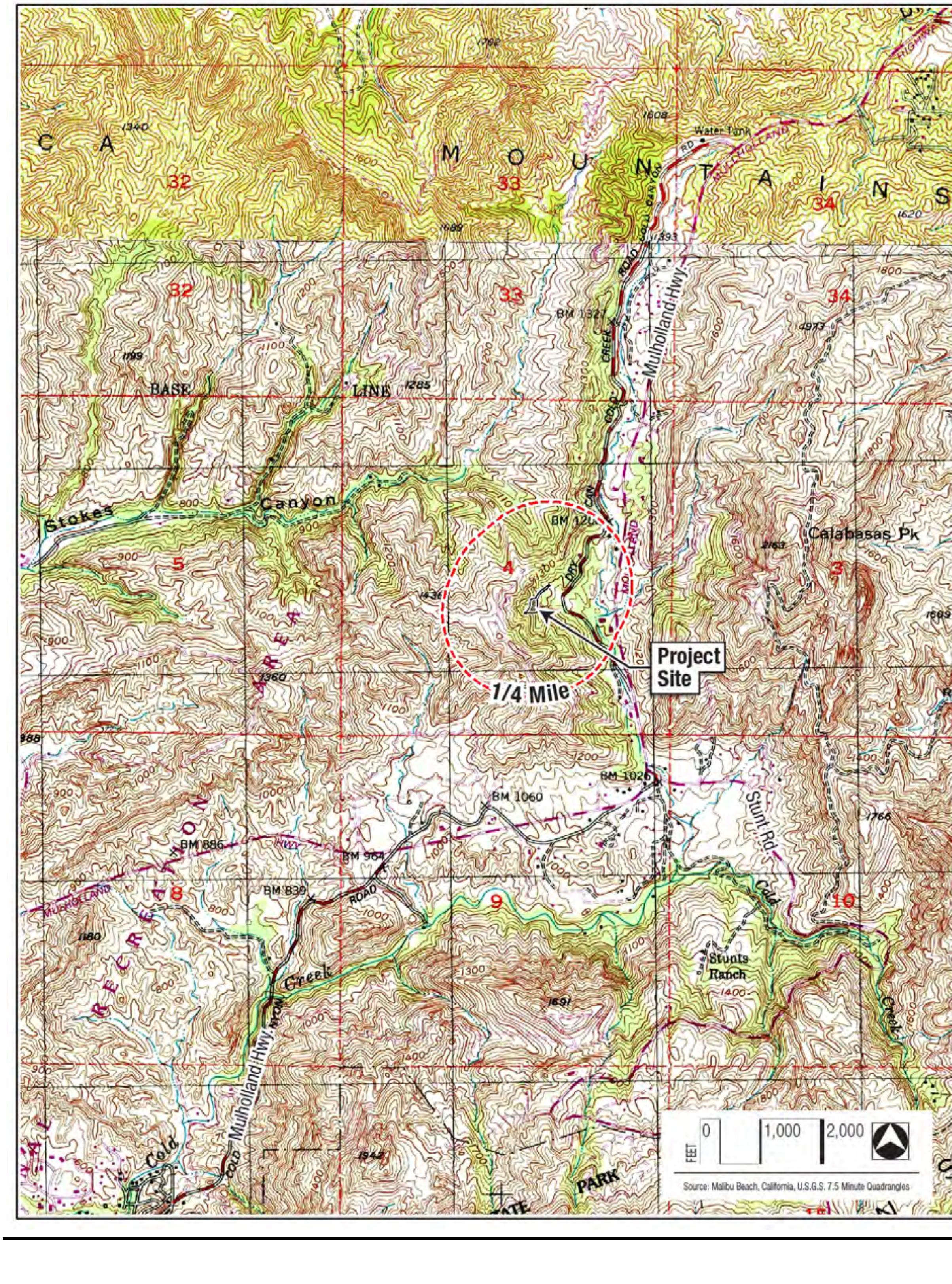
Sincerely,

Wayne Bischoff

Dr. Wayne Bischoff
Director of Cultural Resources

Attachment:

Project vicinity map on 1:24,000 topographic map



Project Site
1/4 Mile
Mulholland Hwy
Stokes Canyon
BASE LINE
Calabasas Pk
Stunt Rd
Stunts Ranch
Cold Creek
FEET 0 1,000 2,000
Source: Malibu Beach, California, U.S.G.S. 7.5 Minute Quadrangles

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Fax (916) 373-5471
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

December 14, 2017

Dr. Wayne Bischoff
Envicom Corporation

Emailed to: wbischoff@envicomcorporation.com

RE: 24600 Thousand Peaks Blvd., Los Angeles, (Envicom Project #17-771-101), Los Angeles County.

Dear Dr. Bischoff:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these tribes, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 373-3712.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Environmental Planner

Attachment

Native American Heritage Commission
Native American Contacts
12/14/2017

Barbareno/Ventureno Band of Mission Indians
Julie Lynn Tumamait-Stenslie, Chair
365 North Poli Ave — Chumash
Ojai , CA 93023
itumamait@hotmail.com
(805) 646-6214

Barbareno/Ventureno Band of Mission Indians
Patrick Tumamait
992 El Camino Corto — Chumash
Ojai , CA 93023
(805) 216-1253 Cell

Barbareno/Ventureno Band of Mission Indians
Eleanor Arrellanes
P.O. Box 5687 — Chumash
Ventura , CA 93005
(805) 701-3246

Barbareno/Ventureno Band of Mission Indians
Raudel Joe Banuelos, Jr.
331 Mira Flores Court — Chumash
Camarillo , CA 93012
(805) 427-0015

Fernandeno Tataviam Band of Mission Indians
Rudy Ortega Jr., Tribal President
1019 Second Street, Suite 1 — Fernandeno
San Fernando , CA 91340 — Tataviam
rortega@tataviam-nsn.us
(818) 837-0794 Office

(818) 837-0796 Fax

Gabrieleno Band of Mission Indians - Kizh Nation
Andrew Salas, Chairperson
P.O. Box 393 — Gabrielino
Covina , CA 91723
gabrielenoindians@yahoo.com
(626) 926-4131

Gabrieleno/Tongva San Gabriel Band of Mission Indians
Anthony Morales, Chairperson
P.O. Box 693 — Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 483-3564 Cell

(626) 286-1262 Fax

Gabrielino /Tongva Nation
Sandonne Goad, Chairperson
106 1/2 Judge John Aiso St., #231 — Gabrielino Tongva
Los Angeles , CA 90012
sgoad@gabrielino-tongva.com
(951) 807-0479

Gabrielino-Tongva Tribe
Linda Candelaria
23454 Vanowen St. — Gabrielino
West Hills , CA 91307
palmsprings9@yahoo.com
(626) 676-1184 Cell

Gabrielino-Tongva Tribe
Charles Alvarez, Chairperson
23454 Vanowen St.
West Hills , CA 91307
roadkingcharles@aol.com
(310) 403-6048

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produc ed.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessments for the Phaae I (a) Cultural Assessment for 24600 Thousand Peaks Blvd., Los Angeles , (Envicom Project #17-771-101), Los Angeles County.

Native American Heritage Commission
Native American Contacts
12/14/2017

Kern Valley Indian Community
Robert Robinson, Chairperson
P.O. Box 1010 — Tubatulabal
Lake Isabella , CA 93283 — Kawaiisu
brobinson@jwvisp.com
(760) 378-2915 Cell

Santa Ynez Band of Chumash Indians
Kenneth Kahn, Chairperson
P.O. Box 517 — Chumash
Santa Ynez , CA 93460
kkahn@santaynezchumash.org
(805) 688-7997
(805) 686-9578 Fax

Kitanemuk & Yowlumne Teion Indians
Delia Dominguez, Chairperson
115 Radio Street — Yowlumne
Bakersfield , CA 93305 — Kitanemuk
deedominguez@juno.com
(626) 339-6785

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Luiseno
San Jacinto , CA 92581 — Cahuilla
jontiveros@soboba-nsn.gov
(951) 663-5279
(951) 654-5544, ext 4137
(951) 654-4198 Fax

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838 — Fernandeno
Newhall , CA 91322 — Tataviam
(760) 885-0955 Cell — Serrano
Vanyume
Kitanemuk

San Manuel Band of Mission Indians
Lee Clauss, Director-CRM Dept.
26569 Community Center Drive — Serrano
Highland , CA 92346
lclauss@sanmanuel-nsn.gov
(909) 864-8933
(909) 864-3370 Fax

San Manuel Band of Mission Indians
Lynn Valbuena
26569 Community Center Dr. — Serrano
Highland , CA 92346
(909) 864-8933

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Appendix C
Resume of Dr. Wayne Bischoff (author)

Wayne Bischoff, Ph.D.

Director of Cultural Resources

Dr. Bischoff has over 20 years of experience managing cultural resource projects and ensuring compliance with Section 106 of the National Historic Preservation Act (NHPA), the California Environmental Quality Act (CEQA), the National Environmental Protection Act (NEPA), and state, county, city, and local government cultural laws, guidelines, and procedures. He has managed cultural, paleontological, and built environment projects throughout Southern California, including the Counties of Los Angeles, Kern, Ventura, Imperial, San Diego, Orange, Santa Barbara, Riverside, and San Bernardino. Dr. Bischoff has been the principal or project manager for hundreds of cultural resource projects in California, including literature searches, surveys, evaluations, and data recoveries, built environment and historic architectural inventories, HABS projects, paleontological surveys, and historic structure evaluations.

Dr. Bischoff's project experience includes extensive experience with transmission lines, renewable energy projects, and public works projects, including storm and sewer projects, recharge basins, wetlands restoration, highways and bridges, dams and levees, park and trail development, and educational facilities. He also has broad experience with residential and commercial developments projects, Department of Defense projects (Army, Navy, Marines, and National Guard), telecommunication lines, and projects with Army Corps of Engineers (ACOE) and California Coastal Commission (CCC) oversight.

Dr. Bischoff's experience includes consultation with state and federal agencies, including the State Historic Preservation Office, the Bureau of Land Management (BLM), the GSA, the USDA, Fish and Wildlife, the California Public Utilities Commission (CPUC), the National Park Service (NPS), the U.S. Forest Service (USFS), Federal Highway Administration (FHA), and CALTRANS. He has also written sections of CEQA and NEPA documents, MNDs, and Memorandums of Agreements/Understanding (MOA/MOU), and is a Native American AB-52/SB-18 consultation expert. Dr. Bischoff has worked with all the Tribal Groups Southern California, and has provided Native American consultation for the City of Los Angeles, numerous project clients, and many cities and municipalities throughout Southern California.

Development Projects

- **Conrad N. Hilton Foundation Trails Project Cultural Assessment, Agoura Hills, Los Angeles County, CA.** Project Manager for the assessment of new pedestrian access trails linking off-site office space with the Foundation campus buildings. (Spring 2016)
- **Pepperdine University Campus Life Project: Cultural Resource Monitoring, Los Angeles, CA.** Principal and Project Manager for cultural resource monitoring of Phase I of the Pepperdine Campus Life housing, facilities, and trail development project. (Spring 2016)
- **Deer Lake Residential Development Cultural Monitoring, Los Angeles, CA.** Principal and Project Manager for the cultural monitoring of eight cultural resources within the project development boundary. Included the writing of a Construction Phase Management and Monitoring Plan. (Spring 2016)
- **Canyon Park Homes, Sylmar, Los Angeles County, CA.** Native American Tribal Group consultation and pre-construction monitoring for this 80-acre residential property development, as well as EIR section writing. (February 2015 – Current)

- **Paradise Valley Development Project Environmental Impact Report and Impact Statement, Riverside County, CA.** Author of the cultural section for this EIR for a housing and mixed use development of over 2200-acres east of Indio, California. Also reviewed original technical documents, and incorporated legal and agency comments. Mitigation measures included the management and monitoring of dozens of cultural resources, sensitive soils, and paleontological resources. (October 2014 – Current)
- **Floral Canyon Residential Development Cultural Resource Survey, North Hollywood, CA.** Principal and Project Manager for this Phase Ia cultural resource survey of an 8-acrea property. (September – December 2015).
- **Lynn Road Residential Development Project, Newbury Park, CA.** Principal and Project Manager for the Phase Ia and Phase Ib survey of this 10-acre parcel. A large Middle-Period seasonal settlement was discovered, which required subsurface testing and extensive mapping of surface hearths, yucca roasters, and dwelling features. (September – October 2015).
- **Marinette Road Residential Development, Pacific Palisades, Los Angeles County, CA.** Principal and project manager for this development project, which included a record search, site survey, Tribal Group scoping letters, and agency consultation. The major challenge was that the project property was within the Will Rogers State Monument and National Register site boundary. (February 2015 – May 2015)
- **Village at Los Carneros, City of Goleta, Santa Barbara County, CA.** Reviewed all previous technical studies and wrote part of the cultural sections of the Environmental Impact Report for this residential house development project. (March 2014 – April 2014)
- **3121 Old Topanga Canyon Road Phase I Survey and Literature Search, City of Calabasas, Los Angeles County, CA.** Principal and Project manager for this residential development project, including NAHC letters, literature review, site survey, paleontological survey and literature search, final technical report, and the writing of the cultural resources section of the Environmental Impact Report. (March 2013 – April 2013)
- **Newport Beach Yacht Club Evaluation, Community Development Department, City of Newport Beach, Orange County, CA.** Principal for this historic architecture project involving the built environment evaluation of the Newport Beach Yacht House. (October 2013 – October 2013)
- **Blossom Plaza Historic Structure Evaluation, China Town, City of Los Angeles, CA.** Principal for this historic architecture project involving the updating of technical reports and a standing structure evaluation. (July 2013 – September 2013)
- **Moreno Valley Residential Building Evaluation, City of Moreno Valley, Riverside, CA.** Principal for the architectural assessment of the J. Langdon Ranch located at 11761 Davis Street, in the city of Moreno Valley, Riverside County, California. (April 2013)
- **Scripps Hospital Paleontological and Archaeological Monitoring, Worley-Parsons, City of Encinitas, CA.** Principal Investigator. Dr. Bischoff managed QA/QC review, budgets, and professional standards for the cultural and paleontological monitoring of this large development project. (2011 - 2013)

Energy Projects

- **East Kern Wind Resource Area (EKWRA) Power Pole Replacement Project, Environmental Intelligence / Southern California Edison, Kern County, CA.** Principal and Project Manager. This two-year project included cultural resource surveys, the evaluation of numerous cultural sites, and cultural and paleontological monitoring for the construction of over 130-miles of new power poles and fiber optics lines to service Tehachapi Mountain wind farms. (January 2013 – October 2013)
- **Pure Source Power, Victorville, San Bernardino, CA.** Principal and Project Manager for a cultural survey and record search of 140-acres north of Palm Springs for solar development. (September 2013 – October 2013)
- **Dry Ranch Solar Project, Silverado Power, Los Angeles County, CA.** Principal. Dr. Bischoff managed this 64-acre solar project near Lancaster, which included a record search, field survey, and cultural report to meet CEQA compliance. This project included coordination with Southern California Edison for a gen-tie line and telecom attachments. (March - April 2013)
- **Plainview Solar Project, Silverado Power, Los Angeles County, CA.** Principal. Dr. Bischoff managed this 114-acre solar project near Lancaster, which included a record search, field survey, and cultural report to meet CEQA compliance. (April - May 2013)
- **Silverleaf Solar Project, Cultural and Paleontological Survey, Agile Energy, Imperial County, CA.** Principal and Project Manager. Dr. Bischoff provided general review and quality control for a large solar project south of San Diego. This project involved an over 2,000-acre survey of proposed solar fields and 5-miles of electrical transmission gen-tie lines. The Bureau of Land Management was the principal federal agency. (November 2011 - July 2012)
- **Desert Harvest Solar Project, Build Environment Survey, eneXco Energy, Riverside County, CA.** Project Manager. Dr. Bischoff was the project manager for the built environment survey of 1,600-acre solar field and 12-miles of electrical transmission gen-tie lines. This included the production of a separate technical report for the Bureau of Land Management that included a historic structure inventory, assessment of significance, and an indirect effects analysis. (November 2011 - June 2012)
- **Silverleaf Solar Project, Built Environment Survey, Agile Energy, Imperial County, CA.** Project Manager. Dr. Bischoff was the project manager for the built environment survey of 2,000-acre solar field and 5-miles of electrical transmission gen-tie lines. This included the production of a separate technical report for the Bureau of Land Management that included a historic structure inventory, assessment of significance, and an indirect effects analysis. (November 2011 - July 2012)
- **IVSC2 Solar Project, County of Imperial, Imperial County, CA.** Principal and Project Manager. Dr. Bischoff provided oversight of the 140-acre solar project east of the Salton Sea. This project was notable for the quick response time required to field a survey crew and complete a draft report for the County. (Sept-Oct 2012)
- **Tehachapi Renewable Transmission Project (TRTP), Southern California Edison, Kern, Los Angeles, and San Bernardino Counties, CA.** Principal and Project Manager. Dr. Bischoff was responsible for all office and field operations that ensured the successful inventory and management of cultural resources related to this 300-mile transmission line project, including the management of standing historical structures and paleontological resources. He managed an annual budget in excess of $4 million, a staff of up to 40 persons, wrote compliance documents (Programmatic Agreement Appendices, ARPA permits, Project Agency Yearly Reports, and Management Plans), and managed

hazmat situations. Dr. Bischoff completed over 150 individual projects in southern California including survey, evaluation, mitigation, and resource monitoring. (November 2009 - June 2011)

- **East Kern Wind Resource Area (EKWRA) Power Pole Replacement Project, Southern California Edison, Kern County, CA.** Principal and Project Manager. Dr. Bischoff managed original technical studies for a project designed to replace hundreds of power poles in the Tehachapi Mountains area in support of new wind farm construction. He conducted large area surveys, some on BLM properties, and developed a management plan for dozens of archaeological sites. Bureau of Land Management was the principal federal agency. (February 2010 - June 2011)
- **Operations and Maintenance Contract, Southern California Edison. Southern California.** I acted as the Principal for all work orders issued to our office under the O/M contract. A major task under this contract was the response to the Crown Fire in 2010. I worked directly with SCE during and immediately after the fire to evaluate and protect cultural resources. (Jan 2010 - June 2011)

Telecommunication Projects

- **AT&T Fiber-optics Renewal Project, Evaluations, Mitigations, and Monitoring, AT&T, San Bernardino County, CA.** Cultural Principal and Project Manager. Dr. Bischoff will provide project management, technical writing, and quality control for the cultural and paleontological evaluations, data recoveries, and monitoring efforts for the AT&T fiber renewal project. This project involved the survey of over 90 miles of proposed new fiber-optic line between Barstow and Las Vegas, NV, and the management of over 100-cultural sites. Bureau of Land Management and Mojave National Preserve were the principal federal agencies. (July 2013 – October)
- **San Diego Churches and Public Building Historic Structure Evaluations, DePratti Inc., City of San Diego, CA.** Principal Investigator. Dr. Bischoff acted as Principal and QA/QC manager for this project, which involved the evaluation of dozens of historic structures as part of the DePratti Communication telecommunication attachment project in the City of San Diego. (November 2011 – October 2013)
- **AT&T Fiber-optics Renewal Project, Surveys, Literature Searches, and Technical Studies, AT&T, San Bernardino County, CA.** Cultural Principal and Project Manager. Dr. Bischoff provided general project management and quality control for the cultural, paleontological, and ethnographic surveys, literature searches, and technical studies. This project involved the survey of over 90 miles of proposed new fiber-optic line between Barstow and Las Vegas, NV, and the management of over 100-cultural sites. Bureau of Land Management and Mojave National Preserve were the principal federal agencies. (April 2012 – July 2013)
- **Digital 395 Broadband Stimulus Project, Praxis and California Broadband Corporation, California and Nevada.** Cultural Director. Dr. Bischoff acted as the California report manager of the cultural division, directed fieldwork, and authored management documents and reports. This project involved the new installation of over 650 miles of fiber-optic line across California and Nevada. The programmatic agreement of this complex project included 10 federal, state, and tribal agencies, with another seven acting as interested parties, and the management, evaluation, and monitoring of over 170 cultural sites. NTIAA was the principal federal agency, but also involved twelve other California and Nevada state and federal agencies and Tribal Groups. (November 2011 – April 2012)

Defense Projects

- **Edwards Airforce Base Telecommunication Cultural Monitoring, Team Fischel Company, Edwards AFB, Kern County, CA.** Project Manager and Principal for the cultural monitoring of 40-miles of telecommunication trenching on Edwards AFB, including pre-construction meetings and a final monitoring report. (May 2013 – Sept. 2013)
- **Fort Irwin Cell Tower Surveys and Monitoring, Northrop-Grumman and Fort Irwin Army Post, San Bernardino County, CA.** Principal. This project involves the cultural and paleo survey of over 24 new cell tower locations and associated access roads on Fort Irwin, as well as construction phase monitoring. (April 2013 – October 2013)
- **Marine Corps Base, Camp Pendleton, Cultural Resources Consultation, Marine Corps Base, Pendleton, San Diego County, CA.** On-Call Senior Cultural Resources Consultant. Dr. Bischoff provided senior-level cultural resource consultation related to Camp Pendleton's Basewide Utilities Infrastructure Improvements project. He provided consulting on cultural resource management for several waste treatment and utility line systems as part of the Camp's "Grow the Force" initiative. (2011 – October 2013)

Water Projects

- **Pacoima Spreading Grounds Improvement Project, LACDPW, Los Angeles County, CA.** Cultural Principal. Dr. Bischoff managed the cultural resources record search and CEQA cultural section mitigation measures of an EIR for the improvement of the Pacoima spreading grounds and related canal resources. (April 2013 – October 2013)
- **Devil's Gate Reservoir Sediment Removal and Management Project, LACDPW, Los Angeles County, CA.** Principal of Cultural Resources. This project involved removal of sediment within the Devil's Gate Reservoir area, which required a preliminary cultural survey and record search under CEQA, as well as an EIR. Dr. Bischoff served as the cultural principal for the project and provided a recommended plan for dealing with sedimentary soils vs. native soils, monitoring criteria, and potential discovery situations. Dr. Bischoff helped write Environmental Impact Report sections, and worked with the Gabrieliño Tribal Group in the protection of archaeological and tribal cultural resources. (2011 – October 2013)
- **Peck Road Spreading Basin Improvement Project, LACDPW, Los Angeles County, CA.** Cultural Principal. Dr. Bischoff managed the cultural resources record searches, field survey, paleontological survey, and CEQA cultural section mitigation measures of an MND for the improvement of the Peck Road Spreading Basin, including a related new water discharge pipe. (June 2013 – September 2013)
- **Marina Del Rey Waterline Replacement Project Cultural Monitoring, LACDPW, Los Angeles County, CA.** Cultural Principal. This project with the Los Angeles Department of Public Works involved the cultural monitoring for the Marina Del Rey 18-inch Waterline Replacement. Chambers Group also provided a qualified archaeological monitor at the project site during excavation activities during construction. (March - May 2013)
- **Dieguito Wetlands Restoration Monitoring, Southern California Edison, Del Mar, San Diego County, CA.** Principal Investigator and Project Manager. This project involved the extensive rehabilitation of Southern California Edison property as part of the Dieguito Wetlands Restoration project. (April 2012 - January 2013)

- **Los Penasquitos Wetlands Monitoring, AMEC, Del Mar, San Diego County, CA.** Principal Investigator. Dr. Bischoff managed the monitoring tasks, budgets, and professional standards for this project near the City of Del Mar as part of the Torrey Pines State Nature Reserve restoration. (October - December 2012)
- **San Gorgonio Creek Water Recharge Basin Construction Monitoring, Beaumont Cherry Valley Water District, Cherry Valley, Riverside County, CA.** Principal and Project Manager. This project involved paleontological and archaeological construction monitoring during construction, including emergency evaluation and monitoring when early 19Th Century structures and materials were unexpectedly encountered during earth moving. (February 2012 – April 2012)
- **Penmar Golf Course Water Quality Improvement Project, Pacific Hydrotech and City of Santa Monica, Santa Monica, CA.** Principal Investigator. Dr. Bischoff managed QA/QC review, budgets, and professional standards for the project in the City of Venice. Penmar was a multi-year waterline and tank improvement project in which evidence of ethnic Japanese barrios and fossil Pleistocene animal bones were discovered. (November 2011 - November 2012)
- **Oxford Retention Basin Flood Protection Project, LACDPW, Los Angeles County, CA.** Principal and Project Manager. The Oxford Basin in Marina Del Rey was receiving enhancement, and Dr. Bischoff managed the completion of the cultural survey, literature review, and construction monitoring for the project. (2011 - 2012)
- **San Jose Salt Barge HAER Documentation Project, USACE and Santa Clara Valley Water District, City of San Jose, CA.** Principal. Dr. Bischoff consulted on the excavation and evaluation of a shallow-water shipwreck discovered during a wetlands rehabilitation project. This project involved USACE, San Francisco District as lead agency and the Water District as client. (January – February 2011)

Public Works Projects

- **Oakwood Schools Built Environment and Archaeological Assessment.** Principal and Project Manager for the Phase I built environment and archaeological assessment of the project property prior to the construction of a new middle and high school campus. Challenging tasks were assessing indirect effects of the project on an adjacent historic district, and addressing a modern human cremation garden in the report. (November 2015 – February 2016)
- **CEQA Services for Improvements to Polytechnic and Wilson High Schools, LBUSD, City of Long Beach, CA.** Cultural Principal. Dr. Bischoff provided oversight and incorporation of the historic architecture technical reports into the project CEQA documents. (June 2013 – August 2013)
- **Mill Creek Crew Room Cultural Monitoring, Angeles National Forest (ANF), Los Angeles County, CA.** The County of Los Angeles Department of Public Works proposed to replace the crew room building within the Angeles Forest Mill Creek Summit Maintenance Yard facility. This CEQA/NHPA project involved the preparation of a treatment and discovery plan document, ARPA permitting, constant consultation with the ANF, construction monitoring, and a final monitoring report. (April – July 2013)
- **Roosevelt School, LBUSD, City of Long Beach, CA.** Cultural Principal. Dr. Bischoff provided oversight, authorship, and counsel on the EIR for the demolition of the Roosevelt Elementary School in Long Beach. This proved to be a complex project, involving an historic built environment resource evaluation and mitigation plan, legal investigation, and extensive responses to public comments. This process resulted in a HABS/HAER mitigation project. (November 2011 - June 2012)

Transportation Projects

- **Foothill Toll Road Cultural and Paleontological Monitoring, Ghiradelli and Associates, Orange County, CA.** Principal and Project Manager for cultural monitoring related to the upgrade of all toll road payment stations in Orange County. (October 2013 – October 2013)
- **9th Street Extension Historic Structure Inventory and Evaluation, City of Holtville, Imperial County, CA.** Principal and Project Manager. Dr. Bischoff managed and provided QA/QC for this project involving a Caltrans inventory of project APE historic built environment resources, and the historic evaluation of a canal feature. Final deliverables included a Historic Resources Evaluation Report and a Historic Property Survey Report to CALTRANS standards. (June 2013 – August 2013)
- **Francisquito Bridges Replacement (3-Total), LADWP/CALTRANS, Los Angeles County, CA.** Principal. Dr. Bischoff managed and oversaw the completion of this project in the Angeles Forest. This project involved the replacement of three existing bridges on San Francisquito Canyon Road over San Francisquito Canyon Creek. The proposed improvement project involved widening the two lane bridges, improvement of approachment roadway, and the placement and installation of retaining walls, concrete barriers with tubular-steel handrails, and metal beam guardrails. (2011 – September 2013)
- **Murrieta Whitewood Road Extension, City of Murrieta, Riverside County, CA.** Principal and Project Manager. This road extension project involved a cultural resource survey and records search, a paleontological field study, and Native American Consultation due to the historic use of the nearby Murrieta Hot Springs by local Native Americans. (April – June 2012)

APPENDIX G

Geologic Study and Geotechnical Report

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

CHANGE OF ENGINEERING GEOLOGIC CONSULTANT and
REPORT OF UPDATE ENGINEERING GEOLOGIC STUDY

PROPOSED CUSTOM SINGLE-FAMILY RESIDENTIAL DEVELOPMENT

LOT 1, TRACT 36172
24600 THOUSAND PEAKS ROAD
CALABASAS AREA, COUNTY OF LOS ANGELES, CALIFORNIA

PREPARED FOR:
JOHN ANDREWS GROUP ARCHITECTS, INC.

FEBRUARY 29, 2016 Project No.: LP1240

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

February 29, 2016 Project No.: LP1240

John Andrew Group Architects, Inc.
2901 Stoner Ave.
Los Angeles, CA 90025

SUBJECT: CHANGE OF ENGINEERING GEOLOGIC CONSULTANT and REPORT OF UPDATE ENGINEERING GEOLOGIC STUDY, PROPOSED CUSTOM SINGLE-FAMILY RESIDENTIAL DEVELOPMENT, LOT 1, TRACT 36172, 24600 THOUSAND PEAKS ROAD, CALABASAS AREA, COUNTY OF LOS ANGELES, CALIFORNIA

Dear John Andrews Group Architects, Inc.,

Land Phases, Inc. (LP) is pleased to report the findings of our update engineering geologic study performed with respect to the proposed custom single-family residential development at 24600 Thousand Peaks Road which is located in the Calabasas area of the County of Los Angeles, California. Work performed as part of our update engineering geologic study was in general accordance with the authorized scope of work presented in our proposal dated August 7, 2015, and Change Order # 1 dated February 8, 2016.

This report summarizes our scope of work and presents the results of our research, our analyses and interpretation of surficial and subsurface geologic data, and presents our engineering geologic conclusions and recommendations concerning the subject property and the proposed project. Based on the results of our update engineering geologic study, it is currently our opinion that the proposed project is feasible from an engineering geologic standpoint provided the recommendations presented in this report, and those presented by the Project Geotechnical Engineer and Project OWTS Engineer, are properly incorporated in the design and implemented during construction.

We appreciate the opportunity to provide you with our professional engineering geologic services. It is strongly recommended that you read this report from cover to cover in order to understand the assumptions and limitations of this study and to avoid taking a finding or recommendation out-of-context. Please avoid misunderstandings or misinterpretation of this report by calling the undersigned with any questions you may have.

Respectfully Submitted,
LAND PHASES, INC.

Jake W. Holt
PG 7404, CEG 2282, CHG 816 exp. 11-30-16
Principal Engineering Geologist and Hydrogeologist

jh:L:\LP PROJECTS\LP1240 - Andrews\Reports\LP1240 - Update Geo Report, Feb 29, 2016.docx

Distribution: (2) Addressee (plus 1 pdf copy on CD for County submittal)
(1) CalWest Geotechnical (via email)
(2) Ensitu Engineering, Inc. (plus 1 pdf copy on CD for County Health Dept. submittal)

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-Examples of Slope Setback Requirements
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Plate 1 – Geologic Map (scale: 1" equals 20')
Plate 2 – Geologic Sections A-A', B-B' (scale: 1" equals 20')

INTRODUCTION

General Remarks and Purpose

The following report summarizes findings of our update engineering geologic study concerning the subject property. The purpose of this study was to determine and evaluate the geologic conditions of the subject property with respect to the proposed custom single-family residential development at the site.

CalWest Geotechnical (2014) recently prepared an update geotechnical engineering report regarding the proposed custom single-family residential development of the subject property. However, a corresponding update engineering geologic report was not prepared at that time. LP was recently retained to provide the required update engineering geologic report. Our update engineering geologic study of the subject property was performed in conjunction with a percolation study performed by Bart Slutske Consulting. To clarify, LP is the *Project Engineering Geologist* and CalWest Geotechnical is the *Project Geotechnical Engineer* with respect to the proposed project. It is our understanding that Ensitu Engineering, Inc. has been retained as the *Project OWTS Engineer* and shall utilize the percolation test data recently obtained by Slutske from the subject property.

Proposed Development

Information concerning the proposed development was provided by the client. In addition, a current site plan was also provided. This information and plan review was the basis for our update engineering geologic study. Based on the provided information and current plan, it is our understanding that it is proposed to construct a custom single-family residence, built-in swimming pool (with spa), and related ancillary structures at the subject property. The approximate locations of the proposed structures are illustrated on the *Geologic Map* which is attached to this report as Plate 1. Grading required as part of the proposed project is anticipated to be limited to the removal and recompaction of the near-surface profile of existing compacted fill located beneath the area of the proposed structures and slabs on grade. Conventional foundations will most likely be utilized for support of the proposed structures per the recommendations of the Project Geotechnical Engineer. Formal plans have not been prepared and await, in part, the conclusions and recommendations of this report.

Sewers are not currently available to service the subject property. Thus, it is our understanding that it is proposed to construct an onsite wastewater treatment system (OWTS) on the subject property in order to serve the proposed residence. The proposed OWTS shall consist of a treatment tank and seepage pit(s) per the recommendations of the Project OWTS Engineer. Formal OWTS plans have not been prepared and await, in part, the conclusions and recommendations of this report.

Scope of Work

Our update engineering geologic study of the subject property was conducted from December 22, 2016 to February 29, 2016 and included the following tasks:

- Review of the site development plans which were provided to our office.

- Research and review of available County files and archives for geologic data pertinent to the subject property and adjacent area.

- A preliminary site reconnaissance by LP's Project Engineering Geologist which included checking site access for the selected exploration equipment and marking the proposed exploratory locations. Subsequent to the preliminary site reconnaissance, Underground Service Alert (USA) was notified so that they, or their designated locators, could mark any known underground utility lines within our designated area of exploration.

- Review of selected aerial photographs, published engineering geologic references, and available published and unpublished engineering geologic and geotechnical engineering reports. The references cited or utilized as part of this study are listed in the **REFERENCES** section of this report.

- Excavation and logging of 9 borings within the subject property. The borings were excavated with a track-mounted, flight-auger drill-rig and a truck-mounted, bucket-auger drill-rig. When completed with our examination and logging of the aforementioned exploratory excavations, and upon completion of the percolation testing of selected borings, the excavations were backfilled to grade with the spoils generated from the excavation process. While significant care was taken by our excavation subcontractor during the backfilling process in an attempt to minimize future settlement, the backfilling of the exploratory excavations did not involve certified compaction performed under the observation of the Project Geotechnical Engineer. The detailed geologic logs of the boring excavations are presented in Appendix A of this report.

- Geologic field mapping of the surficial deposits and/or outcrops located within and adjacent to the subject property.

- Preparation of a site-specific *Geologic Map* (scale: 1" equals 20') which utilizes a provided grading plan for Tract 36172 as a base. The *Geologic Map* illustrates the proposed project, the locations of LP's exploratory excavations, the locations of the geologic cross-sections constructed as part of this study, and the interpreted geologic conditions of the site based on the findings of our update engineering geologic study. The *Geologic Map* is attached to this report as Plate 1.

- Preparation of site-specific *Geologic Sections A-A' and B-B'* (scale: 1" equals 20') which illustrate the topographic and interpreted geologic and hydrogeologic conditions of selected portions of the subject property based on the findings of our update engineering geologic study. *Geologic Sections A-A' and B-B'* are attached to this report as Plate 2.

- Analysis of the geologic and hydrogeologic data obtained from the aforementioned tasks.

- Preparation of this report that presents our engineering geologic findings, conclusions, and recommendations with respect to the subject property and proposed project.

- All aspects of this study were performed by, or under the direct supervision of, a State of California Certified Engineering Geologist.

SITE DESCRIPTION

Site Location

The subject property is located on the northern flank of the Santa Monica Mountains in the Calabasas area of the County of Los Angeles, California. Specifically, the subject property is located south of the Ventura (101) Freeway, east of Malibu Canyon, west of Mulholland Highway, on the east and upslope side of Dry Canyon-Cold Creek Road, and south of Thousand Peaks Road in a gated residential subdivision (see Figure 1). Access to the building pad area of the subject property from Thousand Peaks Road is via graded driveway.

Regional Geomorphology

The property is located within the geographic area known as the Santa Monica Mountains. The geomorphic conditions of this area have been sculpted by factors associated with geographic location, the underlying geologic conditions, tectonics, climate, erosion, and man. Based on our observations of the area, and our review of the *United States Geological Survey (USGS) Topographic Map of the Malibu Beach Quadrangle,* the general topographic conditions of the surrounding area consist of a north-facing mountain front which has been incised by north-trending drainage courses (see Figure 2).

Site Geomorphology

Locally, the subject property is described as a partially graded hillside lot. Based on the findings of this study, past grading on the site consisted of cutting and filling associated with the construction of the existing building pad and driveway. The rough-grading of the subject property was performed in 1988 and 1989 as part of the rough-grading of the adjacent lots of Tract 36172 (West Coast Soils, 1990). The graded building pad and driveway are located on the northern portion of the subject property. To the south of the graded building pad, natural hillside terrain occupies the remainder of the subject property.

Slope gradients in the project area of the site vary from nearly horizontal to as steep as 2(h):1(v). Steeper terrain is present within the southern portion of the subject property. The topographic conditions of the subject property are presented on the attached *Geologic Map* (Plate 1) which utilizes a provided grading plan for Tract 36172 as a base.

Existing Structures

A CMU wall is present along the southern margin of the existing building pad. A concrete drainage swale is present on the south side of the wall. The location of the existing CMU wall is illustrated on the attached *Geologic Map* (Plate 1). At the time of our update engineering geologic study the existing CMU wall appeared to be in good condition with no visible signs of distress or excessive settlement. However, it should be noted that detailed evaluation of the condition and/or structural performance of the existing residence is beyond the scope of this study.

Site Drainage

Site drainage is currently by sheet flow runoff directed toward the east and offsite via the existing contours. Drainage on the graded slope which ascends from the western margin of the building pad is controlled via concrete swale drains and down-drains which are present at regular intervals on the slope.

Site Vegetation

Vegetation on the graded areas of the subject property currently consists of an assemblage of natural grasses along with both domestic and natural shrubs and trees. Vegetation on the undisturbed (i.e. natural) portions of the subject property consists of a thick assemblage of natural grasses, shrubs, and trees.

PREVIOUS STUDIES

General

Available engineering geologic/geotechnical engineering records on file at our office and the County of Los Angeles Department of Public Works were researched as part of our update engineering geologic study of the subject property. Pertinent engineering geologic and geotechnical engineering data presented in the available reports was utilized, as deemed appropriate, in our engineering geologic analysis of the site and preparation of this report. The references cited or utilized as part of this study are listed in the **REFERENCES** section of this report.

Subject Property

Based on our research, the subject property and adjacent lots of Tract 36172 were previously explored by West Coast Soils (1987). Specifically, West Coast Soils performed an engineering geologic and geotechnical engineering study of the subject property and remaining portions of the Tract with respect to the previously proposed construction of a 7-lot residential subdivision. Their study included, in part, the excavation, logging, and sampling of numerous exploratory excavations within the Tract. The geologic information obtained from this study has been incorporated into our update engineering geologic study of the subject property and is illustrated, as appropriate, on the attached *Geologic Map* (Plate 1). To briefly summarize, West Coast Soils concluded that the site was suitable for the previously proposed project provided the presented recommendations were implemented during design and construction. The detailed findings, conclusions, and recommendations of this study are presented in the referenced report which is on file at the County of Los Angeles Department of Public Works.

Rough-grading of the subject property and other lots of Tract 36172 was performed in 1988 and 1989 under the observation and approval of West Coast Soils (1990, 1990a). Based on our review of the referenced reports, the rough-grading operation consisted of a conventional cut and fill grading operation which involved the construction of a main access drive, certified building pads, driveways, fill-slopes, cut-slopes, and stabilization fills. The as-built geologic information obtained from the rough-grading operation has been incorporated into our update engineering geologic study of the subject property and is illustrated, as appropriate, on the attached *Geologic Map* (Plate 1). The details of the rough-grading operation are presented in the referenced *As-*

Built Geologic Final Compaction Report, dated February 15, 1990, which is on file at the County of Los Angeles Department of Public Works.

More recently, CalWest Geotechnical (2014) assumed the responsibility as the Project Geotechnical Engineer and prepared an update geotechnical engineering report regarding the currently proposed custom single-family residential development project. Their update study did not include any additional subsurface exploration. Rather, it relied on the geotechnical data presented in the referenced reports by West Coast Soils (1987-1990). To briefly summarize, CalWest Geotechnical concluded that the site was suitable for the currently proposed project provided the presented recommendations were implemented during design and construction. The detailed findings, conclusions, and recommendations of this study are presented in the referenced update geotechnical engineering report.

GEOLOGIC CONDITIONS

Regional Geologic Setting

The subject property is located within the Transverse Ranges geologic province of California. The general geologic structures and conditions of the Transverse Ranges geologic province are a direct result of lateral and compressional tectonics. Due to the bend in the San Andreas Fault, located to the northeast, this region of California is experiencing compressional stresses in addition to right-lateral strike-slip motion associated with the Pacific and North American plate boundary. This stress has produced a region characterized by east/west-trending mountain ranges, valleys, geologic structures, and numerous active faults which is in contrast to the overall north/northwest structural trend elsewhere in the state. Faulting of the Transverse Ranges, due to the relatively high compressional forces, is primarily thrust or reverse-dip-slip faulting usually with lateral components.

Regional Geologic Mapping

Part of our update engineering geologic study of the subject property involved the review of available geologic publications and regional geologic maps as the review of regional geologic data is often very useful in determining and analyzing the geologic conditions of a particular site. A brief summary of the pertinent data presented by available geologic publications and regional geologic maps is as follows:

Regional geologic mapping by Dibblee (1993) indicates that the subject property is underlain by extrusive igneous (i.e. volcanic) bedrock mapped as part of the Conejo Volcanics (**Tcvb**) of middle Miocene age. Dibblee reports that the Conejo Volcanics bedrock locally consists of basaltic flows and breccia. Dibblee's mapping indicates that stratification (i.e. crude flow bedding) within the volcanic bedrock present in the area of the subject property strikes generally northeast and dips steeply towards the northwest. Faults are not mapped by Dibblee within the project area of the subject property. However, Dibblee maps the Redrock Fault to the southwest of the building pad of the site (see Figure 3). Dibblee interprets that the Redrock Fault marks the contact of the Conejo Volcanics (northeast side of fault) and sedimentary bedrock of the Upper Topanga Formation (southwest side of fault).

Regional geologic mapping by Yerkes and Campbell (1980) indicates that the subject property is underlain by extrusive igneous (i.e. volcanic) bedrock mapped as part of the Conejo Volcanics (**Tcof**) of middle Miocene age. Yerkes and Campbell report that the Conejo Volcanics bedrock locally consists of basaltic flows and breccia. Their mapping also indicates that stratification (i.e. crude flow bedding) within the volcanic bedrock present in the area of the subject property strikes generally northeast and dips steeply towards the northwest. Faults are not mapped by Yerkes and Campbell within the project area of the subject property. However, they do map a northwest/southeast-trending fault to the southwest of the building pad of the site (see Figure 4). Yerkes and Campbell interpret that this fault marks the contact of the Conejo Volcanics (northeast side of fault) and sedimentary bedrock of the Calabasas Formation (southwest side of fault).

Site Geology

The geologic conditions (i.e. earth materials and structure) beneath the subject property have been interpreted and characterized based upon our review of published and unpublished geologic references, review of available engineering geologic and geotechnical engineering reports, our observations of isolated exposures available during surface mapping of the site and adjacent area, and the findings of our subsurface exploration. It should be noted that our interpretations of the geologic conditions of the subject property involve projections of data and require that geologic conditions remain reasonably constant between points of observation and/or exposure.

Geologic Units

Based on the findings of our update engineering geologic study, the geologic units (i.e. earth materials) underlying the project area of the subject property consists of certified compacted fill over bedrock. The mapped distribution of the geologic units underlying the project area of the subject property, based on the geologic data collected to date, is presented on the attached *Geologic Map* (Plate 1).

Certified Compacted Fill (afc)

Certified compacted fill underlies the project area of the subject property. Based on the findings of our update engineering geologic study, the certified compacted fill consists of an admixture of soil and bedrock and is described as clayey sand with gravel which is mottled moderate reddish brown and dark brown, slightly moist, and is medium dense to dense. The gravel component consists of angular, pebble- to cobble-size clasts of basalt.

It should be noted that based on our review of the referenced *As-Built Geologic Final Compaction Report* by West Coast Soils (1990), subdrains were installed within the subject property and surrounding area at selected removal bottom locations (i.e. canyon cleanout areas and keyway excavations). The approximate locations of the subdrains which traverse the subsurface of the subject property, based on our review of the referenced reports and the provided grading plan for Tract 36172, are illustrated on the attached *Geologic Map* (see Plate 1).

Bedrock (Tcv)

Based on the findings of our update engineering geologic study, bedrock underlying the project area of the subject property consists of basalt mapped as part of the Conejo Volcanics of middle Miocene age. The basalt bedrock is exposed on outcrops and cut-slopes located in the area of the subject property and was encountered in the borings of our update engineering geologic study. Based on the findings of our update engineering geologic study, the basalt is dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, and moderately weathered. However, with depth the basalt grades in color to greenish gray and bluish green, is very hard, slightly fractured, and is slightly weathered.

Geologic Structure

The bedrock present within the subject property is common to this area of the Santa Monica Mountains and its occurrence is generally consistent with regional trends.

Bedding

Bedding is the arrangement of a sedimentary rock in layers which is also referred to as stratification. A *bedding plane* is defined as the division plane in sedimentary or stratified rock that separates each successive layer, or bed, from the one above and below. The term may also be applied to a layered arrangement in non-lithified sediment, igneous bedrock, or metamorphic bedrock.

The bedrock observed during our update engineering geologic study of the subject property was massive. Simply, bedding planes were not identified within the underlying bedrock during our update engineering geologic study of the subject property.

Joints

A *joint plane* is the surface of a fracture or parting at which no appreciable movement has occurred parallel to the fracture, and only slight movement has occurred normal to the fracture. Joint surfaces can be systematic with subparallel orientations and regular spacing or non-systematic which irregular orientations, shape, and spacing. A *joint set* is a group of joint surfaces which are more or less parallel. A *joint system* is two or more *joint sets* which are subparallel to each other and intersect. Joints may be unfilled; that is, the fracture may be open and void of mineral infilling or an open joint surface may be occupied with some form of mineral infilling. Joints can occur in bedrock as well as in unlithified sedimentary deposits. The development of joint surfaces in bedrock is most commonly in response to burial, unburial, application of regional deformational forces, application of local deformational forces, and the cessation of regional or local deformational forces.

Significant or pervasive joint planes, sets, or systems were not identified within the underlying earth materials during our update engineering geologic study of the subject property.

Shears

Shear is defined as a ductile deformation resulting from stresses that cause contiguous parts of a body, or material, to slide relative to each other in a direction parallel to their contact. A shear plane is defined as the surface or zone along which differential movement, by shear, has taken

place. It should be noted that a shear plane is also synonymous with the definition of a fault. However, the term shear plane or shear zone is used when movement is interpreted to be in the micro-sense as compared to a macro-sense of displacement associated with a fault or fault zone. The development of a shear plane or shear zone in subsurface materials is most commonly related to regional or local faulting and folding. Simply, the subsurface stresses and pressures associated with faulting and folding can deform the adjacent bedrock or portions thereof. The deformation and/or movement at the shear surface often results in the presence of a zone of gouge or breccia typically consisting of clay, silt, or pulverized material derived from the surrounding parent material. Shear planes can develop within bedrock along pre-existing parting surfaces such as bedding, foliation, or joints planes but can also develop between parting planes, within massive bedrock, and/or in orientations which cross-cut the pre-existing bedrock structures. Shear planes can also develop during mass slope movements such as landslide. In instances where the basal failure surface of a landslide (i.e. landslide plane) did not fail along a pre-existing shear surface, the pressures and stresses at the basal surface of a slope failure can form a shear plane by the grinding of subsurface materials as the landslide develops followed by decomposition of the materials at the shear surface aided by the interaction between the sheared materials and groundwater.

Significant or mapable shear planes were not identified within the underlying bedrock during our update engineering geologic study of the subject property.

Folds

Analysis of structural geologic data obtained during our update engineering geologic study indicates that a significant fold feature is not present within the subsurface of the subject property.

Faults

A *fault* is a fracture, or zone of closely related fractures, along which there has been significant relative displacement of the materials, on opposite sides of the fault, in a direction parallel to the fracture. Sudden movement along a fault releases energy in the form of seismic waves and is commonly known as an earthquake. A fault can be present as a single plane of fracture or shear, or a broad zone of deformation or distributed tectonic movement ranging in width from a few feet to several miles. A *fault trace* is the line formed by the intersection of a fault with the Earth's surface.

Faults are classified as either active, potentially active, or inactive. The State of California defines an active fault as a fault that has exhibited surface displacement within the Holocene epoch of geologic time (i.e. the last 11,000 years). Potentially active faults are defined by the State of California as those which display evidence of surface displacement movement in the Pleistocene epoch of geologic time (i.e. between 11,000 and 1.6 million years before present). Inactive faults are those which do not display evidence of surface displacement within the Pleistocene and Holocene (i.e. the last 1.6 million years).

The Alquist-Priolo Special Studies Act of 1972, with subsequent amendments and revisions (i.e. name revision in 1993 to the Alquist-Priolo Earthquake Fault Zoning Act), prohibits locating most structures planned for human occupancy across known active faults. This state law was a

direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Under the Alquist-Priolo Earthquake Fault Zoning Act, the State Geologist designates "Earthquake Fault Zones", previously known as "Special Studies Zones", around faults that are known to be *sufficiently active* and *well-defined*. A *sufficiently active* fault is defined as a fault that has exhibited surface displacement, along one or more of its segments or branches, within the Holocene epoch of geologic time (i.e. the last 11,000 years). A *well-defined* fault is defined as a fault whose trace is clearly detectable by a trained Geologist as a physical feature at or just below the ground surface. Most new development projects located within designated Earthquake Fault Zones are required to demonstrate the absence of active faults underneath building areas. Furthermore, the Alquist-Priolo Earthquake Fault Zoning Act specifies that it be assumed that active faults underlie the area located within 50 feet of the fault splays which are illustrated on the Earthquake Fault Zone maps. No structures planned for human occupancy shall be permitted in this setback area unless detailed geologic investigation of this area indicates that active faults are not present. It should be noted that most local City and/or County governmental agencies are permitted to, and have adopted policies and/or criteria which are stricter than those established by the Alquist-Priolo Earthquake Fault Zoning Act. Specifically, most local City and/or County governmental agencies prohibit the construction of a structure planned for human occupancy within 50 feet of an active fault once the exact location of the fault has been determined by a detailed geologic study.

The subject property is not located within a State-designated Earthquake Fault Zone (see Figure 5) and no known potentially active or active faults cross the site. However, as previously discussed in this report, regional geologic mapping by Dibblee (1993) and Yerkes (1980) indicates that a northwest/southeast-trending fault traverses the subject property, to the south of the graded building pad of the site (see Figures 3 and 4). This fault was not mapped by West Coast Soils (1987) within Tract 36172 as part of their prior studies of the site. Regardless, it should be noted that faults are common in this area of the Santa Monica Mountains and based on the findings of our update engineering geologic study, the aforementioned regionally mapped fault is not interpreted to be a potentially active or active tectonic feature.

Due to the fact that the subject property is not located within a State-designated Earthquake Fault Zone, the performing of a detailed surface fault rupture hazard evaluation in order to conclusively determine the surface fault rupture hazard for the project area is not required. However, regardless of the project exemption for a detailed surface fault rupture hazard evaluation, LP did perform a general seismic hazard evaluation of the site in consideration of the proposed project as part of our update engineering geologic study of the subject property. Please refer to the **SEISMIC CONSIDERATIONS** section of this report for a complete discussion of our seismic hazard evaluation performed as part of our update engineering geologic study of the subject property.

HYDROGEOLOGY

Introduction

Hydrogeology is defined as the application of the science of geology to the study of the occurrence, distribution, quantity, movement, and quality of water below the surface of the earth

and the interrelationship between the geologic conditions and groundwater. With respect to proposed project and our update engineering geologic study of the subject property, our hydrogeologic analysis of the site primarily involved the determination of the presence and distribution of groundwater (current and/or historic) within the subsurface in order for LP and/or the other project consultants to perform appropriate analysis of the site so that proper recommendations (mitigative or otherwise) can be made with respect to the proposed project.

Current and historic groundwater conditions of the subject property were determined by our observations and measurements in the exploratory excavations of this update engineering geologic study (if applicable) and/or our review of the referenced engineering geologic publications and reports. Off-site groundwater interpretations, performed when necessary by LP as part of our preparation of the geologic section(s), are based collectively on the groundwater conditions observed within the subject property, our review of groundwater data presented in the referenced engineering geologic publications and reports, and our analysis of the regional topographic and geologic conditions of the area.

Groundwater Defined

All water that is present beneath the surface of the Earth is referred to as subsurface water or *groundwater*. Groundwater most commonly occurs in two different zones within the subsurface. One zone, which usually occurs immediately below the ground surface, contains both water and air in the available pore space of the surrounding sediment or rock materials and is referred to as the *unsaturated zone*. And most often, the zone located beneath the *unsaturated zone* is an area in which all the available pore space is filled with water. This zone is referred to as the *saturated zone*. In the *unsaturated zone*, groundwater is most often present as moisture which is retained within the surrounding sediment or rock as a film on the grain surfaces or water which is percolating downward through the subsurface towards the *saturated zone*.

In the subsurface, groundwater can be unconfined, confined, semi-confined, or perched. A *confining bed* is a rock unit or layer which has a low hydraulic conductivity and thus restricts the movement of groundwater. The presence of a *confining bed*, or beds, within the subsurface can result in the presence of a confined, semi-confined, or perched groundwater condition.

In an unconfined subsurface condition, the upper surface of the saturated zone is referred to as the *potentiometric surface*. The *potentiometric surface* is commonly referred to as the "groundwater level" or "groundwater table" and is the elevation in the subsurface at which the hydraulic pressure of the subsurface water is equal to atmospheric pressure. This is also the level or elevation at which water will be observed in a well, or exploratory excavation, which penetrates into the saturated zone. In a confined subsurface condition, the saturated zone is overlain by a *confining bed* and the upper surface of the saturated zone is referred to as the *piezometric surface.* The *piezometric surface* usually possesses a hydraulic pressure which is greater than atmospheric pressure and is the level or elevation at which water will be observed in a well, or subsurface excavation, which penetrates through the *confining bed* into the saturated zone.

Factors controlling the presence, elevation, and movement of groundwater include regional climatic conditions, geomorphology, distance to rivers, lakes, and oceans, geologic structure,

hydraulic conductivity of the subsurface materials, dynamic characteristics of the water, strength of the gravitational field, irrigation, and land use. Thus, the presence, elevation, and movement of groundwater can vary significantly over short distances and can also fluctuate. Therefore, groundwater levels at the time of construction and during the life of the structures may vary from the observations or conditions encountered at the time of the field exploration.

Observed Site Groundwater Conditions

Based on the findings of our update engineering geologic study, generally unconfined conditions are interpreted to the present within the subsurface of the subject property. Thus, the technical name of the underlying level of groundwater is the *potentiometric surface*. However, for simplification purposes and for those not readily familiar with hydrogeologic terms, the potentiometric surface is referred to as *groundwater level* for the remaining sections of this report.

The underlying groundwater level was not encountered during our update engineering geologic study of the subject property to the maximum depth explored (i.e. 41 feet below existing grade). However, very minor water seepage was encountered in Boring # 1 at a depth of 26 feet, in Boring # 8 at a depth of 28 feet, and in Boring # 9 at a depth of 29 feet. Based on the findings of our update engineering geologic study, the observed seepage is attributed to the natural percolation of water downward through the unsaturated zone and is not interpreted to be the underlying groundwater level. The location and elevation of the observed water seeps is illustrated, where appropriate, on the attached geologic sections.

Historic Site Groundwater Conditions

Evidence of a historically high groundwater level, including seeps, springs, or perched water, was not observed during our update engineering geologic study of the subject property to the maximum depth explored. In addition, the referenced Seismic Hazard Evaluation Report for the Malibu Beach Quadrangle does not indicate the presence of a historically high groundwater level within the subsurface of the subject property (DOC DMG; now referred to as the California Geological Survey - CGS, 2001).

Highest Anticipated Site Groundwater Conditions

As previously stated, the underlying groundwater level, or evidence of a historically high groundwater level, was not encountered during our update engineering geologic study of the subject property to the maximum depth explored. However, for conservative geologic analysis and planning of the proposed OWTS, LP has established an assumed groundwater level beneath the area of the proposed seepage pits of the subject property. The assumed groundwater level is coincident with the maximum explored depth of the groundwater verification boring (i.e. Boring # 1) of our update engineering geologic study and shall be *assumed* to be the elevation of the underlying groundwater level. The assumed groundwater level is illustrated on the attached geologic sections. While it is known that the presence, elevation, and movement of groundwater can vary significantly over short distances and can also fluctuate; based upon the location, elevation, topographic and geologic conditions of the subject property, the highest anticipated groundwater level is not currently anticipated to be at an elevation higher than the established assumed groundwater level.

Anticipated Path of Sewage Effluent

It is our understanding that it is currently planned to construct the seepage pit(s) of the proposed OWTS in the area of Borings # 3, 5, 6, and 7. Percolation testing was performed utilizing the aforementioned borings by Bart Slutske. Based on the recent percolation testing, it is our understanding that the bedrock underlying Borings # 3, 5, 6, and 7 provides adequate absorption of effluent as required by the local regulatory agency for the design and use of a seepage pit-type OWTS.

The anticipated paths of future effluent are vertically downward, and within 30 degrees from vertical, through fractures and the internal porosity of the underlying bedrock to the groundwater level interface. The anticipated path of effluent and estimated cone of saturation is illustrated on the attached *Geologic Sections A-A' and B-B'* (see Plate 2). Based upon the findings of our update engineering geologic study of the subject property, mounding on a confining bed or boundary, or daylighting of sewage effluent is not anticipated to occur. Furthermore, the proposed seepage pits are not located within 15 horizontal feet of a known subdrain (see *Geologic Map* – Plate 1). In addition, based on the anticipated path of effluent and separation between the proposed seepage pits and existing subdrains, treated effluent will not be daylighted by the existing subdrainage system.

Vertical Separation to Groundwater

Based on the aforementioned findings of our site groundwater observations, and LP's findings and/or interpretations concerning historic site groundwater conditions and highest anticipated site groundwater conditions, the underlying groundwater level is not anticipated to rise to an elevation which is permanently less than 10 feet from the bottom of the proposed seepage pit(s).

SEISMIC CONSIDERATIONS

Introduction

Earthquakes create the greatest hazard to life and property in California. This is due to their frequency of occurrence and their numerous and widespread effects in the region. The primary negative effects of earthquakes to life and property include *surface fault rupture* and *ground shaking*. However, there are also numerous secondary effects associated with earthquakes which are equally hazardous. These include phenomena known as *ground failures* and *triggered water movements*. Ground failures are induced by earthquake motion and typically involve the loss of strength or failure of the underlying materials. Examples of seismically-induced ground failure include *liquefaction*, *landsliding*, *ground lurching*, *differential settlement, bedrock shattering,* and *rockfall.* Seismically-triggered water movements include *tsunamis* and *seiches*.

A seismic hazard evaluation was performed as part of our update engineering geologic study of the subject property in order to access the hazards to the site and proposed project from the aforementioned primary and secondary earthquake effects. A thorough discussion of earthquakes, the potential hazards, our method of analysis, and our opinions concerning the hazard risk follows this introduction. If a particular hazard was determined to be present within the site, appropriate disclosure and/or recommendations for mitigation have been provided. In

addition, the recommended 2013 California Building Code (CBC) structural *Seismic Design Criteria* is provided with respect to the proposed project.

Earthquakes

In order to perform a seismic hazard evaluation concerning a particular site, an understanding of earthquakes, among other things, is required. When significant and rapid movement along a fault occurs in the subsurface, seismic energy is released in the form of waves in all directions from the source. The propagation of seismic waves through the subsurface and interaction of these waves with the subsurface materials causes ground shaking which is commonly known as an *earthquake*. The point on the fault where rupture initiates in the subsurface is referred to as the *focus* or *hypocenter* of an earthquake. The hypocenter is described by its depth, its location in latitude and longitude, its date and time of occurrence, and its magnitude (a measure of the amount of energy radiated as seismic waves). The term *epicenter*, which is more commonly used to refer to an earthquake location, is the point on the earth's surface directly above the hypocenter. The description of an epicenter is the same as for a hypocenter except the depth is omitted. Vibrations produced by earthquakes are detected, recorded, and measured by instruments called *seismographs*. These devices may amplify ground motions beneath the instruments to over 1 million times, transcribing the ground motion into a zig-zag or wiggly trace called a *seismogram*. From the data expressed in seismograms, the time, epicenter, and focal depth of an earthquake can be determined. Also, estimates can be made of its relative size and amount of energy it released.

The strength of an earthquake is generally expressed in two ways: *magnitude* and *intensity*. The magnitude is a measure that depends on the seismic energy radiated by the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (i.e. 6.7). The intensity at a specific location is a measure that depends on the effects of the earthquake on buildings, land features, and people. Intensity is expressed in Roman numerals or whole numbers (i.e. VI or 6). Although there is only one magnitude for a specific earthquake, there may be many values of intensity for that earthquake at different sites.

Earthquake Magnitude

With respect to earthquake *magnitude*, several magnitude scales have been developed by seismologists in order to quantify the "size" of an earthquake event. However, the most commonly used scale today is the Moment Magnitude (Mw) scale, jointly developed in 1978 by Dr. Thomas C. Hanks of the United States Geological Survey (USGS) and Dr. Hiroo Kanamori, a professor at CalTech. Moment Magnitude is related to the physical size of fault rupture and the movement (displacement) across the fault, and is thus a more uniform measure of the strength of an earthquake. The seismic moment of an earthquake is determined by the strength or resistance of rocks to faulting (shear modulus) multiplied by the fault area undergoing slip and by the average displacement that occurs across the fault during the earthquake. The seismic moment determines the energy that can be radiated by an earthquake and hence the seismogram recorded by a modern seismograph. A seismologist determines the seismic moment of an earthquake from a seismogram by using a computer to plot the seismogram's amplitude of motion as a function of period (wave length). The amplitude of the long period motions in a seismogram, when corrected for the distance from the earthquake, is a measure of the seismic moment for that

earthquake. The Moment Magnitude of an earthquake is defined relative to the seismic moment for that event (DOC CGS, 2002).

Earthquake Intensity

The use of an *intensity scale* is a subjective way to categorize the effects of an earthquake by observing the impact on structures, land features, and people. The intensity of an earthquake at a particular site is affected by the earthquake magnitude, the distance between the site and the hypocenter of the earthquake, the geologic conditions between the site and the hypocenter, site topographic conditions, and the geologic and groundwater conditions of the site. A range of intensity values is produced by an earthquake, typically with the highest intensity generated at or near the epicenter and lower intensities progressing outward from the epicenter. Intensity generally increases with increasing magnitude and decreases with increasing distance from the epicenter. Intensity is also usually greater in areas underlain by unconsolidated alluvium than areas underlain by bedrock. In 1902, the Italian seismologist Mercalli devised an intensity scale on a I to XII range. The *Mercalli Intensity Scale* was modified in 1931 by American seismologists Harry O. Wood and Frank Neumann to take into account modern structural features. The *Modified Mercalli Intensity Scale* measures the intensity of an earthquake's effects in a given locality and is perhaps much more meaningful to the layperson because it is based on observations of earthquake effects at specific places. It should be noted that because the data used for assigning intensities is obtained from direct accounts for the earthquake's effects at numerous towns, considerable time (weeks to months) is sometimes needed before an intensity map can be assembled for a particular earthquake (DOC CGS, 2002).

Ground Acceleration

For purposes of geotechnical and structural analysis and design, the quantification of the intensity of ground shaking is typically required. As previously discussed, when an earthquake occurs, seismic energy is released in the form of waves in all directions from the source. The propagation of seismic waves through the subsurface and interaction of these waves with the subsurface materials causes motion at the ground surface, or ground shaking. As seismic waves propagate away from the source, they generally attenuate as they travel through various geologic materials within the subsurface. However, certain topographic, geologic, and groundwater conditions can locally amplify the seismic waves. The degree of ground shaking at a particular site is typically quantified in terms of *ground acceleration* which is measured as a percentage of the acceleration of gravity (g). Ground acceleration can be in the horizontal and/or vertical directions. Synonymous with intensity, the ground acceleration at a particular site is affected by the earthquake magnitude, the distance between the site and the hypocenter of the earthquake, the geologic conditions between the site and the hypocenter, site topographic conditions, and the geologic and groundwater conditions of the site. However, the influence and interaction of all these parameters on site response is not well understood at this time. In general, ground accelerations produced by an earthquake are typically the highest at or near the epicenter with lower ground accelerations occurring in areas progressing outward from the epicenter. However, variations in ground conditions within short distances can lead to substantial differences in ground accelerations between two close sites. For example, ground acceleration is usually greater in areas underlain by unconsolidated alluvium than areas underlain by bedrock. In addition, topography can also affect ground acceleration. Specifically, anomalously high ground

accelerations have been recorded in ridge-top locations which are underlain by hard bedrock. The anomalous high ground accelerations are attributed to the focusing of seismic waves due to the topographic conditions.

Surface Fault Rupture

Surface Fault Rupture Defined

Surface fault rupture occurs when movement along a fault is sufficient to cause a rupture where the fault or fault zone intersects the earth surface. Surface fault rupture typically occurs along the causative fault during earthquakes which are of magnitude 5.5 and larger. However, surface fault rupture was documented for the magnitude 3.6 El Centro earthquake of 1966 (Jennings, 1975). Surface fault rupture may also occur by *fault creep*. *Fault creep* is generally defined as the very slow and uniform movement along a fault. Fault creep may be of tectonic origin or can be induced by withdrawal of subsurface fluids. Tectonic fault creep may be triggered or aseismic. Triggered fault creep is movement that occurs along a particular fault when there is an earthquake centered on a nearby fault. Aseismic fault creep is fault movement that occurs without accompanying earthquakes and is typically caused by the withdrawal of subsurface fluids such as water or oil.

When associated with normal dip-slip and strike-slip faults, the surface fault rupture typically occurs as a single break or is confined to a narrow zone. This is typically not the case for reverse dip-slip and thrust faults. When the dip of the fault surface is shallow (i.e. less than 45 degrees), surface rupture associated with reverse faulting is often characterized by relatively short segments of synthetic and antithetic faulting that occur over a broad area of the hanging wall.

The primary danger associated with surface fault rupture deals with the proximity of structures to the area of surface rupture. Specifically, a structure could suffer severe structural damage or could be destroyed if located over an area of surface fault rupture.

Surface Fault Rupture Hazard

Based on the findings of our update engineering geologic study, the subject property is not located within a State-designated Earthquake Fault Zone (see Figure 5) and no known potentially active or active faults traverse the site. Thus, LP considers the possibility of surface fault rupture within the subject property to be extremely low.

Ground Shaking

Introduction

In populated areas, the greatest potential for property damage and loss of life during an earthquake is from ground shaking. Based on the tectonic environment of this region of the world, a ground shaking hazard exists throughout all of California, especially in Southern California as this area is located within the range of influence of several fault systems that are considered potentially active or active. Thus, there is a significant potential that the site will experience slight to very strong ground shaking during the design life of the proposed structures. Earthquake preparedness and earthquake insurance is recommended.

Ground Shaking Hazard Analysis

Estimating the potential ground shaking at a particular site requires knowledge of the faults surrounding the site, the magnitude of earthquakes that each fault can generate, and the attenuation or magnification of ground acceleration that may occur as seismic waves propagate from an earthquake hypocenter to a site. Mathematical attenuation relationships are typically used to model how the amplitudes of ground motions decrease with distance from the hypocenter.

Our ground shaking hazard analysis of the site utilized available computer databases, software, and published resources made available by the California Geological Survey (CGS) and United States Geological Survey (USGS) to perform a historical and probabilistic evaluation of ground motion. In addition, the recommended 2013 California Building Code (CBC) structural *Seismic Design Criteria* is provided with respect to the proposed project.

It should be noted that the probabilistic and design level ground accelerations discussed herein are approximations based on available fault data and currently utilized attenuation relationships which may not account for the possibility of the amplification of ground motion due to the location and orientation of the causative earthquake fault as well as local topographic, geologic, and groundwater conditions. Also, it is possible that unknown active faults (namely "blind thrust faults"), not accounted for in the ground shaking hazard analysis, underlie the Southern California region which are capable of producing large earthquakes. Specifically, the 1994 Northridge (Mw 6.7) earthquake occurred on a previously unrecognized fault. Upon further investigation, it was discovered that the seismic hazard from blind thrust faults in the southern California region may be very high. Specifically, the ground shaking hazard caused by an earthquake along a blind thrust fault is greater than that from a strike-slip fault of the same magnitude because the low angle of dip of the thrust fault places the fault plane at shallow depths underlying a larger area. Also, the ground motion generated by movement along a blind thrust fault is more vertical than horizontal. These faults are believed to be undetected under much of the Los Angeles Basin. It follows that there is also a possibility of strong ground motion within the site should an earthquake occur due to movement along an unknown fault.

Historical Seismicity Analysis

The historical seismicity analysis of our update engineering geologic study involved our review of historical earthquake data provided by the California Geological Survey (CGS). Based on our review of the available data, the largest historical earthquake to occur within the last 100 years, and within 50 miles of the subject property, was the Northridge Earthquake which took place at 4:30 am (PST) on January 17, 1994. This earthquake had a magnitude of 6.7 (Mw) and caused moderate to severe ground shaking in the region. It is reported that 57 people were killed, over 9,000 people were injured, and property damage was estimated at approximately 40 billion dollars.

Ground motion data was recorded during the Northridge Earthquake at various seismograph stations located in the region. Based on our review of the historic ground motion data presented by the CGS, the closest seismograph station to the subject property recorded a peak ground acceleration (PGA) of 0.184 g during the Northridge Earthquake.

It should be noted that the reported historic PGA is a ground motion measurement obtained from the closest seismograph station and may not reflect actual accelerations experienced at the subject property. In addition, the historical PGA is not a conclusive indicator of the PGA that the site may experience in the future during a large earthquake. Current design practices use a probabilistically derived ground acceleration which may be higher than a historic PGA.

Probabilistic Seismic Hazard Analysis (PSHA)

The ground motion typically required for the design of structures is a peak ground acceleration (PGA) that has a 2% (minimum) probability of being exceeded in 50 years which corresponds to a 2475-year average return period. However, it certain circumstances engineering analysis and design is based on a ground motion that has a 10% (minimum) probability of being exceeded in 50 years which corresponds to a 475-year average return period. In order to estimate these ground motions, a probabilistic seismic hazard analysis (PSHA) was performed for the site by obtaining ground motion data presented by the California Geological Survey (CGS).

Based on inputting the latitude and longitude of the subject property into the CGS's *Ground Motion Interpolator* application of the CGS's current probabilistic seismic hazards assessment model (revised 2008), and after assuming a shear wave velocity of the underlying earth materials (270 m/s for valley floor sites or 560 m/s for sites underlain by near-surface bedrock) the subject property is within an area having an estimated PGA of 0.811 g with a 2% probability of being exceeded in 50 years. Utilizing the same assumptions, the subject property is within an area having an estimated PGA of 0.411 g with a 10% probability of being exceeded in 50 years. However, with respect to the geotechnical and structural engineering analysis and design performed in association with the proposed project, LP defers to the Project Geotechnical Engineer and Project Structural Engineer, and the requirements of the current building code and the local building department, for a determination of the ground motion which shall be utilized as part of the required engineering analysis and design.

Estimated Duration of Strong Ground Shaking

The degree of damage incurred by a structure during an earthquake typically depends on the intensity and the duration of the ground shaking. More often than not, the damage caused by an earthquake is not due to the peak ground acceleration but to the duration of the strong ground motion. This is due to the fact that moderate to high ground accelerations over a longer period of time produce higher velocities and thus higher relative displacements in the structure.

As previously discussed in this report, the subject property is located within the range of influence of several fault systems that are considered potentially active or active. These fault systems are also considered capable of producing earthquakes of significant magnitude. Thus, there is a significant potential that a large earthquake will occur in the region during the design life of the proposed structure(s). Should the maximum considered earthquake occur on a nearby fault, the duration of strong ground shaking (sustained site acceleration > 0.05 g) is estimated to be 20 to 30 seconds.

If needed, the duration of strong ground shaking within the subject property, caused by earthquakes of varying magnitudes and distances from the subject property, can be estimated utilizing the following table.

Distance from Site (km)	Moment Magnitude (Mw)		
	6	7	8
10	12 sec.	26 sec.	34 sec.
50	3 sec.	22 sec.	28 sec.
100	0	4 sec.	6 sec.

*Compiled from table of Estimated Duration of Strong Ground Shaking as a function of distance and magnitude from Bolt and others (1975). Data assumes seismic wave frequency of > 2 Hz.

Seismic Design Criteria

The 2013 California Building Code (CBC) is often followed for seismic structural design. The 2013 CBC states that forces due to earthquake loading may be calculated utilizing formulas presented in Section 1613 of the 2013 CBC and/or the other sources referenced therein. Specifically, Section 1613 states that the *Seismic Design Category* is a classification assigned to a structure based on its occupancy category and the severity of the design earthquake ground motion at the site. This section also states that the *Seismic Design Category* for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7 (ICC, 2013).

With respect to the site parameters needed for seismic structural design associated with the proposed project, the *Spectral Response Accelerations* (S_s - short-period of 0.2 seconds; S_1 - long-period of 1 second) and *Site Class* (formerly referred to as the *Soil Profile Type*) are typically provided by the Project Engineering Geologist and/or the Project Geotechnical Engineer for use by the Project Structural Engineer. The *Spectral Response Accelerations (S_s and S_1)* for a particular site located within the United States or U.S. Territories are determined based on the location of the subject site and acceleration data presented on Figures 1613.3.1(1 through 6) of the 2013 CBC. The *Spectral Response Accelerations* can also be obtained by inputting the longitude and latitude of the subject property into the *Ground Motion Parameter Calculator* provided by the United States Geological Survey (USGS). The remaining site characteristic needed for seismic structural design is the *Site Class*. The 2013 CBC states that the *Site Class* is a classification assigned to a site based on the types of soils present and their engineering properties as defined in ASCE 7, Chapter 20, Section 20.3, and the accompanying Table 20.3-1. For reference, a copy of Table 20.3-1 is provided below.

ASCE 7 CHAPTER 20 TABLE 20.3-1 – SITE CLASSIFICATION

Site Class	Soil Profile Name	Average Properties in Top 100 feet, See Section 20.4		
		Shear Wave Velocity, v_s feet/second (m/s)	Standard Penetration Test , N [or N_{ch} for cohesionless soil layers] (blows/foot)	Undrained Shear Strength, s_U psf (kPa)
A	Hard Rock	> 5,000 (1,500)	----	----
B	Rock	2,500 to 5,000 (760 to 1,500)		
C	Very Dense Soil and Soft Rock	1,200 to 2,500 (360 to 760)	> 50	> 2,000 (100)
D	Stiff Soil Profile	600 to 1,200 (180 to 360)	15 to 50	1,000 to 2,000 (50 to 100)
***E*[1]**	Soft Soil Profile	< 600 (180)	< 15	< 1,000 (50)
***F*[2]**	Profile Requiring Site-Specific Evaluation.			

NOTES: [1] Site Class E also includes any profile with more than 10 feet of soil having the following characteristics: A plasticity index, *PI* > 20, Moisture Content *w* ≥ 40%, and Undrained Shear Strength s_u <500 psf (24 kPa). The Plasticity Index, *PI*, and the moisture content, *w*, shall be determined in accordance with approved national standards.

[2] Site Class F includes any profile containing soils having one or more of the following characteristics: 1.) Soils vulnerable to potential failure or collapse under seismic loading such as liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils, 2.) Peats and/or highly organic clays (*H* >10 feet of peat and/or highly organic clay where *H* = thickness of soil), 3.) Very high plasticity clays (*H* >25 feet with plasticity index, *PI* > 75), and 4.) Very thick soft/medium stiff clays (H > 120 feet).

Additional site characteristics needed for seismic structural design include the *Site Coefficients, Maximum Considered Earthquake Spectral Response Accelerations,* and *Design Spectral Response Accelerations.* The 2013 CBC states that the *Site Coefficients* (F_a - short-period of 0.2 seconds; F_v - long-period of 1 second) can be determined in accordance with Section 1613.3.3 and Tables 1613.3.3(1) and 1613.3.3(2) utilizing the *Site Class* and the *Spectral Response Accelerations* (S_s and S_1) determined for the subject site. With the appropriate *Site Coefficients* (F_a and F_v) and *Spectral Response Accelerations* (S_s and S_1), the *Maximum Considered Earthquake Spectral Response Accelerations* (S_{MS} - short-period of 0.2 seconds; S_{M1} - long-period of 1 second) can be determined in accordance with Section 1613.3.3 of the 2013 CBC. With the calculated *Maximum Considered Earthquake Spectral Response Accelerations* (S_{MS} and S_{M1}), the *Design Spectral Response Accelerations* (S_{DS} - short-period of 0.2 seconds; S_{D1} - long-period of 1 second) can be determined in accordance with Section 1613.3.4 of the 2013 CBC. With the calculated *Design Spectral Response Accelerations* (S_{DS} and S_{D1}), the *Seismic Design Category* can then be determined by the Project Structural Engineer in accordance with Section 1613.3.5 and Tables 1613.3.5(1) and 1613.3.5(2) of the 2013 CBC.

It should be noted that most structures of the type of the proposed project are designed in part utilizing methods and formulas presented in Section 1613 of the 2013 CBC and/or the other sources referenced therein. If the procedures presented in Section 1613 are to be utilized, based on the findings of our update engineering geologic study it is our opinion that the Project Structural Engineer should incorporate the parameters presented in the following chart in determining the *Seismic Design Category* for the proposed structure(s) of the subject property. However, it is recommended that the Project Structural Engineer independently verify the accuracy of all of the following parameters, excluding *Site Class*, prior to use.

Site Latitude	**Site Longitude**
34.1092°	-118.6651°

2013 CBC Section/Table	**Seismic Parameter**	**Recommended Value**
ASCE 7 Table 20.3-1	Site Class[1]	C
USGS[2]	Spectral Response Acceleration (Short Period: 0.2 seconds)	S_s = 2.060 g
USGS[2]	Spectral Response Acceleration (Long Period: 1 second)	S_1 = 0.724 g
Table 1613.3.3(1)	Site Coefficient (Short Period: 0.2 seconds)	F_a = 1.0
Table 1613.3.3(2)	Site Coefficient (Long Period: 1 second)	F_v = 1.3
Section 1613.3.3	Maximum Considered Earthquake Spectral Response Acceleration	S_{MS} = 2.060 g

	(Short Period: 0.2 seconds)	
Section 1613.3.3	Maximum Considered Earthquake Spectral Response Acceleration (Long Period: 1 second)	S_{M1} = 0.941 g
Section 1613.3.4	Design Spectral Response Acceleration (Short Period: 0.2 seconds)	S_{DS} = 1.373 g
Section 1613.3.4	Design Spectral Response Acceleration (Long Period: 1 second)	S_{D1} = 0.627 g

NOTES: [1] A more conservative Site Class shall be utilized by the Project Structural Engineer if deemed necessary by the Project Geotechnical Engineer. In this case, all of the resulting seismic parameter values shall be provided by the Project Geotechnical Engineer and/or the Project Structural Engineer.

[2] The presented Spectral Response Accelerations were obtained by inputting the location (longitude and latitude) of the subject property into the *Ground Motion Parameter Calculator* provided by the United States Geological Survey (USGS).

It should be noted that conformance with the presented criteria for seismic structural design does not constitute any kind of warranty, guarantee, or assurance that significant structural damage, or ground failure, will not occur in the event of a maximum level earthquake. The primary goal of the code-required minimum seismic design is to protect life and limb, and catastrophic failure, and not to avoid all damage, as such design may be economically prohibitive. The Project Structural Engineer and owner must decide if the level of risk associated with utilizing the minimum required code values is acceptable and, if not, assign appropriate seismic values above the minimum code values for use in the structural design.

Secondary Effects Due to Seismic Activity

The intensity and duration of ground shaking during an earthquake, in combination with the geomorphic and subsurface geologic and groundwater conditions, can result in a number of phenomena classified as *ground failure* or *triggered water movements*. Ground failures are induced by earthquake motion and typically involve the loss of strength or failure of the underlying materials. Examples of seismically-induced ground failure include *liquefaction*, *landsliding*, *ground lurching*, *differential settlement, bedrock shattering,* and *rockfall.* Seismically-triggered water movements include *tsunamis* and *seiches*.

Liquefaction

Liquefaction Defined

In general, liquefaction is described a phenomena in which subsurface stresses produced by ground shaking cause a loss of shear strength in the underlying soil. Specifically, seismic motion of saturated and cohesionless soils can increase the pore water pressure to a level near or equal to the total stresses acting on the soil which results in a soil have little or no shear strength. Under these conditions, the soil can behave as a viscous fluid. Liquefied soils may thereby acquire a high degree of mobility leading to damaging ground deformations.

The liquefaction susceptibility of subsurface soils is related to the gradation and relative density characteristics of the soil, the in-situ stresses prior to ground motion, and the depth to the saturated zone, among other factors. As a general rule, sites susceptible to liquefaction are those

which are in seismically active areas, contain cohesionless soils with a relative density less than about 70%, and have a groundwater level, or highest anticipated groundwater level (including perched conditions) within 50 feet of the surface.

Closely related to liquefaction is phenomena known as *lateral spreading*, *ground oscillation*, *flow failure*, *reduction of bearing strength*, *ground fissuring*, and *sand boils*. Manifestations of these phenomena within a site during an earthquake can also cause damage to structures.

Liquefaction Hazard Zones

The Seismic Hazards Mapping Act of 1990 directs the California Department of Conservation, Division of Mines and Geology (now referred to as the California Geological Survey – CGS) to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards including liquefaction, earthquake-induced landsliding, and ground shaking. Cities, counties, and state agencies are directed to use the Seismic Hazard Zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects located within the Seismic Hazard Zones. They must withhold development permits for a site within a zone until the geologic and soil conditions of the project site are investigated and appropriate mitigation measures, if any, are incorporated into development plans. The Act also requires sellers (and their agents) of real property within a mapped hazard zone to disclose at the time of sale that the property lies within such a zone. Evaluation and mitigation of seismic hazards are to be conducted under guidelines adopted by the California State Mining and Geology Board.

The designated liquefaction hazard zones are described as: "Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in the Public Resources Code Section 2693(c) would be required."

The subject property is not located within a liquefaction hazard zone as designated by the CGS (see Figure 6).

Liquefaction Potential

Due to the level of groundwater within the subject property, underlying geologic conditions, distance to potentially active and/or active faults, and estimated duration of strong ground shaking, it is LP's opinion that there is no potential for liquefaction of the materials underlying the project area of the site.

Seismically-Induced Landsliding

Seismically-Induced Landsliding Defined

Seismically-induced (i.e. earthquake-induced) induced landslides are slope failures that occur where the forces generated by earthquake motion act to induce downslope failure of the subsurface materials.

Seismically-Induced Landsliding Hazard Zones

The Seismic Hazards Mapping Act of 1990 directs the California Department of Conservation, Division of Mines and Geology (now referred to as the California Geological Survey – CGS) to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards including liquefaction, earthquake-induced landsliding, and ground shaking. Cities, counties, and state agencies are directed to use the Seismic Hazard Zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects located within the Seismic Hazard Zones. They must withhold development permits for a site within a zone until the geologic and soil conditions of the project site are investigated and appropriate mitigation measures, if any, are incorporated into development plans. The Act also requires sellers (and their agents) of real property within a mapped hazard zone to disclose at the time of sale that the property lies within such a zone. Evaluation and mitigation of seismic hazards are to be conducted under guidelines adopted by the California State Mining and Geology Board.

The designated earthquake-induced landslide hazard zones are described as: "Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in the Public Resources Code Section 2693(c) would be required."

The subject property does not appear to be located within an earthquake-induced landslide hazard zone as designated by the CGS (see Figure 6).

Seismically-Induced Landsliding Potential

A quantitative determination of the seismically-induced landsliding potential within the project area shall be performed (if deemed necessary or required) by the Project Geotechnical Engineer.

Ground Lurching

Ground lurching is defined as the phenomena where the forces generated by earthquake motion cause failure of a cliff, bluff, stream/river bank, or artificial embankment usually in the direction in which it is unsupported. This type of ground failure most commonly occurs when the aforementioned topographic settings are underlain by low density and fine-grained soils which are saturated.

Based on the topographic and underlying geologic conditions of the subject property, it is LP's opinion that there is an extremely low potential for ground lurching in the area of the proposed project.

Seismically-Induced Differential Settlement

During an earthquake, the associated ground shaking combined with certain geologic conditions can cause varying degrees of settlement of the subsurface materials. Granular soils, in particular, are susceptible to settlement during seismic shaking. It should be noted that a qualitative or quantitative determination of the hazard of seismically-induced differential settlement within the

site pertains to geotechnical engineering and shall be performed, as necessary or required, by the Project Geotechnical Engineer.

Bedrock Shattering

Bedrock shattering is defined as the phenomena where the earthquake motion causes the underlying bedrock to intensely fracture and/or dilate. This type of ground failure most commonly occurs on slopes or ridges underlain by very hard bedrock and at which there is a local focusing of seismic waves.

Based on the topographic and underlying geologic conditions of the subject property, it is LP's opinion that there is only a minor threat of bedrock shattering which could have an adverse effect on the proposed project. However, it should be noted that there is currently no practical way to accurately analyze and/or predict the location or degree of bedrock shattering during an earthquake. In addition, this hazard is not typically evaluated or mitigated for commercial and residential developments and is not specifically addressed in the building code. If desired, the potential hazard can be reduced by ground improvements, strengthened and/or deepened foundations, and flexible utility connections at the site.

Rockfall

During an earthquake, the associated ground motion is often strong enough to dislodge cobble- to boulder-size clasts present on the surface of a slope. Cobble- to boulder-size clasts can also be generated if a surficial exposure of bedrock shatters due to earthquake motion. If the adjacent topographic terrain is steep enough, the dislodged clasts may travel in the downslope direction which is commonly known as a *rockfall*. Aside from being earthquake-induced, a rockfall can also occur during periods of precipitation if the soil supporting a clast gives way. The destructive power of a rockfall typically depends on the size and shape of the falling clast(s), the height from which the rockfall originates, the steepness of slope, and the amount and type of vegetation present on the slope. If conditions are right, a rockfall can cause severe damage to a structure and is also a hazard to life and limb.

Based on the topographic and underlying geologic conditions of the subject property, it is LP's opinion that there is no threat of a rockfall, earthquake-induced or otherwise, which could have an adverse effect on the proposed project.

Tsunamis

Tsunamis are large waves or ocean surges caused by offshore earthquakes, large underwater landslides, and submarine volcanic eruptions which can travel for thousands of miles from the source. Some scientists also speculate that there is also a threat of a large tsunami being generated in the event that a meteorite impacts the ocean. However, based on known historical data, tsunamis are typically earthquake-induced. From the point of origin, the tsunami waves travel outward in all directions at speeds up to 450 miles per hour. In the open ocean, the tsunami waves may be imperceptible to an observer. However, as the waves approach the coastline, the shallowing sea floor decreases the wave speed which causes the waves to grow in height. If the wave energy and resulting wave heights are substantial, significant destruction and death can occur upon their impact with a populated coastline. As a relatively recent example, the

December 26, 2004 Sumatra-Andaman Islands earthquake (Mw 9.0) generated a series of large tsunami waves in the Indian Ocean which devastated coastline areas and killed over 225,000 people from south Asia to east Africa. As recently evident in the Indian Ocean, tsunamis typically arrive as a series of successive crests (high water levels) and troughs (low water levels). These successive crests and troughs can occur anywhere from 5 to 90 minutes apart. However, they usually occur 10 to 45 minutes apart. Recent studies indicate that there is no upper limit of the height of a tsunami wave and heights of more than 100 feet have been previously recorded. Areas at greatest risk of the effects of a tsunami are typically those located within one mile of the shoreline and an elevation less than 50 feet above sea level.

In California, tsunamis may be generated by earthquakes occurring at the Peru-Chile trench, the Columbia-Ecuador trench, the Aleutian trench, and any one of the local offshore faults. One such tsunami was generated by the 1812 Santa Barbara earthquake which reportedly generated ten 10- to 12-foot-high sea waves at Gaviota. The 1927 Point Arguello earthquake produced sea wave on the order of 6 feet high. The 1964 Alaskan earthquake generated tsunamis which hit Crescent City, California with waves having a run-up height of 19.7 feet above mean sea level (Bolt and others, 1977). The same earthquake reportedly produced sea waves of less than 4 feet in the Los Angeles Harbor.

It is thought that the topography of the seafloor off the coast of southern California and the presence of the Channel Islands tend to reduce the risk of a large tsunami impacting this area of California. However, should a large earthquake occur due to movement along one of the aforementioned faults, or a large underwater landslide or submarine volcanic eruption occur in the Pacific Ocean, it is possible for a tsunami to develop, travel towards, and impact the coast of southern California.

Due to the elevation of the subject property and distance from the coast, it is LP's opinion that there is no threat of inundation and damage to the site should a large tsunami develop and collide with the west coast.

Seiches

Seiches are large waves or oscillations of the surface of a lake or reservoir caused by earthquakes, large underwater landslides, or large landslides which fail into the lake or reservoir. Seiches can cause damage to structures and flooding along the shoreline and can also cause damage or overtopping of a dam. For example, in 1963 a large landslide into Vaiont Reservoir, located in Italy, caused a seiche that traveled 800 feet up the opposite bank of the lake and swept over both abutments of the dam. The resulting downstream flow of water and flooding completely destroyed the town of Longarone and killed almost 3,000 people. On a smaller scale, seiches have also been generated in swimming pools during an earthquake. If the swimming pool is large enough, a seiche from a swimming pool could possibly flood and/or cause structural damage to an adjacent structure. At the time of this study, LP is not aware of any catastrophic damage to a residential structure, and resulting loss of life, due to a seiche occurring in a lake or reservoir located in the southern California area.

Due to the fact that the subject property is not located adjacent to a lake or reservoir, it is LP's opinion that there is no threat of inundation and damage to the site from a seiche.

SITE/SLOPE STABILITY

Past Slope Performance (Landslides and Rain Damage)

Based on the findings of our update engineering geologic study, the subject property is free from any recent rain-related damage such as landslides or mudflows.

Quantitative Surficial and Gross Stability

This update engineering geologic study did not include quantitative engineering analysis or calculations associated with a determination of surficial and/or gross slope stability. A quantitative determination of slope stability of the subject property and/or the project area shall be performed, if deemed necessary or required, by the Project Geotechnical Engineer.

CONCLUSIONS

General Findings

Based on the findings of our update engineering geologic study, and our experience with similar projects, LP has concluded that the proposed project is feasible from an engineering geologic standpoint, provided the recommendations presented in this report, and those presented by the Project Geotechnical Engineer and Project OWTS Engineer, are properly incorporated into the plans and implemented during construction.

Geologic Conditions

The engineering geologic conditions, hydrogeologic conditions, and geologic hazards of the subject property that can impact the engineering analysis and/or design requirements associated with the proposed project are described in detail in the previous sections of this report. It is recommended that the property owner, developer, Project Engineers (i.e. OWTS, Geotechnical, Civil, and/or Structural), Project Architect, and Contractor be familiar with the site engineering geologic conditions, hydrogeologic conditions, and geologic hazards presented in this report as well as the following engineering geologic recommendations concerning the proposed project.

Final Project Conclusion

Based upon the findings of our update engineering geologic study, the proposed project will be free from geologic hazards such as landslides, slippage, settlement and the proposed project will not have an adverse effect upon the stability of the site or adjacent properties provided: 1.) The recommendations of the Project Engineering Geologist, Project Geotechnical Engineer, and Project OWTS Engineer are properly incorporated into the plans and implemented during construction; and 2.) The subject property and proposed structures are properly maintained.

RECOMMENDATIONS

Grading

General

General engineering geologic guidelines are presented below to provide a basis for quality control during any proposed site grading. We recommend that all structural fills be placed and

compacted under observation and testing by the Project Geotechnical Engineer in accordance with the following requirements and those presented by the Project Geotechnical Engineer.

Due to the lapse in time since the completion of rough-grading, it is recommended that the existing compacted fill underlying the proposed structures and slabs on grade be removed and recompacted as specified by the Project Geotechnical Engineer (see CalWest Geotechnical reported dated May 14, 2014).

Mitigation of Exploratory Excavations

As previously stated in this report, the exploratory excavations of this study were backfilled to grade with the spoils generated from the excavation process. While significant care was taken by our excavation subcontractor(s) during the backfilling process in an attempt to minimize future settlement, the backfilling of the exploratory excavations did not involve "certified compaction" performed under the observation of the Project Geotechnical Engineer. It follows that the excavation backfill is classified as uncertified fill and will most likely experience some degree of future settlement.

In order to mitigate the settlement hazard from an exploratory excavation located in the project area, it is recommended that those exploratory excavations (i.e. test pits, trenches, borings) which underlie, or are located adjacent to, a proposed structure be located prior to construction and the backfill shall be removed and recompacted to a certified condition in accordance with the following grading requirements and those presented by the Project Geotechnical Engineer. For any large diameter boring excavations (i.e. 24-inch diam. or greater) which underlie or are located adjacent to a proposed structure, it is recommended that the upper 5 feet of the boring backfill be removed and recompacted to a certified condition.

Exceptions: The aforementioned mitigative recommendations need not be implemented as part of the proposed project if it is determined that the proposed construction activities (i.e. grading, excavating, etc.) will effectively remove the uncertified excavation backfill from the project area. Lastly, for those exploratory excavations which are well removed from the project area of the site, the aforementioned backfill mitigation need not be implemented as part of the proposed project as the uncertified backfill does not constitute a geologic hazard to the proposed project. Such mitigation would be voluntary on the part of the developer, contractor, or property owner and/or could be performed on an as-needed basis should excessive settlement occur.

Site Preparation

It is recommended that all brush, vegetation, loose soil, and other deleterious materials be removed prior to fill placement. The general depth of stripping shall be sufficiently deep to remove the root systems and organic topsoils. A careful search shall be made for subsurface trash, abandoned masonry, abandoned tanks and septic systems, and other debris (including uncertified fill) during grading. All such materials, which are not acceptable fill material, shall be removed prior to fill placement. The removal of trees and large shrubs shall include complete removal of their root structures.

Fill-Slopes

If the construction of fill-slopes is desired as part of the proposed project, they shall be limited to heights and gradients specified by the local regulatory agency and the Project Geotechnical Engineer. For reference, a typical 2(h):1(v) fill-slope keyway, benching, and subdrain detail is included in Appendix B of this report.

Cut-Slopes

If the construction of cut-slopes is desired as part of the proposed project, they shall be limited to heights and gradients specified by the local regulatory agency and the Project Geotechnical Engineer.

Removal Bottoms, Keyways, and Benches

In areas to receive compacted fill, the existing earth materials shall be removed and recompacted as structural fill as specified by the Project Geotechnical Engineer. Removal bottom, keyway, and bench excavations constructed during grading shall expose existing compacted fill or competent bedrock in the bottom and shall be observed and approved by the Project Engineering Geologist prior to fill placement. Keyways constructed at the toes of fill-slopes shall be a minimum of 2 feet deep into existing compacted fill or competent bedrock, as measured on the downhill side of the keyway, and shall be a minimum of 15 feet wide. The exposed, approved bottom of a removal area, keyway, or bench shall be scarified, mixed, and moisture conditioned to a minimum depth of 8 inches or as specified by the Project Geotechnical Engineer. During construction of removal bottom, keyway, and bench excavations, a careful search shall be made for zones of loose soil and uncertified fill. The bottom of removal areas should be proof-rolled, in the presence of the Project Engineering Geologist and Project Geotechnical Engineer, with appropriate rubber-tire mounted heavy construction equipment or a loaded dump truck to detect loose, yielding soils that must be removed to stable material. If encountered, these loose zones shall be properly removed to the firm underlying soil or bedrock and properly backfilled and compacted as directed by the Project Geotechnical Engineer.

Over-Excavation of Cut Portion of Building Pad

If a cut/fill line of a graded pad traverses the footprint of a proposed structure, and that structure is to bear upon certified compacted fill, it is recommended that the cut portion of the pad underlying the proposed structure be over-excavated and replaced with compacted fill in order to provide a uniform foundation condition. The cut portion of the pad shall be over-excavated to a minimum depth of 5 feet below finished grade for a minimum lateral distance of 5 feet beyond the footprint of the structure or as specified by the Project Geotechnical Engineer. For reference, a typical over-excavation beneath buildings detail is included in Appendix B of this report.

Bottom Stabilization

If earth materials with a high moisture content, or shallow groundwater is encountered in a removal bottom, keyway, or bench excavation, additional stabilization of the bottom may be required. If the bottom is unstable, the use of track-mounted equipment and/or excavators should be considered to reduce the potential for disturbing the soils in the excavations near the groundwater level. If the bottom is highly disturbed, deeper removals may be required. Acceptable stabilization methods include using (1) float rock worked into the soft soils and

encapsulated with a filter fabric, (2) geofabric, such as Mirafi Fabric 600X, with a 24-inch-wide overlap, or (3) a combination of the above. Some compaction effort shall be used when working thin lifts of float rock into the excavation bottom. A 12- to 24-inch thick zone may be required to adequately bridge an unstable bottom when using geofabric, and this zone is not to be included in the required thickness of fill beneath either slabs or footings unless it meets the compaction requirements. Another alternative is to stabilize the bottom by drying out the soils with the use of either lime or cement additives (about 5% by weight), moisture conditioning, mixing, and compacting to a minimum relative compaction of 90%.

Subdrains

The installation of subdrains is recommended in association with the construction of any proposed fill-slopes, buttress fill-slopes, and canyon fills. During construction of a fill-slope, it is recommended that a subdrain be installed in the bottom of the keyway excavation and at the heal of bench excavations as necessary so that the fill-slope is provided a subdrain at vertical intervals not exceeding 20 feet. If topographic and/or property line constraints prevent the installation of subdrain in the bottom of the keyway excavation, the subdrain should be placed at the heal of the lowest removal bench. The canyon cleanouts constructed in association with a canyon fill shall also be provided with a subdrain for the entire length of the cleanout.

The subdrain shall consist of a 4-inch-diameter (minimum) Schedule 40, or better, perforated PVC pipe with the perforations placed downward surrounded in a minimum of 3 cubic feet, per linear foot, of ¾-inch-diameter durable aggregate. Accordion or similar type pipe is not acceptable for subdrain pipe. The gravel and perforated pipe shall be wrapped with geosynthetic fabric such as Mirafi 140, or approved equivalent, in order to protect the subdrain from clogging. The subdrain shall be daylighted utilizing a solid pipe to the slope face or to a location specified by the Project Civil Engineer. In locations where seasonal or constant water flow from a subdrain is anticipated, the subdrain outlet should be connected to the surficial drainage control system of the site (if feasible), to a storm drain, or to the street as specified by the Project Civil Engineer. If a subdrain outlet is to be connected to the subsurface piping of a surficial drainage control system, or to a storm drain, an observation vault and/or cleanout must be installed near the connection point so that the water discharge from the subdrain can be observed.

Suitable Fill Material

The suitability of the on-site soils for use as compacted fill, and the requirements for any import material desired to be utilized as compacted fill, shall be determined and/or provided by the Project Geotechnical Engineer.

Fill Placement and Testing

All fill placed within the subject property shall contain a moisture content and be compacted to a degree as specified by, and shall be performed under the observation of, the Project Geotechnical Engineer. If either the moisture content or relative compaction does not meet the criteria of approval of the Project Geotechnical Engineer, the Contractor shall rework the fill until it does meet the prescribed criteria.

Inclement Weather and Construction Delays

If construction delays or the weather result in the surface of the fill drying, the surface shall be scarified and moisture conditioned before slabs are constructed or before the next layer of fill is added. Each new layer of fill shall be placed on a rough surface so planes of weakness are not created in the fill.

During periods of wet weather and before stopping work, all loose material shall be spread and compacted, surfaces shall be sloped to drain to areas where water can be removed, and erosion protection or drainage provisions shall be made in accordance with plans provided by the Project Civil Engineer. After the rainy period, the Project Engineering Geologist and Project Geotechnical Engineer shall review the site for authorization to resume grading and to provide any specific recommendations that may be required. As a minimum, however, surface materials previously compacted before the wet weather shall be scarified, brought to the proper moisture content, and recompacted prior to placing additional fill.

During foundation construction, including any concrete flatwork, construction sequences shall be scheduled to reduce the time interval between subgrade preparation and concrete placement to avoid drying and cracking of the subgrade or the surface shall be covered or periodically wetted to prevent drying and cracking. If the surficial soils dry out due to delays between grading and foundation construction, it may be necessary to recondition the surficial soils (scarification, moisture condition, and recompaction) just prior to foundation and slab construction.

Utility Trench Backfill

The backfilling of utility trenches shall be performed as required by the local regulatory agency and the Project Geotechnical Engineer.

Pavement Areas

Removal depths and subgrade criteria for pavement areas (if proposed) shall be specified by the Project Geotechnical Engineer.

Foundations

Design Criteria

Foundations shall be designed by the Project Civil/Structural Engineer as per the detailed design criteria provided by the Project Geotechnical Engineer.

Recommended Bearing Material

Based on the findings of our update engineering geologic study of the subject property, the recommended bearing material for the proposed residence and related ancillary structures is the **certified compacted fill** per the recommendations of the Project Geotechnical Engineer. The recommended bearing material can be reached with conventional foundation systems following site grading.

Slabs On Grade

Design Criteria

It is recommended that any proposed slabs on grade be reinforced. In addition, care should be taken to insure that slabs on grade are not constructed across cut/fill transitions, on uncertified fill, or native materials which have been significantly disturbed by construction activities. Removal depths and subgrade criteria for the areas where slabs on grade are planned shall be provided by the Project Geotechnical Engineer. Slabs on grade shall be designed by the Project Civil/Structural Engineer as per the detailed design criteria provided by the Project Geotechnical Engineer.

It should be noted that cracking of concrete slabs on grade can occur and is relatively common. Steel reinforcement and crack control joints are intended to reduce the risk of concrete slab cracking, as is the use of fiber reinforced concrete and proper concrete curing. If cracks develop in concrete slabs during construction (for example, due to shrinkage), your Civil/Structural Engineer shall evaluate the integrity of the slab and determine if the design has been compromised. Also, concrete slabs are generally not perfectly level, but they should be within tolerances included in the project specifications.

It should be noted that even soils with low expansion characteristics can lift exterior flatwork such as walkways, patio slabs, and decking. This lifting will likely vary over the area covered by the flatwork, causing differential slab movements that could result in either a safety hazard or an obstruction to outwardly opening doors. Therefore, we recommend that exterior walkways and patio areas abutting the structure be doweled into the structure at entrances and at joints to prevent differential movement of such flatwork due to soil expansion.

If interior or exterior tile or stone flooring is planned over slabs on grade, it is recommended that special care be taken in the slab design, construction, and the tile/stone installation process as a crack in the underlying slab on grade will most likely translate to the overlying tile/stone. If tile/stone flooring is desired, the slab designer shall consider additional steel reinforcement, above minimum requirements, in the design of the concrete slab on grade where tile/stone will be installed. Furthermore, the tile/stone installer shall consider installation methods, such as using a vinyl crack isolation membrane (i.e. a slip sheet) between the tile/stone and concrete slab, to reduce the potential for cracking.

Moisture Barrier

We recommend that a ten-mil (or thicker) plastic vapor/moisture barrier be used under all proposed slabs on grade. The vapor/moisture barrier shall be placed in direct contact with the concrete and over a 4-inch thick (minimum) base of ½-inch or larger clean aggregate which has been provided as a subgrade for the slab on grade. Seams of the vapor/moisture barrier shall be overlapped and sealed. Where pipes extend through the barrier, the barrier shall be sealed to the pipes. Tears or punctures in the barrier shall be completely repaired prior to placement of concrete.

Retaining Walls

Design Criteria

If the construction of retaining walls is desired as part of the proposed project, the retaining wall design criteria shall be provided by the Project Geotechnical Engineer.

Recommended Bearing Material

Based on the findings of our update engineering geologic study of the subject property, the recommended bearing material for retaining walls is the **certified compacted fill** per the recommendations of the Project Geotechnical Engineer. The recommended bearing material can be reached with conventional foundation systems following site grading.

Retaining Wall Backfilling and Drainage

General engineering geologic guidelines with respect to retaining wall backfilling and wall drainage are presented below to provide a basis for quality control during the backfilling of any site retaining wall. Retaining walls shall be provided with a proper drainage system and backfill placed and compacted under observation and testing by the Project Geotechnical Engineer in accordance with the following requirements and those presented by the Project Geotechnical Engineer.

Retaining walls shall be provided with adequate waterproofing and a subdrainage system, as specified by the Project Architect and/or Project Civil Engineer, in order to mitigate the potential for hydrostatic surcharge and efflorescence on the face of the walls. Except for the upper two feet, the area immediately adjacent to a retaining wall shall be provided with a subdrainage system. While various subdrainage products are now available for retaining walls which could be utilized if specified by design professional and accepted by the local government agency, a typical subdrainage system consists of 1 foot wide (minimum) zone of ¾-inch-diameter durable aggregate placed around and above a subdrain pipe located at the base of the wall. If a typical subdrainage system is to be utilized, the subdrain pipe shall consist of a 4-inch-diameter (minimum) Schedule 40, or better, perforated PVC pipe with the perforations placed downward. *Accordion* or similar type pipe is not acceptable for subdrain pipe. The gravel and perforated pipe shall be protected from clogging with the use of geosynthetic fabric such as Mirafi 140, or approved equivalent, placed between the gravel and the adjacent certified backfill or natural material. The subdrain outlet shall be daylighted from behind the retaining wall in a location where it can be kept free and clear of obstructions and can also be easily observed. Retaining wall subdrain outlets should not be connected to subsurface piping of the surficial drainage control system. The outlet locations should be carefully noted and extreme care should be taken to insure that the outlets do not become buried or blocked. Measures should be undertaken to insure that rodents or small animals can not enter or reside in a subdrain outlet. If a retaining wall subdrain outlet becomes buried or blocked, it must be located and/or the obstruction must be removed immediately so that water is able to freely drain from the retaining wall subdrainage system. It should be noted that a buried or blocked retaining wall subdrain outlet could prevent groundwater from draining from behind the retaining wall thus causing the saturation of the earth materials adjacent to the wall and the development of a hydrostatic surcharge on the wall. This condition could possibly lead to failure of the retaining wall and the adjacent slope. If the installation and/or daylighting of a retaining wall subdrain pipe is not feasible, adequately spaced

weep holes may be installed at the base of the wall in lieu of a perforated subdrain pipe. The top two feet of the retaining wall shall be backfilled with less permeable compacted fill to reduce infiltration. A concrete-lined V-shaped drainage swale shall be constructed behind retaining walls with ascending backslopes in order to intercept runoff and debris. A typical retaining wall backfilling and drainage detail is included in Appendix B of this report.

During grading and backfilling operations adjacent to any retaining wall, heavy equipment shall not be allowed to operate within 5 feet laterally of the wall or within a lateral distance equal to the wall height, whichever is greater, in order to avoid developing excessive lateral pressures. Within this zone, only hand-operated equipment shall be used to compact the backfill.

Recommended Retaining Wall Freeboard

Retaining walls supporting ascending slopes should be provided with a minimum of 1 foot of freeboard for slough protection. It should be noted that additional retaining wall freeboard may be required if deemed necessary by the Project Geotechnical Engineer or Project Civil Engineer.

Swimming Pool and Spa

Design Criteria

The swimming pool/spa shell shall be designed by the Project Civil/Structural Engineer as per the detailed design criteria provided by the Project Geotechnical Engineer.

Recommended Bearing Material

The proposed swimming pool/spa shell shall be supported entirely upon the underlying **bedrock** or **certified compacted fill** per the recommendations of the Project Geotechnical Engineer. If during construction, variations in the earth materials are observed in the deep end versus the shallow end of the pool, or between the pool bottom versus the spa bottom, it may be required to deepen portions of the excavation, utilize deepened footings for support, or remove and recompact the swimming pool/spa bottom in order to insure that the entire swimming pool/spa bottom is supported entirely upon uniform and competent material.

Swimming Pool and Spa Subdrainage

The swimming pool/spa should be provided with a subdrain system or a hydrostatic pressure relief valve. The subdrain system, if utilized or required, should consist of a 4-inch-diameter Schedule 40, or better, perforated PVC pipe encased in 2 cubic feet per lineal foot of ¾-inch-diameter durable aggregate running the longitudinal length of the pool. Where the subdrain exits from beneath the pool shell, a non-perforated (solid) pipe should extend to an outlet discharge location specified by the Project Civil Engineer.

Swimming Pool and Spa Decking

The swimming pool/spa decking should be cast free of the swimming pool bond beam via an expansion joint. Water stops should be provided between the bond beam and the pool deck. Please refer to the previous **"Slabs On Grade"** section of this report for recommendations concerning the design and construction of the swimming pool/spa decking.

Foundation Setback Distances

Proposed Residence

Residential structures built on or near a descending slope which is 3(h):1(v) or steeper shall be founded to a depth such that the horizontal distance from the bottom of the footing to the slope face is equal to 1/3 the height of the adjacent descending slope. For a descending slope which is steeper than 1(h):1(v), the slope face shall be assumed to be a 1(h):1(v) plane as projected upward from the toe of the slope. The minimum required horizontal foundation setback distance is 5 feet and the maximum is 40 feet.

Proposed Retaining Walls

Retaining walls built on or near a descending slope which is 3(h):1(v) or steeper shall be founded to a depth such that the horizontal distance from the bottom of the footing to the slope face is equal to 1/3 the height of the adjacent descending slope. For a descending slope which is steeper than 1(h):1(v), the slope face shall be assumed to be a 1(h):1(v) plane as projected upward from the toe of the slope. The minimum required horizontal foundation setback distance is 5 feet and the maximum is 40 feet.

Proposed Swimming Pool and Spa

Swimming pools and spas built on or near a descending slope which is 3(h):1(v) or steeper shall be founded to a depth such that the horizontal distance from the bottom of the pool/spa or footing to the slope face is equal to 1/6 the height of the adjacent descending slope. For a descending slope which is steeper than 1(h):1(v), the slope face shall be assumed to be a 1(h):1(v) plane as projected upward from the toe of the slope. The minimum required horizontal foundation setback distance is 2.5 feet and the maximum is 20 feet.

Greater Foundation Setback Distances

Examples of the code-required foundation setback distances are presented on the *Examples of Slope Setback Requirements* sheet which is included in Appendix B of this report. It should be noted that greater foundation setback distances than those required by the code, resulting in deeper foundation depths, may be required as part of the proposed project if deemed necessary by the Project Geotechnical Engineer.

Rear Yard Level Setback Area

Proposed Residence

The proposed residence shall be provided with a level setback area which complies with the current building code. The clearance between the rear wall of the structure and toe of the ascending rear yard slope (equal or steeper than 3(h):1(v)) shall be equal to 1/2 the height of the ascending rear yard slope to a maximum of 15 feet and a minimum of 3 feet. For an ascending slope which is steeper than 1(h):1(v), the toe of the slope shall be assumed to be the point where a 1(h):1(v) plane intersects the ground surface as projected downward from the top of the slope.

Proposed Swimming Pool and Spa

The proposed swimming pool and spa shall be provided with a level setback area which complies with the current building code. The clearance between the water line of the pool/spa

and toe of the ascending rear yard slope (equal or steeper than 3(h):1(v)) shall be equal to 1/4 the height of the ascending rear yard slope to a maximum of 7.5 feet and a minimum of 1.5 feet. For an ascending slope which is steeper than 1(h):1(v), the toe of the slope shall be assumed to be the point where a 1(h):1(v) plane intersects the ground surface as projected downward from the top of the slope.

Greater Rear Yard Setback Distances

Examples of the code-required level rear yard setback distances are presented on the *Examples of Slope Setback Requirements* sheet which is included in Appendix B of this report. It should be noted that greater rear yard setback distances than those required by the code may be required as part of the proposed project if required by the local regulatory agency or if deemed necessary by the Project Geotechnical Engineer or Project Civil Engineer.

Drainage

General

The proper control of all surface runoff is and must remain a crucial element of site maintenance. Proper drainage and irrigation control within the site are important in order to reduce the potential for damaging ground/foundation movements due to hydroconsolidation, soil expansion or shrinkage, and landslides. It is recommended that the Project Civil Engineer and Landscape Architect be retained to prepare a detailed grading, drainage, and landscaping plan which utilize the following general engineering geologic guidelines, and any recommendations of the Project Geotechnical Engineer, with respect to site drainage control, landscaping, and irrigation.

Drainage Control During Grading or Construction

During grading or construction, proper drainage shall be provided away from the building site, footings, and temporary excavations. This is especially important when construction takes place during the rainy season. A storm water erosion control plan should be prepared by the Project Civil Engineer and implemented during the rainy season as required by the local regulatory agency.

Fine Grading

The project area shall be fine graded so as to provide positive drainage away from footings in compliance with the local regulatory agency's grading requirements or the 2013 California Building Code (CBC), whichever is more restrictive.

For reference, Section 1804.3 of the 2013 CBC states that the ground immediate adjacent to the foundation shall be sloped away from the building at a slope of not less than 5% for a minimum distance of 10 feet as measured perpendicular to the face of the structure. If physical obstructions or lot lines prohibit 10 feet of horizontal distance, a 5% slope shall be provided to an approved alternative method of diverting water away from the foundation. Swales used for this purpose shall be sloped a minimum of 2% where located within 10 feet of the building foundation. Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of 2% away from the building. *Exemption*: Where climatic or soil conditions warrant, the slope of the ground away from the building foundation is permitted to be reduced to not less

than 2%. The procedure used to establish the final ground level adjacent to the foundation shall account for additional settlement of the backfill (ICC, 2013).

Drainage Control Devices

All pad drainage shall be collected and diverted away from proposed buildings and foundations in non-erosive devices as specified by the Project Civil Engineer. Pad drainage shall not be allowed to flow uncontrolled over slopes. Rain gutters and downspouts should be provided, properly maintained, and discharged directly into a drainage system or over paved areas which are sloped to the street. A drainage system consisting of area drains, catch basins, and connecting lines shall be provided to capture landscape and hardscape sheet flow discharge water. All drainage system piping shall be watertight and discharge directly to the street, storm drain, or to a location specified by the Project Civil Engineer.

Underground Water and Drainage Lines

All underground water lines and drainage lines shall be absolutely leak free. It is recommended that water mains, irrigation lines, and drainage lines be periodically checked for leaks for early detection of water infiltrating the underlying soils that could cause detrimental soil movements. If a leak is detected at any time, it must be repaired immediately.

Site Vegetation and Irrigation

Seepage of surface irrigation water or the spread of extensive root systems into the subgrade of footings, slabs, or pavements can cause differential movements resulting in distress and/or damage to the adjacent structures. Trees and large shrubbery shall not be planted so that roots grow under foundations and flatwork when they reach maturity.

Where landscaping is planned adjacent to structures or paved areas, it is recommended that design measures be taken by the Project Civil Engineer and Landscape Architect to restrict excessive landscape water from infiltrating the subgrade supporting foundations or the subgrade and base supporting paved areas. Design alternatives to restrict the infiltration of excessive landscape water for vegetation located adjacent to structures and paved areas include the implementation of landscape watering plans, the use of higher gradient ground slopes near structures and paved areas, the use of drains to collect and transmit excess irrigation water to drainage structures, or installing a *French Drain* extending at least 12 inches below the subgrade along the edge of the structure or pavement.

Care shall be taken to not over- or under-irrigate the site. Landscape watering shall be held to a minimum while maintaining a uniformly moist condition without allowing the soil to dry out. Irrigation systems should be turned off when significant rain is in the forecast. During extreme hot and dry periods, adequate watering may be necessary to keep soil from separating or pulling back from the foundations or slabs.

Maintenance of Drainage Devices

Site area drains, catch basins, roof gutters, downspouts, and any subdrain outlets should be inspected periodically to insure that they are not clogged, damaged, and that they are functioning

properly. In addition, cracks in paved surfaces shall be sealed to limit infiltration of surface waters.

Slope Maintenance

A rigorous slope maintenance program should be adopted to maintain the existing and any proposed slopes. The following recommendations should provide guidelines for maintenance of the slopes:

- The slopes should be landscaped. An experienced Landscape Architect could be consulted for recommendations regarding the type of landscape to use on the slope that would help to reduce surface erosion and would need minimum amount of irrigation such as drought resistant plants. Trees with rooting systems that could severely disturb the outer slope materials should be avoided and/or removed.

- The moisture content of the slope outer face materials should be maintained close to the optimum throughout the year. Excessive watering or drying of the slope face must be avoided. Irrigation systems should be turned off when significant rain is in the forecast.

- Proper surface drainage should be maintained. Drainage swales should be inspected and cleaned before the rainy season. Any erosion around and underneath the swales should be repaired to prevent further undermining of the subgrade around the swales.

- If slope subdrain outlets are present on a slope, their locations should be carefully noted and extreme care should be taken to insure that the subdrain outlets do not become buried or blocked. Measures should be undertaken to insure that rodents or small animals can not enter or reside in a subdrain outlet. If a subdrain outlet becomes buried or blocked, it must be located and/or the obstruction must be removed immediately so that water may freely drain from the subdrainage system. It should be noted that a buried or blocked subdrain outlet could prevent groundwater from draining from within the slope thus causing the saturation of the earth materials as well as a rise in the hydrostatic pressures within the slope. This condition could possibly lead to failure of the slope.

- Burrowing by rodents disturbs the surficial materials and surface drainage conditions. If burrowing rodents are observed on or within the slope, they should be exterminated immediately and any disturbance to the slope should be corrected.

Proposed Onsite Wastewater Treatment System (OWTS)

The proposed OWTS shall be designed by the Project OWTS Engineer in accordance with the requirements of the local regulatory agency and the following engineering geologic recommendations. The exact locations, elevations, and construction specifications of all the components of the OWTS shall be provided by the Project OWTS Engineer.

Based on the findings of our update engineering geologic study, the seepage pit(s) of the proposed OWTS should be installed at the locations of Borings # 3, 5, 6, and 7 as illustrated on the attached *Geologic Map* (Plate 1).

The proposed seepage pit(s) should be sealed in the upper portion to avoid percolation into the surficial materials. Specifically, the seepage pit(s) shall be capped at a minimum vertical distance of five (5) feet below existing grade, finished grade, three (3) feet below the fill-bedrock contact, or at a depth which maintains a 15 foot minimum horizontal distance as measured from the cap to the face of any descending slope, whichever is determined to be the greater distance or depth.

Based on the topographic and geologic conditions in the area of the proposed seepage pit(s), a capping depth of **six (6) feet** below existing grade (as measured on the downhill side of the pit) is currently recommended for the locations of Borings # 3, 6, and 7. A capping depth of **eight (8) feet** below existing grade (as measured on the downhill side of the pit) is currently recommended for the location of Boring # 5. It shall be noted that the currently recommended capping depth shall be considered a minimum based on the geologic data obtained to date and actual site conditions observed during construction may warrant a greater capping depth.

The bottom of any seepage pit should be a minimum of ten (10) feet above the underlying assumed groundwater level.

It is recommended that seepage pit excavations be observed by the Project Engineering Geologist and County Inspector to verify that the encountered conditions are as anticipated and that proper construction and sealing practices have been followed. If desired or required by the County Inspector, the Project Engineering Geologist shall submit a final observation notice or report stating that the seepage pit(s) has been completed in compliance with our recommendations.

Excavation Characteristics

Based on the findings or our update engineering geologic study, very hard bedrock is present within the subsurface of the site and will most likely be encountered during construction of any proposed deep subsurface excavations. Should a very hard layer be encountered, the use of very heavy grading or drilling equipment, coring, or the use of high-impact hammers may be necessary.

Excavations encountering groundwater or seepage should be immediately brought to the attention of the Project Engineering Geologist and Project Geotechnical Engineer.

Temporary Excavations and Shoring

All temporary excavations, including overexcavations and utility trench excavations should comply with Cal/OSHA and any other applicable regulatory agency requirements. Excavations deeper than 5 feet shall be constructed as specified by the Project Geotechnical Engineer. No surcharge loads should be placed, nor should equipment operate, within a setback distance from the top of excavation side slopes equal to the depth of excavations. All excavations shall be stabilized within 30 days of initial excavation. Water should not be allowed to pond near the top of the excavation, nor be allowed to flow toward it.

If the installation of shoring is required in order to provide stability for any temporary excavations, the shoring system(s) shall be designed by a qualified Civil/Structural Engineer as specified by the Project Geotechnical Engineer.

Site Observations and Testing

Prior to the start of site preparation and/or construction, we recommend that a pre-construction meeting be held with the owner or developer, contractor, project engineers, City/County Inspector, and LP to discuss the project. In addition, we recommend that LP be retained to perform the following tasks prior to and/or during construction.

- Review the grading, drainage, and/or foundation plans to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. If LP is not provided the opportunity to review these documents, we can take no responsibility for misinterpretation of our findings, conclusions, and recommendations.

- Review the OWTS plans to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. If LP is not provided the opportunity to review these documents, we can take no responsibility for misinterpretation of our findings, conclusions, and recommendations.

- Observe and advise during all grading activities including, but not limited to, site preparation, observation of all removal bottom, keyway, bench excavations and backcuts, observation of cut-slopes, and observation of the placement of slope subdrains and/or canyon cleanout subdrains and outlets.

- Observe all foundation excavations prior to the placement of steel and concrete to confirm that the footing excavations are properly embedded into the recommended bearing material and that the excavations are free of loose and disturbed materials. All footing excavations into certified compacted fill, as well as the subgrade for any slabs on grade, shall be observed by the Project Geotechnical Engineer before steel is placed.

- Observe the installation of all retaining wall subdrains and outlets.

- Observe all swimming pool and spa excavations prior to the placement of steel and concrete to confirm that the excavations are properly embedded into the recommended bearing material and that the excavations are free of loose and disturbed materials.

- Observe the seepage pit excavations prior to the placement of liners, perforated pipe, gravel, cap, and fill cover.

- All fill which is placed for engineering purposes shall be observed and tested by the Project Geotechnical Engineer to confirm proper site preparation, suitability of removal excavations, scarification, selection of suitable fill materials, and placement and compaction of fill.

Should any site observation reveal any unforeseen geologic or geotechnical hazard, the Project Engineering Geologist and/or the Project Geotechnical Engineer will recommend treatment. Please advise LP at least 24 hours prior to any required site observation. A complete set of approved plans should be provided to the Project Engineering Geologist and Project Geotechnical Engineer prior to site grading and/or construction, and a set of signed and approved plans should be available on-site for review.

Responsibilities and Site Control

As a reminder, LP is not a licensed Land Surveyor, Civil Engineer, or Contractor and LP can not perform the duties of a Land Surveyor, Civil Engineer, or Contractor. As such, the client, property owner, and/or developer should fully understand and acknowledge that LP is not responsible for the performance of work by third parties including, but not limited to, the project surveyor, civil engineer, grading contractor, construction contractor, and/or subcontractors. LP's observation of the work of other parties on a project shall not relieve such parties of their responsibility to perform their work in accordance with applicable plans, specifications, and safety requirements. It should be noted that continuous or periodic monitoring by LP's employees does not mean that LP is observing or verifying all site work. In addition, the engineering geologic observation services performed by LP do not include establishing or verifying lines and grades. LP will only make on-site observations appropriate to the field services provided by LP and will not relieve others of their responsibilities to perform, observe, or test the work.

It should be clearly understood and acknowledged that it is the responsibility of the client, property owner, developer, and/or their authorized agent(s) to insure that the engineering geologic information and recommendations provided by LP in association with the project are properly and thoroughly conveyed to the project architect(s), engineer(s), and/or contractor(s) so that they may be properly incorporated into the plan and that the necessary steps are taken to see that the contractor(s) carries out such recommendations in the field. LP is not and will not be responsible for the acts, errors, or omissions of contractors or other parties associated with the project and the subject site.

Plan Review

This update engineering geologic study was performed and this report was prepared on the basis of the furnished project plans and/or information. Formal plans should be reviewed by LP. Should the plans differ substantially from the provided plans or information, additional engineering geologic exploration and analysis may be required.

ASSUMPTIONS and LIMITATIONS

General

This report presents the results of our update engineering geologic study concerning the subject property and the proposed project. It is strongly recommended that this report be read in its entirety in order for the reader to completely and clearly understand LP's engineering geologic findings, conclusions, and recommendations concerning the subject property and the proposed project. In addition, it is also recommended that the following sections be carefully read and

completely understood as they provide information concerning the assumptions of this study and the limitations of this report. It should be noted that the following "Assumptions and Limitations" also pertain to any future addendum, supplemental, update, or final engineering geologic reports prepared by LP concerning the subject property and proposed project as well as any additional or revised Assumptions and Limitations presented therein. Any questions the reader may have concerning any portion of this report, or any portion of any future addendum, supplemental, update, or final reports concerning the site should be presented to LP prior to use of this or future reports.

Report Intent

It is the intent of this report to aid in the design and completion of the described project. Implementation of the advice presented in the Conclusions and Recommendations sections of this report is intended to reduce risk associated with the proposed project and should not be construed to imply total performance of the project. As previously stated, this report is issued with the understanding that it is the sole responsibility of the client, or their authorized agent(s), to insure that the engineering geologic information and recommendations provided in this report are conveyed to the project architect, engineers, and contractors so that they may be properly incorporated into the plan and that the necessary steps are taken to see that the contractor carries out such recommendations in the field.

Report Use

LP has prepared this report concerning the subject property for the exclusive use of the client and their authorized agents and shall not be considered transferable. Prior to use by others, the subject site and this report must be reviewed by our office. Following review, additional work may be required to update and/or supplement this report. In addition, this report should not be utilized in order to form an opinion concerning the geologic/geotechnical conditions of the adjacent or surrounding properties as the findings presented in this report apply only to the explored area of the subject property and may not accurately reflect the underlying conditions of the surrounding area and/or the adjacent properties.

This report is not intended for use as a bid document. Any company or person using this report for bidding or construction purposes shall perform such independent investigation, as they deem necessary, to satisfy themselves as to the surficial and subsurface conditions of the project site.

Accuracy of Topographic Base Map(s)

The engineering geologic and geotechnical engineering analysis of a particular site and subsequent conclusions and recommendations with respect to a proposed project are, in some cases, highly dependent on certain factors which include, but are not limited to, the topographic conditions of the subject site, the adjacent slopes, and/or the locations of property lines. It should be noted that, at the time of this study, it is LP's assumption that the provided topographic survey, grading plan, and/or site plan (utilized as a base for the geologic map(s) and geologic section(s) constructed as part of this study) accurately present the current topographic conditions of the site, adjacent slopes, and also accurately depict the locations of the existing structures (if present), easements, property lines, proposed structures, and/or proposed grades. It should be clearly understood that LP's use of the provided topographic survey, grading plan, or site plan does not imply or verify the accuracy of the provided topographic survey, grading plan, or site

plan. If at a time subsequent to the completion of this update engineering geologic study and report, a revision is made to the site topographic survey, grading plan, or site plan, the findings, conclusions, and recommendations of this report may be partially invalidated, wholly invalidated, or revised. In addition, supplemental engineering geologic exploration and analysis concerning the subject property and proposed project may also be necessary upon our review of the revised topographic survey, grading plan, or site plan.

Locations of Exploratory Excavations

The locations and elevations of the exploratory excavations of this study (if applicable), as presented on the various geologic illustrations contained in this report, were determined by use of a steel tape, brunton pocket transit, and interpolation between contours, topographic features, fixed monuments and/or structures illustrated on the supplied topographic map. The locations and elevations of the exploratory excavations of other consultants, if applicable, were approximately determined by our review and analysis of the various geologic maps and illustrations presented in the referenced reports containing the exploration data. The presented locations and elevations should be considered accurate only to the degree implied by the method used. If a more accurate method of determining the locations and elevations of the exploratory excavations was performed as part of this study, the particular method and degree of accuracy was discussed in the Scope of Work section of this report.

Variation in Subsurface Conditions

The engineering geologic conclusions and recommendations contained within this report concerning the proposed project are based on the findings of the tasks described in the Introduction section of this report with the assumption that the subsurface conditions within the site do not deviate appreciably from those observed or encountered during our geologic study. In view of the general geologic conditions described herein, based on our limited observations of the site and/or surrounding area, it should be understood that there is a possibility that different subsurface conditions exist within the site and/or adjacent area. Simply, if observation or exploration was performed at a particular location, it may not be indicative of the portions of the site not observed or explored. The nature and extent of variations in subsurface conditions may not become evident until grading or construction. As such, it should be clearly understood that it is the responsibility of the client, their authorized agent(s), or contractor(s) to bring any deviations or unexpected conditions observed during grading or construction to the attention of the Project Engineering Geologist and the Project Geotechnical Engineer of record. In this way, supplemental recommendations can be made with a minimum delay to the project.

Site Risks

It should be noted that <u>all</u> building sites are subject to a certain degree of risk that cannot be wholly identified and/or entirely eliminated. Building sites are subject to many detrimental engineering geologic and/or geotechnical hazards including, but not limited to, the effects of water infiltration, erosion, concentrated drainage, settlement, expansive soil movement, expansive bedrock movement, seismic shaking, fault rupture, landsliding, and slope creep. Risks from these hazards can typically be reduced by employing qualified engineering geologic and geotechnical engineering professionals. However, even with a thorough subsurface exploration and testing program performed by a qualified engineering geologist and/or geotechnical

engineer, significant variability of the underlying earth materials may be present within the site. In addition, it is possible that latent (hidden) geologic hazards are present within the site which are concealed by earth materials, vegetation, existing structures, and hardscaping. If such defects are present, they are beyond the evaluation of the Project Engineering Geologist and/or the Project Geotechnical Engineer. In addition, the level of risk and/or the potential for negative site effects from many geologic/geotechnical hazards are highly dependent on the property owner or developer properly developing and maintaining the site, drainage facilities, slopes, and by correcting any deficiencies found during occupancy or use of the property. It should be clearly understood that owner and/or developer is responsible for retaining appropriate and qualified design professionals and contractors in developing the property and for properly maintaining the site and structures. Retaining the services of an engineering geologic and/or geotechnical engineering consultant shall not be construed to relieve the owner, developer, or contractors of their responsibilities or liabilities.

Hazardous Materials

It should be clearly understood that the identification, sampling, testing, excavation, handling, and/or disposal of any hazardous materials, that may or may not be present within the site, is beyond the scope of this study. In the event such materials are discovered by additional site studies or are encountered during grading or construction, appropriate environmental studies and site mitigation/remediation work may be required. In addition, the client and/or property owner shall acknowledge and/or accept that LP has neither created nor contributed to the creation or existence of any hazardous, radioactive, toxic, irritant, pollutant, substance or constituent, or otherwise dangerous conditions at the site. All site generated non-hazardous and/or hazardous materials, including but not limited to samples, soil/rock cuttings, drilling fluids, decontamination fluids, development fluids, and used disposable protective gear and equipment are the property of the client and/or property owner.

Additional Work

Please be aware that the contract fee for our services to perform an update engineering geologic study and prepare this report does not include additional work that may be required in association with the proposed project such as responses to report and/or plan review letters prepared by the building department or appropriate regulatory agency in association with you obtaining a grading/building permit, meetings, plan review by this firm, grading/construction observations, and/or any necessary geologic observation of the site with respect to the proposed project. Where additional services are requested or required, you will be billed on an hourly basis for our engineering geologic observation, exploration, consultation, and/or analysis in accordance with LP's current *Fee Schedule.*

Report Expiration

The findings, conclusions, and recommendations of this report are valid as of the date of issuance. However, it should be noted that changes in the surficial or subsurface conditions of a property may occur with the passage of time due to natural processes or works of man within the site or the adjacent area. Furthermore, changes in industry standards periodically occur due to code revisions, legislation, and broadening of knowledge. Accordingly, the findings, conclusions, and/or recommendations of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to our review and remains valid for

a maximum period of one (1) year from the date of issuance unless LP issues a written opinion of its continued validity thereafter.

Warrantee

The professional opinions and engineering geologic advice contained in this report are based on LP's understanding of the proposed project, LP's evaluation of available information, and LP's general experience in the field of engineering geology. It should be noted that LP does not guarantee the engineering geologic interpretations presented in this report, only that the methods of this update engineering geologic study and the professional engineering geologic opinions and advice provided in this report are generally consistent with the standard of care of the engineering geologic profession at this time for studies performed in the same locality and under similar project conditions. Simply, no warranty is expressed, implied, is made, or intended concerning this report, by furnishing of this report, or by any other oral or written statement by LP.

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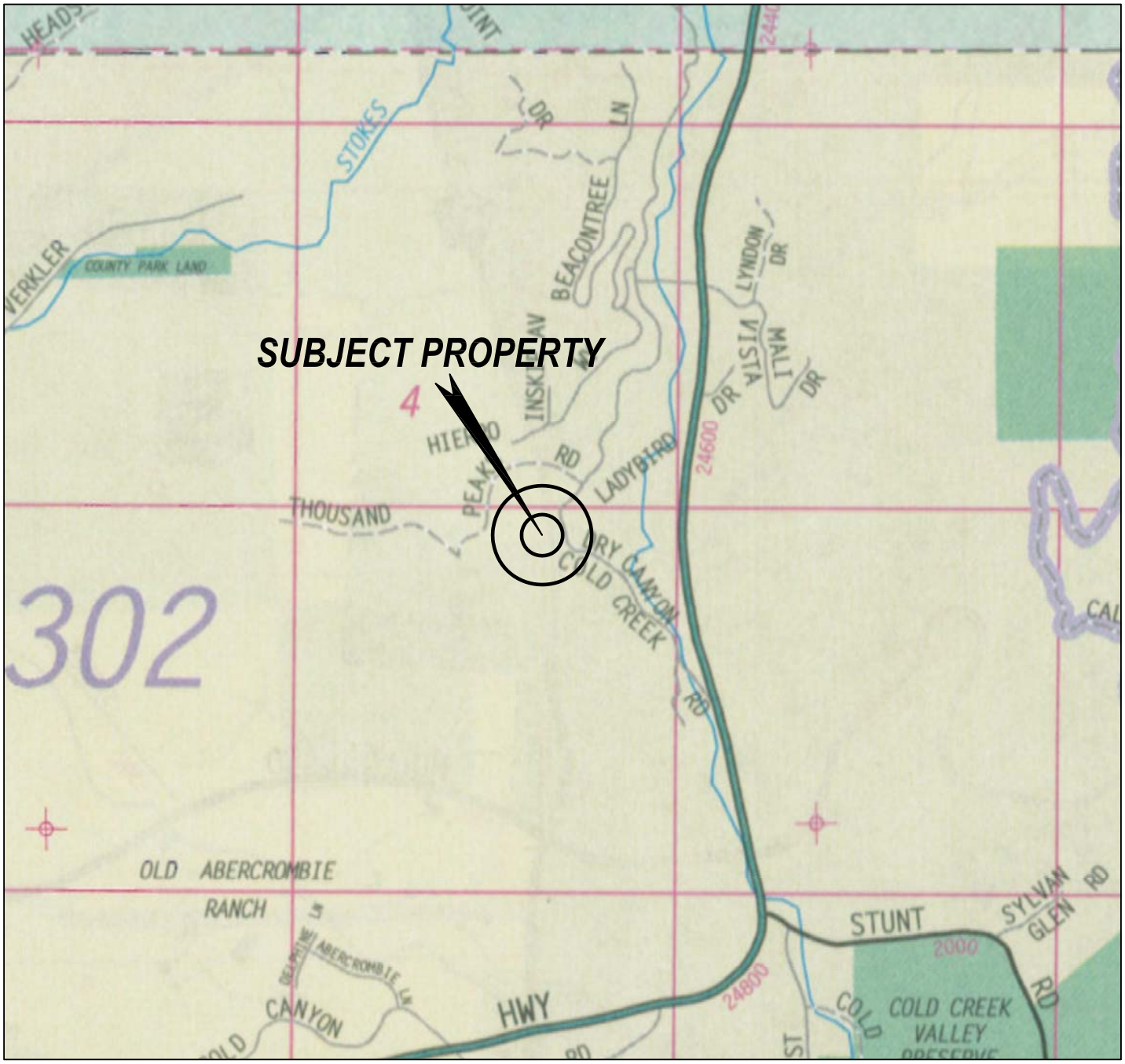
FIGURES

SITE LOCATION MAP



REFERENCE: *THOMAS GUIDE MAP, PAGE 589-C4*

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LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

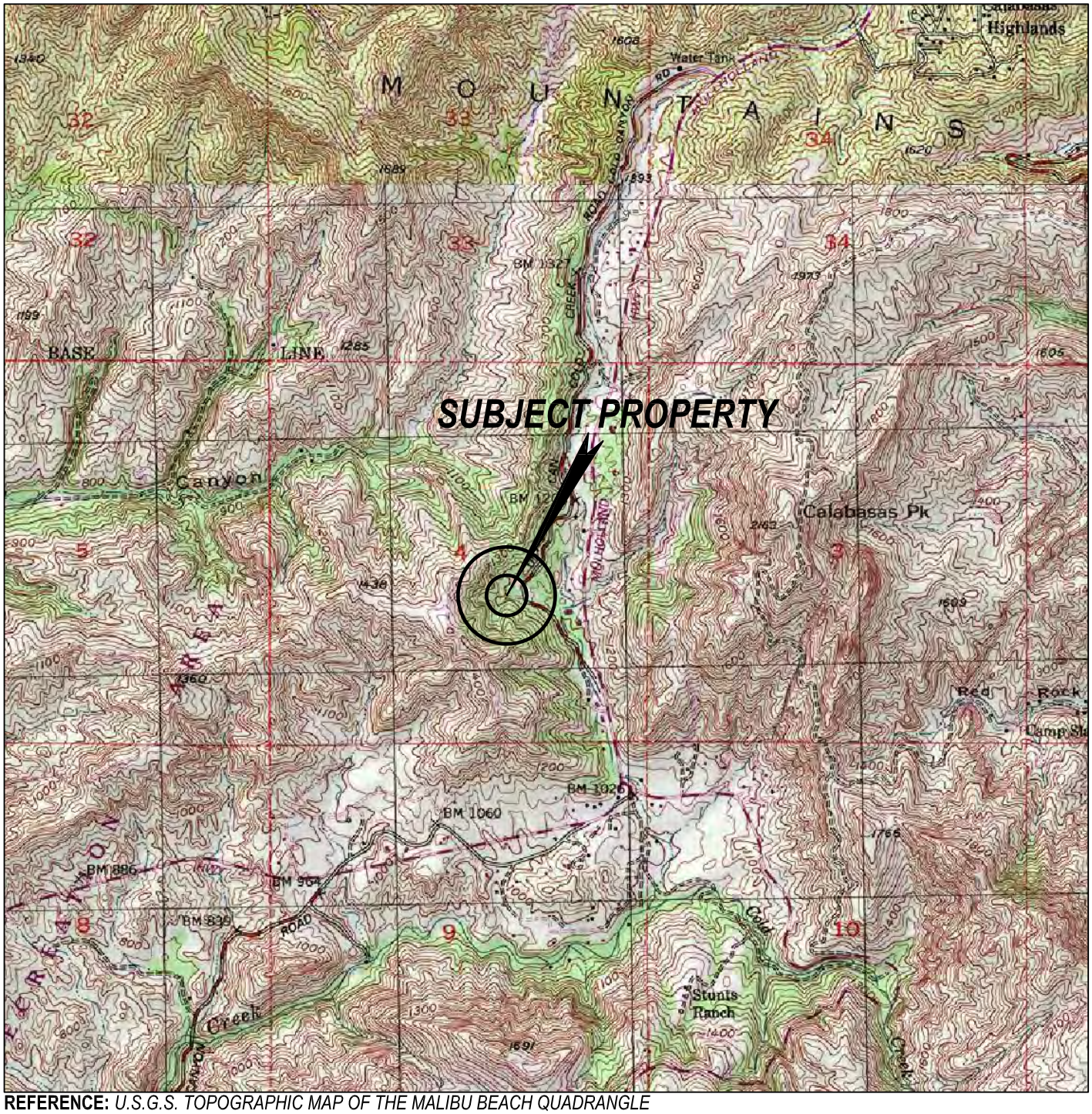
0 500 1000 1500 2000 3000 feet

JOB NUMBER:
LP 1240

JOB NAME:
ANDREWS

FIGURE 1

SITE LOCATION MAP



REFERENCE: *U.S.G.S. TOPOGRAPHIC MAP OF THE MALIBU BEACH QUADRANGLE*

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LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

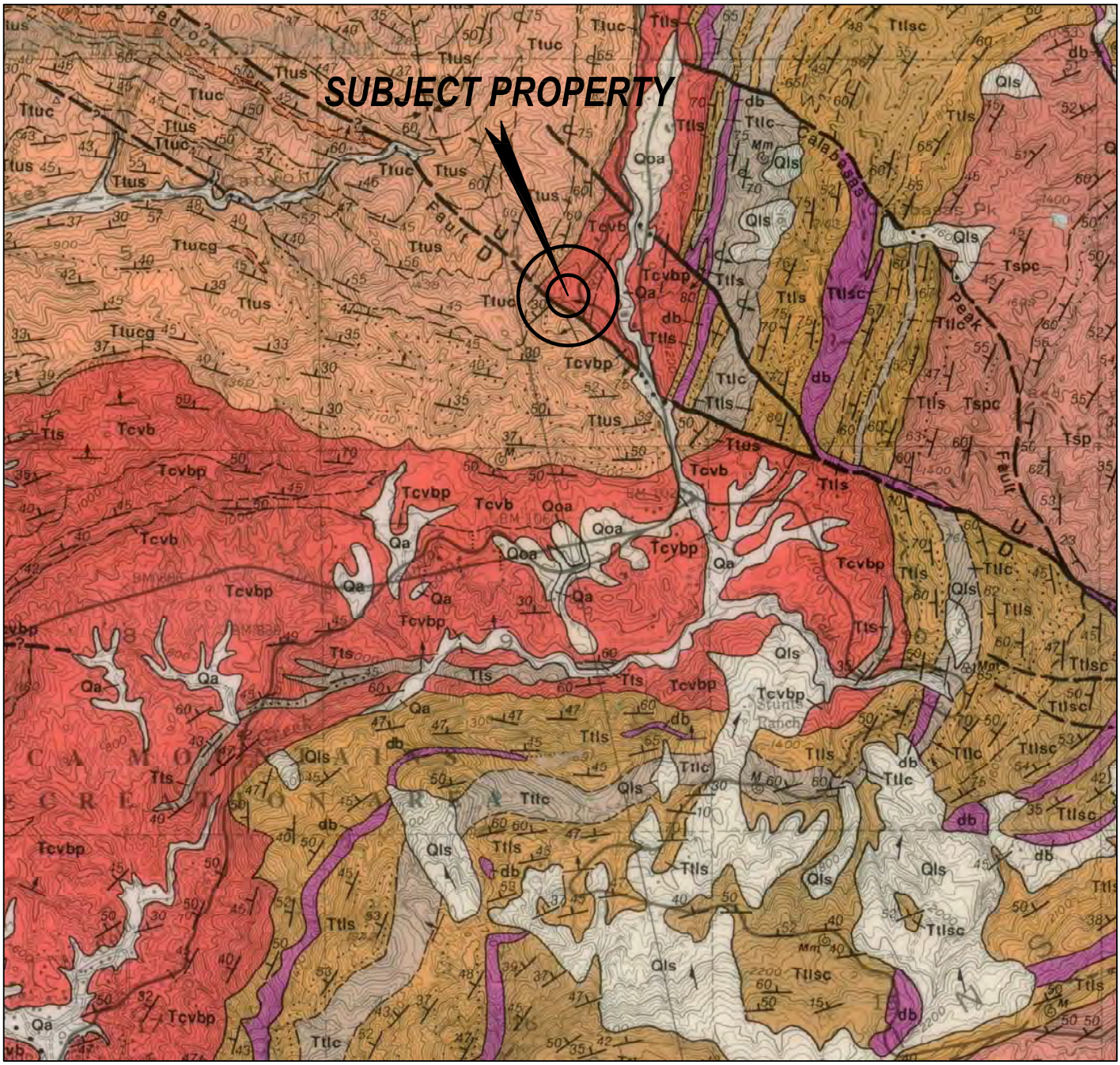
0 1000 2000 3000 4000 6000 feet

JOB NUMBER:
LP 1240

JOB NAME:
ANDREWS

FIGURE 2

REGIONAL GEOLOGIC MAP



REFERENCE: *GEOLOGIC MAP OF THE MALIBU BEACH QUADRANGLE, LOS ANGELES COUNTY, CA., BY T.W. DIBBLEE, JR., 1993*

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LP 1240

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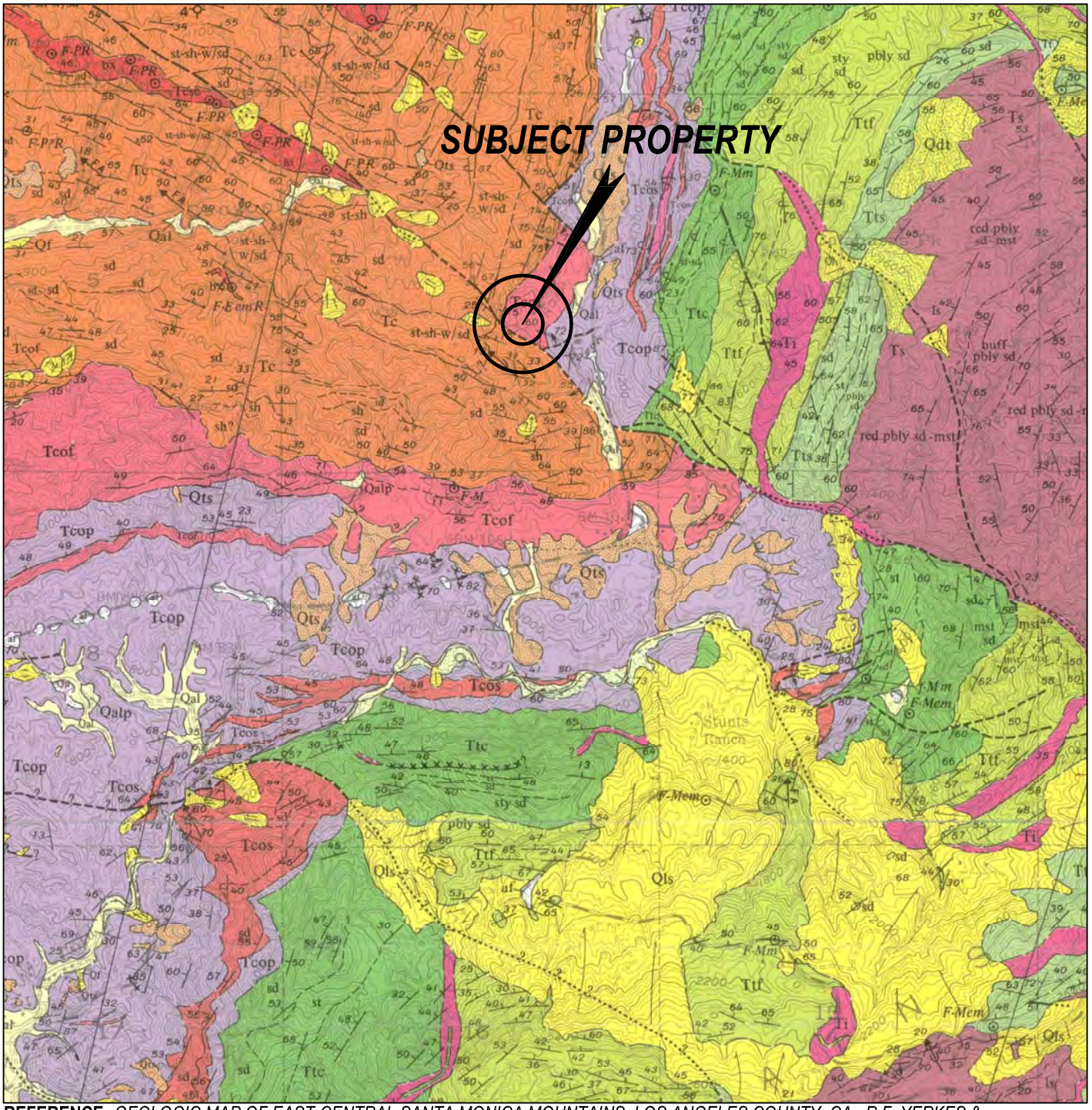
ANDREWS

FIGURE 3

REGIONAL GEOLOGIC MAP



REFERENCE: *GEOLOGIC MAP OF EAST-CENTRAL SANTA MONICA MOUNTAINS, LOS ANGELES COUNTY, CA., R.F. YERKES & R.H. CAMPBELL, 1980*

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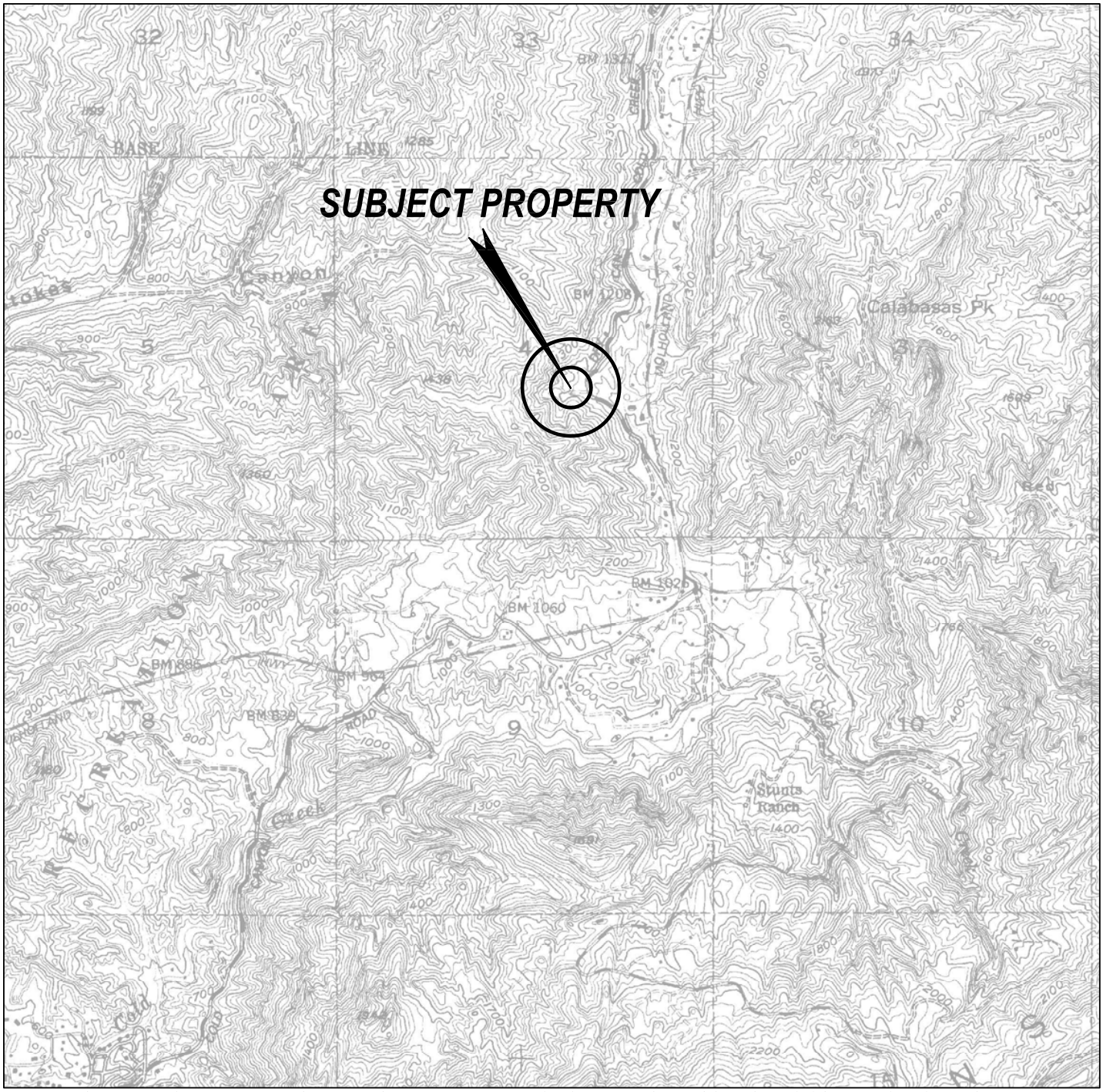
FIGURE 4

EARTHQUAKE FAULT ZONE MAP



REFERENCE: *EARTHQUAKE FAULT ZONE MAP OF THE MALIBU BEACH QUADRANGLE, LOS ANGELES COUNTY, CA., C.D.M.G., 2007*

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CONSULTING ENGINEERING GEOLOGISTS

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LP 1240

JOB NAME:
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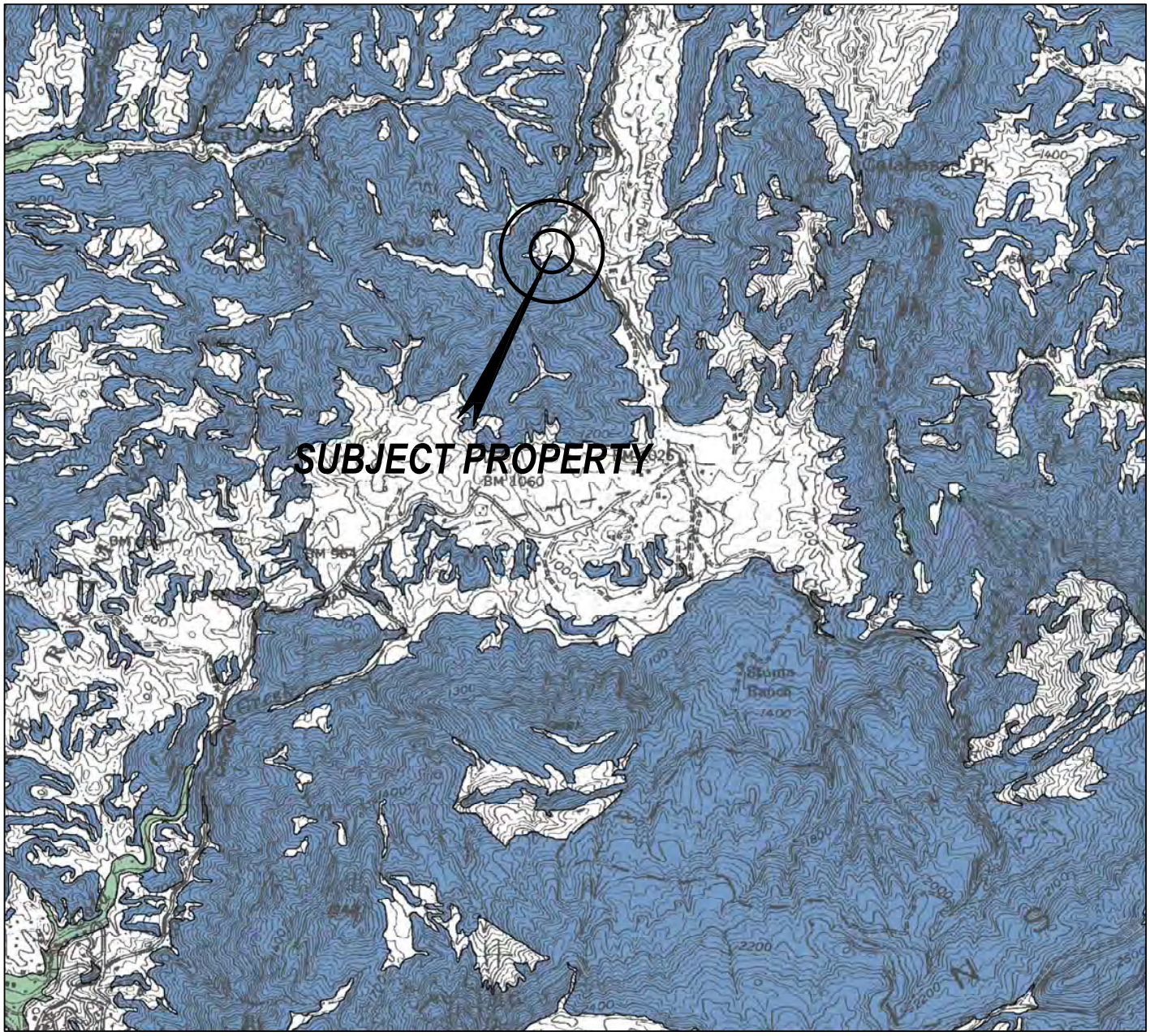
FIGURE 5

SEISMIC HAZARD MAP



REFERENCE: *SEISMIC HAZARDS ZONE MAP OF THE MALIBU BEACH QUADRANGLE, LOS ANGELES COUNTY, CA.: C.D.M.G., 2001*

Liquefaction: *Areas where occurance of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potencial for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.*

Earthquake-induced Landslides: *Areas where previous occurrence of landslide movement, or local topographic, geological and subsurface water conditions indicate a potencial for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.*

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FIGURE 6

APPENDIX A

LOGS OF EXPLORATORY EXCAVATIONS

LOG OF BORING # 1 (B-1)

(Page 1 of 1)

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 1/11 and 1/12/16	Weather Conditions	: Partly cloudy
Date Logged	: 1/12/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Lo-Drill Flight Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-22' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt @6', Slight increase in fines, slightly moist to moist @12', Begin 5-foot thick zone of abundant gravel, minor ravelling from boring sidewalls @17', Fill is dense, moist		
5	1185										
10	1180										
15	1175										
20	1170	VL							22'-41' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered └@24', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance └@26', Very slight water seep along fracture, rock is dry below		Joint @26', N 56 E, 32 SE
25	1165										
30	1160										
35	1155										
40	1150								@41', Drilling aborted due to very slow rate of advance. Boring dry after 5 day waiting period		
45											

Total Depth: 41 feet
Slight water seep at 26 feet
No groundwater level
22 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe after final groundwater observation.

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LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

LOG OF BORING # 2 (B-2)

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 1/12/16	Weather Conditions	: Partly cloudy
Date Logged	: 1/12/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Lo-Drill Flight Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-9' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185										
10	1180	VL							9'-30' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
15	1175										
20	1170								@17', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
25	1165										
30	1160										
35											

Total Depth: 30 feet
No groundwater
No caving
9 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe after completion of percolation testing.

LOG OF BORING # 3 (B-3)

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 1/12 and 1/13/16	Weather Conditions	: Partly cloudy
Date Logged	: 1/12 and 1/13/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Lo-Drill Flight Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-3' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185								3'-30' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
10	1180										
15	1175	VL							@14', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
20	1170										
25	1165										
30	1160										
35											

Total Depth: 30 feet
No groundwater
No caving
3 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe after completion of percolation testing.

LOG OF BORING # 4 (B-4)

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 1/13/16	Weather Conditions	: Partly cloudy
Date Logged	: 1/13/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Lo-Drill Flight Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190								0-11' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185	SC									
10	1180								11'-30' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
15	1175										
20	1170	VL							@17', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
25	1165										
30	1160										
35											

Total Depth: 30 feet
No groundwater
No caving
11 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe after completion of percolation testing.

LOG OF BORING # 5 (B-5)

(Page 1 of 1)

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 1/13/16	Weather Conditions	: Partly cloudy
Date Logged	: 1/13/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Lo-Drill Flight Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-5' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185	VL							5'-27' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
10	1180										
15	1175								@15', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
20	1170										
25	1165								@24', BASALT grades to bluish green, very hard @27', Very hard bedrock, use of core bucket would be required to advance, drilling aborted		
30	1160										
35											

Total Depth: 27 feet
No groundwater
No caving
5 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe after completion of percolation testing.

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LOG OF BORING # 6 (B-6)

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Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 2/10/16	Weather Conditions	: Clear, cool
Date Logged	: 2/10/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Bucket Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-3' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185								3'-30' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
10	1180										
15	1175	VL							@15', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
20	1170										
25	1165										
30	1160										
35											

Total Depth: 30 feet
No groundwater
No caving
3 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe after completion of percolation testing.

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LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

LOG OF BORING # 7 (B-7)

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 2/10/16	Weather Conditions	: Clear, cool
Date Logged	: 2/10/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Bucket Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-3' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185								3'-27' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
10	1180								@10', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
15	1175	VL									
20	1170										
25	1165								@27', Very hard bedrock, use of core bucket would be required to advance, drilling aborted		
30	1160										
35											

Total Depth: 27 feet
No groundwater
No caving
3 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe after completion of percolation testing.

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LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

LOG OF BORING # 8 (B-8)

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 2/11/16	Weather Conditions	: Clear, cool
Date Logged	: 2/11/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Bucket Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-12' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185										
10	1180										
12		VL							12'-30' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
15	1175										
20	1170								@22', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
25	1165										
28									@28', Slight water seep		
30	1160										
35											

Total Depth: 30 feet
Slight water seep at 28 feet
No caving
12 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe.

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LOG OF BORING # 9 (B-9)

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS

Project Name: Andrews
Project Location: 24600 Thousand Peaks Rd.
Los Angeles County, CA

Project No.: LP1240

Date Excavated	: 2/11/16	Weather Conditions	: Clear, cool
Date Logged	: 2/11/16	Elevation Datum	: From Survey
Drilling Company	: Roy Bros. Drilling	Logged By	: Gordon Stolla, CEG
Drilling Method	: Bucket Auger Drill-Rig	Checked By	: Jake Holt, CEG
Sampled by	: No samples		

Sample Condition: Remoulded; Undisturbed; Lost, No Recovery; Bulk

Sampler Type: SS Split Spoon; ST Shelby Tube; PS Piston Sampler; DC Diamond Core Bar.

Depth in Feet	Surf. Elev. 1190	USCS	Graphic	Sample Depth	Sampler Type	Blow Count	Dry Density (pcf)	Moisture Content (%)	MATERIAL DESCRIPTIONS	Depth to Groundwater	Structure/Comments
0	1190	SC							0-9' COMPACTED FILL (afc) CLAYEY SAND with GRAVEL; mottled moderate reddish brown and dark brown, slightly moist, medium dense to dense, gravel component consists of angular, pebble- to cobble-size clasts of basalt		
5	1185										
10	1180	VL							9'-30' BEDROCK (Conejo Volcanics - Tcv) BASALT; dark brown to black, massive, finely crystalline, non-friable, hard to very hard, moderately fractured, moderately weathered		
15	1175										
20	1170								@22', BASALT grades to greenish gray, very hard, slightly fractured, slightly weathered, very slow rate of advance		
25	1165										
30	1160								@29', Slight water seep		
35											

Total Depth: 30 feet
Slight water seep at 29 feet
No caving
9 feet of compacted fill

Surface Conditions: Level pad area

Notes: Boring backfilled with spoils to grade by backhoe.

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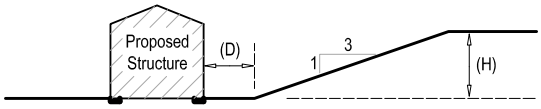
APPENDIX B

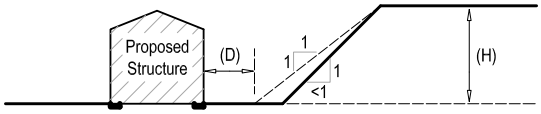
TYPICAL DETAILS and DIAGRAMS

(Based on 2013 CBC Section 1808.7)

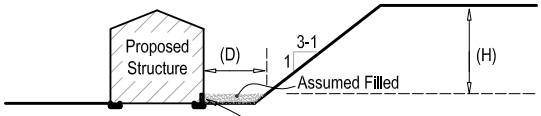
Ascending Slopes 3(H):1(V) or Steeper



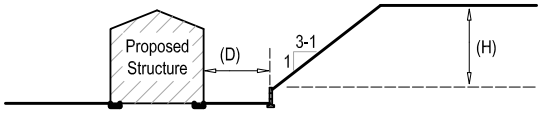
(D)=(H)/2, MIN 3ft., MAX 15ft.



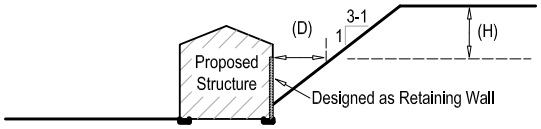
(D)=(H)/2, MIN 3ft., MAX 15ft.



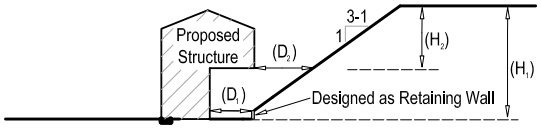
(D)=(H)/2, MIN 3ft., MAX 15ft. Designed as Retaining Wall



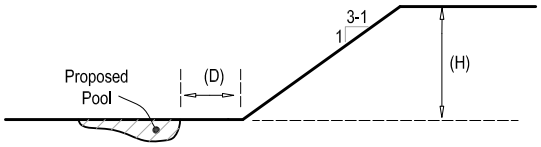
(D)=(H)/2, MIN 3ft., MAX 15ft.



(D)=(H)/2, MIN 3ft., MAX 15ft.

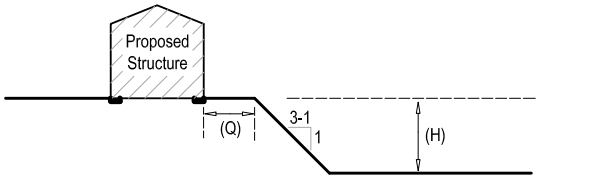


(D$_1$)=(H$_1$)/2, MIN 3ft., MAX 15ft.
(D$_2$)=(H$_2$)/2, MIN 3ft., MAX 15ft.

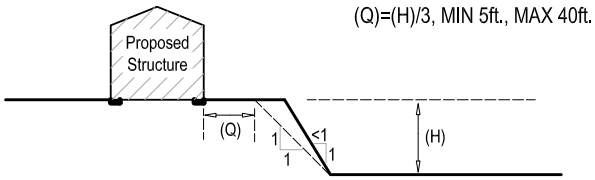


(D)=(H)/4, MIN 1.5ft., MAX 7.5ft.

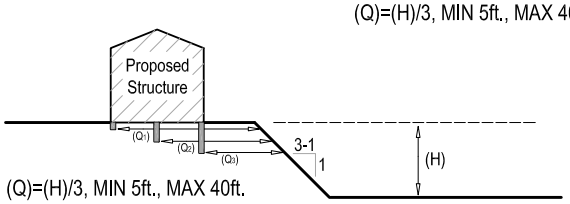
Descending Slopes 3(H):1(V) or Steeper



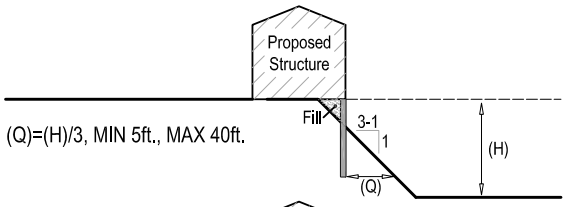
(Q)=(H)/3, MIN 5ft., MAX 40ft.



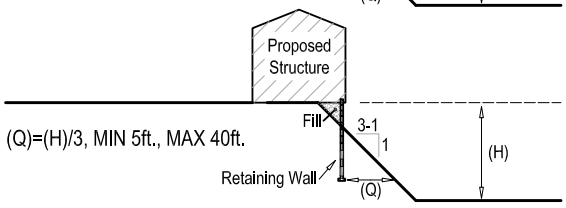
(Q)=(H)/3, MIN 5ft., MAX 40ft.



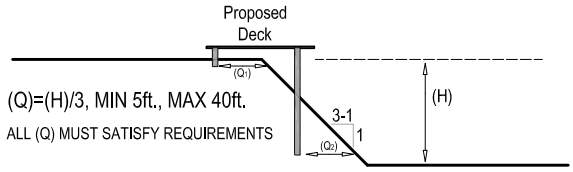
(Q)=(H)/3, MIN 5ft., MAX 40ft.
ALL (Q) MUST SATISFY REQUIREMENTS



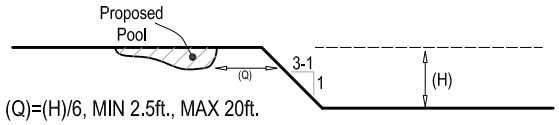
(Q)=(H)/3, MIN 5ft., MAX 40ft.



(Q)=(H)/3, MIN 5ft., MAX 40ft.



(Q)=(H)/3, MIN 5ft., MAX 40ft.
ALL (Q) MUST SATISFY REQUIREMENTS



(Q)=(H)/6, MIN 2.5ft., MAX 20ft.

Examples of Slope Setback Requirements

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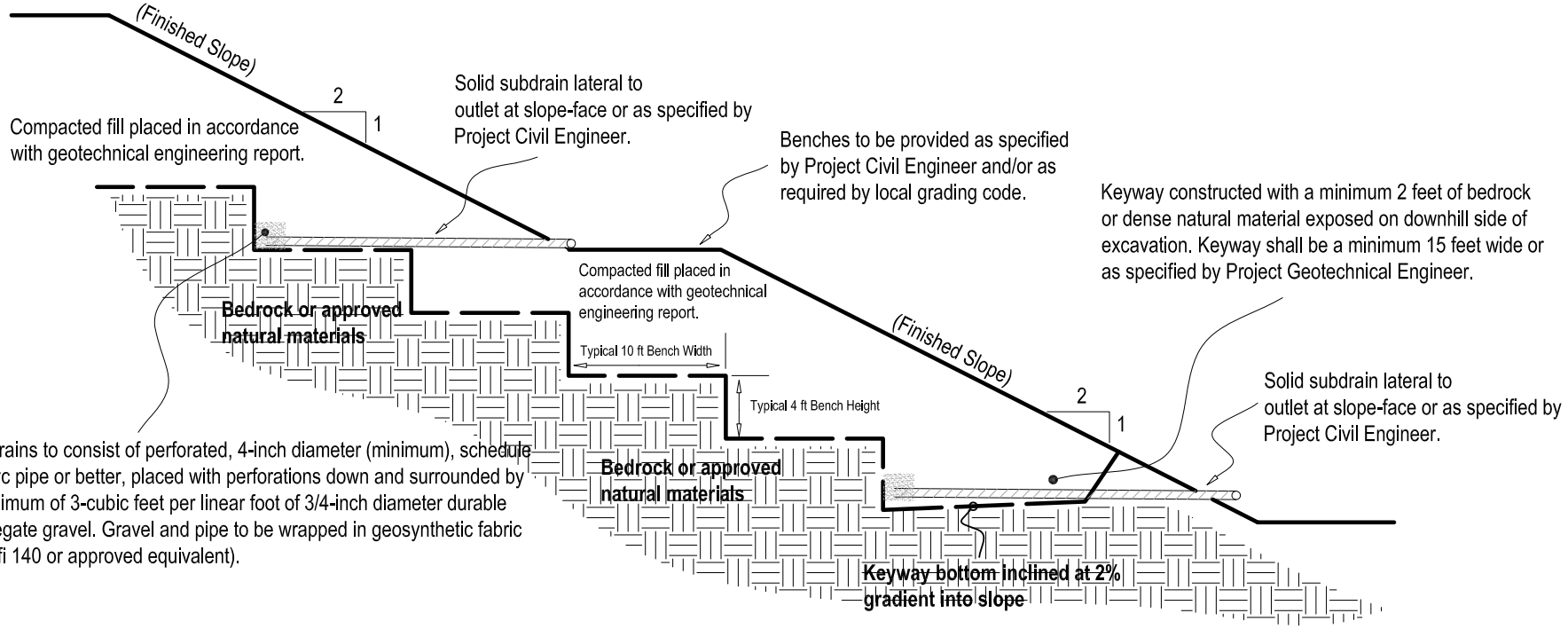
(Section J110, 2013 CBC) The faces of cut- and fill-slopes shall be prepared and maintained to control against erosion. This control shall be permitted to consist of effective planting. Erosion control for the slopes shall be installed as soon as practicable and prior to calling for final inspection.



SUBDRAIN RUN LENGTH	MINIMUM PIPE DIAMETER
0 - 200 ft	4 inches
200 - 400 ft	6 inches
400 - 800 ft	8 inches

Typical 2(H): 1(V) Fill-Slope, Keyway, Benching, and Subdrain Detail

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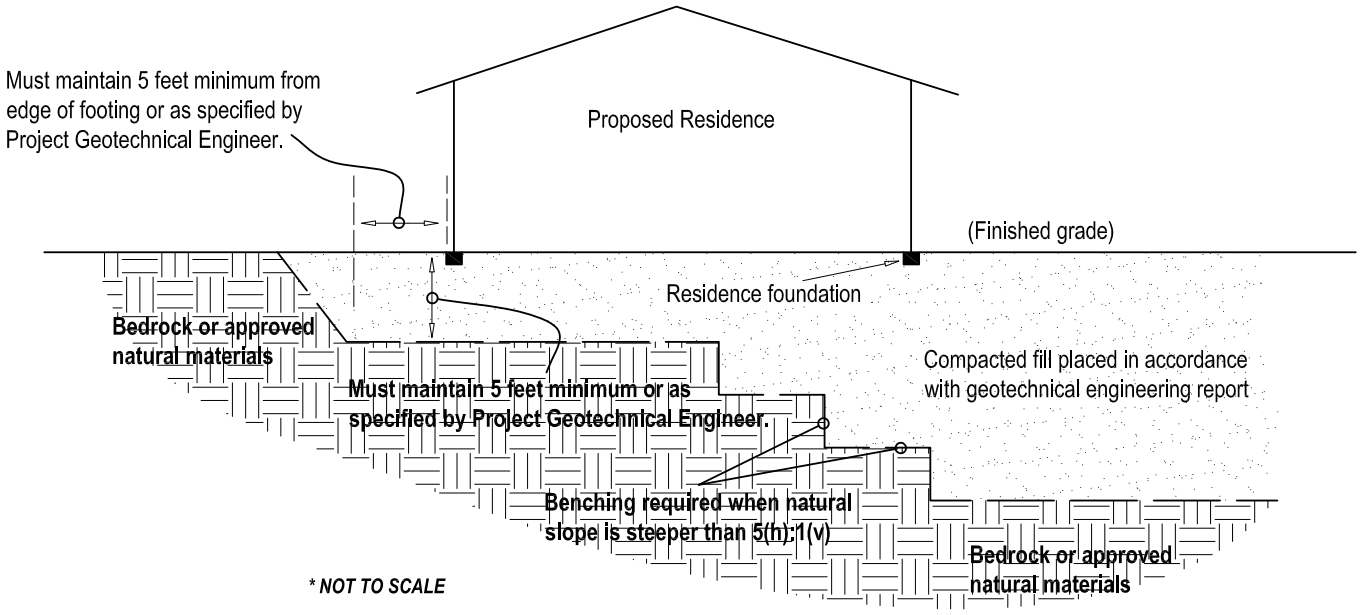

Typical Over-Excavation Beneath Buildings

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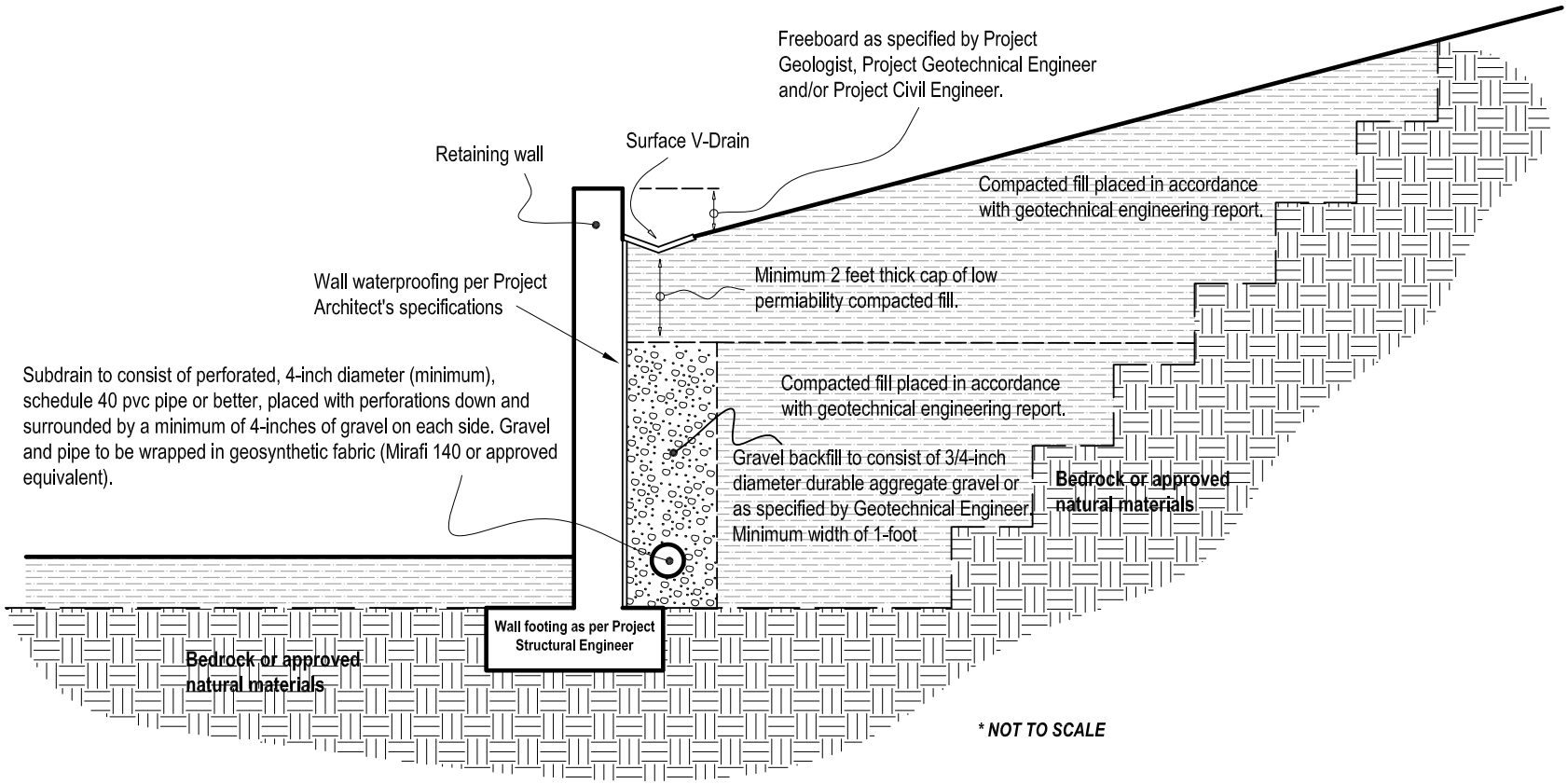

SUBDRAIN RUN LENGTH	MINIMUM PIPE DIAMETER
0 - 200 ft	4 inches
200 - 400 ft	6 inches
400 - 800 ft	8 inches

Typical Retaining Wall Drainage and Backfill Detail

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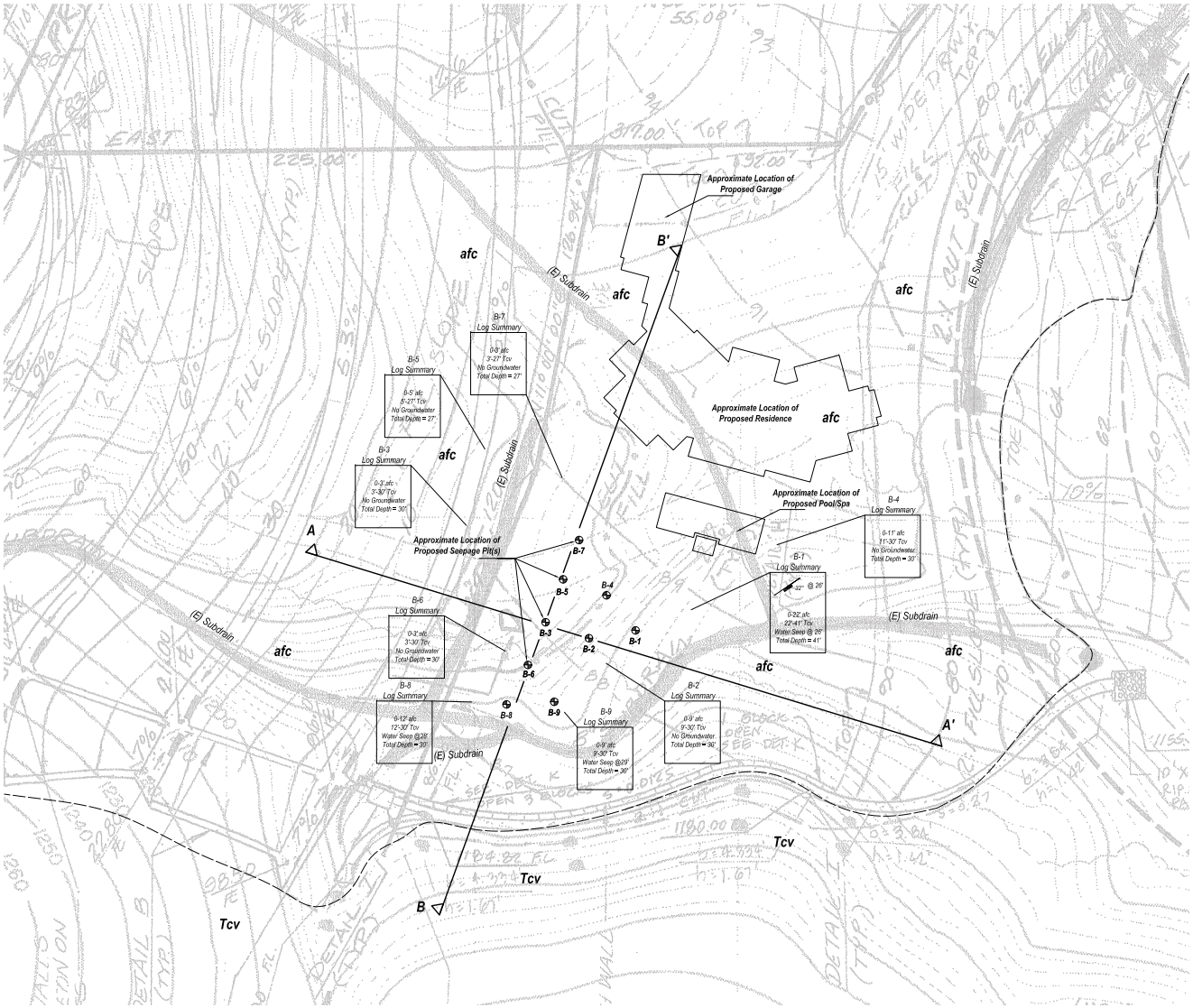
MAP POCKET

GEOLOGIC MAP



EXPLANATION

GEOLOGIC SYMBOLS

B-9 — Location of boring - Land Phases, Inc., 2016

Strike and dip of joint plane

Geologic Contact - approximately located, queried where uncertain

GEOLOGIC UNITS

Surficial Sediments:

afc — Certified Compacted Fill (West Coast Soils, 1990)

Bedrock:

Tcv — Conejo Volcanics

GEOLOGIC SHEET INDEX

0 10 20 30 40 60 feet

Graphic Scale 1" equals 20'

LANDPHASES INC

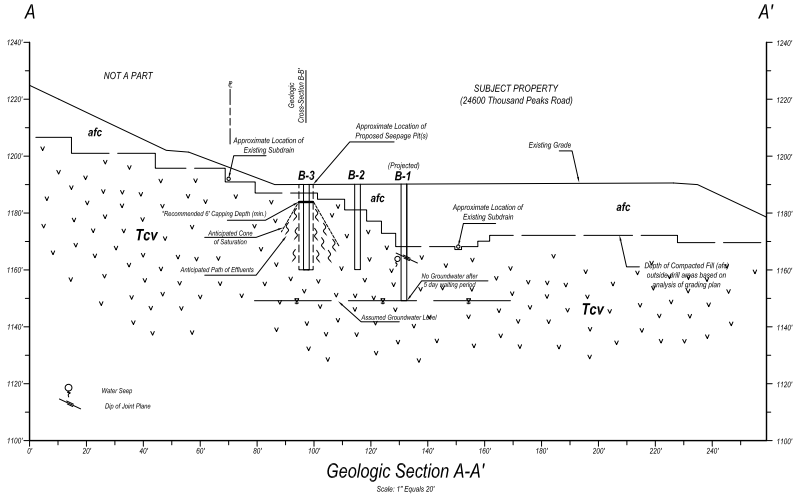
5158 COCHRAN ST.,
SIMI VALLEY, CA., 93063
www.landphases.com

(805) 522-5174
(805) 582-1228 (FAX)

JOB NAME:	JOB NUMBER:	DATE:	DRAFTED BY:	
Andrews	LP 1240	February, 2016	GDS	PLATE 1

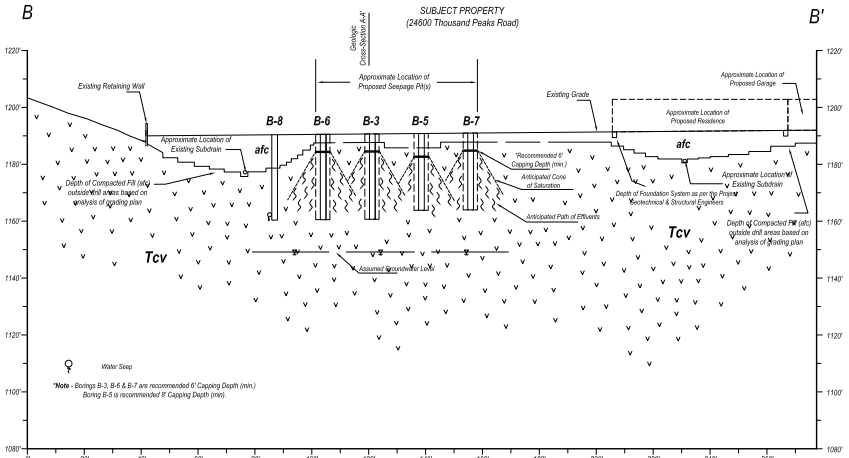
No.	DATE:	REVISION DESCRIPTION:

GEOLOGIC SECTIONS A & B



Geologic Section A-A'

Scale: 1" Equals 20'



Geologic Section B-B'

Scale: 1" Equals 20'

LANDPHASES INC
CONSULTING ENGINEERING GEOLOGISTS
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JOB NAME:	JOB NUMBER:	DATE:	DRAFTED BY:	PLATE 2
Andrews	LP 1240	February, 2016	GDS	

NO.	DATE	REVISION DESCRIPTION:

CALWEST GEOTECHNICAL
CONSULTING ENGINEERS

May 14, 2014 Project No. 5498

John Andrews
2901 Stoner Avenue
Los Angeles, CA 90025

SUBJECT: **UPDATE GEOTECHNICAL ENGINEERING REPORT AND CHANGE OF GEOTECHNICAL CONSULTANT, PROPOSED CUSTOM SINGLE-FAMILY RESIDENTIAL DEVELOPMENT, LOT 1, TRACT 36172, 24600 THOUSAND PEAKS ROAD, CALABASAS, CALIFORNIA.**

REFERENCES: ADDENDUM TO AS-BUILT GEOLOGIC AND FINAL COMPACTION REPORT, PROPOSED RESIDENTIAL DEVELOPMENT, LOTS 1 THROUGH 7, TRACT 36172, 24575 DRY CANYON/COLD CREEK ROAD, CALABASAS, LOS ANGELES, COUNTY, CALIFORNIA, PREPARED BY WEST COAST SOILS, PROJECT NO. 1908-88-DATED MAY 10, 1990.

AS-BUILT GEOLOGIC AND FINAL COMPACTION REPORT, PROPOSED RESIDENTIAL DEVELOPMENT, LOTS 1 THROUGH 7, TRACT 36172, 24575 DRY CANYON/COLD CREEK ROAD, CALABASAS, LOS ANGELES, COUNTY, CALIFORNIA, PREPARED BY WEST COAST SOILS, PROJECT NO. 1908- 88, DATED FEBRUARY 15, 1990.

PERCOLATION TESTING FOR THE PROPOSED ONSITE PRIVATE SEWAGE DISPOSAL SYSTEMS, LOTS 1 THROUGH 7, TRAT 36172, 24575 DRY CANYON/COLD CREEK, CALABASAS, COUNTY OF LOS ANGELES, CALIFORNIA, PREPARED BY WEST COAST SOILS, PROJECT NO. 1908-88, DATED FEBRUARY 20, 1989.

UPDATE GEOLOGIC AND SOILS ENGINEERING INVESTIGATION, TENTATIVE TRACT 36172 DRY CANYON/COLD CREEK ROAD, CALABASAS, LOS ANGELES, COUNTY, CALIFORNIA, PREPARED BY WEST COAST SOILS, PROJECT NO. 1181-87, DATED MAY 11, 1987.

ADDITIONAL REFERENCES ARE INCLUDED IN THE AFOREMENTIONED REPORTS.

INTRODUCTION

This Update Geotechnical Engineering Report and Change of Geotechnical Consultant has been prepared at your request and presents our Geotechnical engineering review and evaluation performed for the proposed residential development at Lot 1, Tract 36172, 24600 Thousand Peaks Road, Calabasas, County of Los Angeles, California. The Location Map in Appendix A shows the approximate location of the subject site and surrounding vicinity.

This Update Geotechnical Engineering Report is based wholly on information contained in the referenced reports, review of the current site development plan, and a recent site reconnaissance by a representative of this office. The site reconnaissance was performed to visually evaluate changes in the surface condition of the subject site, subsequent to the preparation of the referenced reports.
The following report describes our scope of work and presents our professional opinions regarding the proposed development, in the form of findings, conclusions, and geotechnical recommendations.

SCOPE OF WORK

Our geotechnical review and evaluation has been directed at identification and evaluation of geotechnical conditions at the subject site that may impact the proposed development. Our review and evaluation was conducted during January through May 2014, and included, but may not have been limited to, the following tasks:

- Consultation with the client during the site reconnaissance and subsequent report preparation.
- Review of the referenced reports and site plan.
- Reviewed published geotechnical information, relevant to the site and surrounding areas, available in our files.
- Review of pertinent records on file at the County of Los Angeles, Department of Public Works.
- Performed a site reconnaissance to assess the surficial conditions at the subject site, particularly as they relate to conditions presented in the referenced reports.
- Preparation of an Update Geotechnical Map utilizing the Site Plan provided by the client. The Update Geotechnical Map is included in Appendix B. We make no representations regarding the accuracy of the supplied map.
- Preparation of this formal update report presenting our professional opinions regarding the proposed development, in the form of findings, conclusions and geotechnical recommendations.

PROPOSED DEVELOPMENT

Information concerning the proposed development was provided by the client. It is our understanding the proposed development consists of the construction of a custom single-family residence in the north central portion of the subject site. Additionally, the proposed development will include an attached garage, a swimming pool/spa, and ancillary site improvements. The proposed residence will be serviced by an onsite private sewage disposal system designed by the project environmental health consultants.
The structures which comprise the proposed development are designated Occupancy Category II Structures, per the 2013 California Building Code. It is anticipated that the proposed residence

construction will involve typical Type V (CBC designation) framing methods, supported above a conventional and/or deepened conventional foundation system and reinforced concrete slab-on grade, founded into certified compacted fill.

Considering the lapse of time since the completion of the rough grading at the subject site, circa (1988-1990), minor grading will be required within the graded pad, access driveway and motorcourt areas. It is recommended that the upper 24 inches of the previously certified compacted fill within the structural footprints and a minimum of five feet beyond, be removed and recompacted as a recertified compacted fill. Additional grading required for the proposed development will consist of a minor conventional cut and fill grading operation to construct the proposed level pad, driveway, and motorcourt areas. The removal and recompaction should be performed per the grading recommendations presented in the following sections of this report under the observation and approval of this office.

Sewers are not currently available to service the subject site. Accordingly, it is our understanding that it is proposed to construct a private sewage disposal system on the subject site in order to serve the proposed residence. It is anticipated, the proposed private sewage disposal system will consist of a septic tank and seepage pit(s) designed per the recommendations of the Project Environmental Health Specialist. The system design should be in accordance with the County of Los Angeles Department of Environmental Health guidelines.

Percolation testing presented in the referenced report dated February 20, 1999 indicates that the proposed installation of a private sewage disposal system on the subject site is considered feasible from a geotechnical point of view. The referenced Percolation Testing Report prepared by West Coast Soils, dated February 20, 1999 is included in Appendix D.

PREVIOUS GEOTECHNICAL STUDIES

As referenced, the subject site was previously graded and certified as part of the mass grading of the parent Tract 36172, Lots 1 through 7, circa 1988 -1990 under the observation and approval of West Coast Soils. Rough grading consisted of a conventional cut and fill grading operation which involved the construction of the access drive and building pads. The depth of certified compacted fill varies from 5 to 10 feet on the building pad, however, the fill thickness increases to the east. Details concerning the grading operation of the subject Tract including the subject site are presented in the referenced As-Built Geologic Final Compaction Report, prepared by West Coast Soils, dated February 15, 1990. A copy of the report is included in Appendix C.

SEISMIC CONSIDERATIONS

The subject site is not located within any California Earthquake Fault Zone. However, the site, as

all the Southern California area, is located in a seismically active region and will be subject to moderate to strong ground shaking should any of the many active Southern California faults produce an earthquake. Potential hazards from earthquakes in the vicinity of the site, aside from strong ground shaking, may include fault rupture, liquefaction and landslides.

Earthquakes are generally characterized by magnitude, which is a quantitative measure of the strength of the earthquake, based on the strain energy released during a seismic event. The magnitude, which is often quantified on the Richter scale, is independent of the site in question.

The intensity of an earthquake at any given site, however, is affected by the magnitude, distance between the site and the hypocenter, and the geologic conditions between the site and hypocenter. Intensity is often measured, utilizing the MERCALLI scale. Intensity is generally greater in areas underlain by unconsolidated soils, rather than areas underlain by bedrock.

The existing code organizations, within the United States, are in the transitional period to develop and implement a sole comprehensive construction code; a code without regional limitations that will enable engineers, designers and contractors to work with a consistent set of standards throughout the United States. In California, the current phase to reach that objective is found in the 2013 California Building Code (CBC). Like its predecessor, the 2013 CBC is based on ground motions with a 10% possibility of exceeding a 50-year event, which corresponds to a return period of approximately 475 years.

Should a major earthquake occur with an epicenter location close to the subject site, ground shaking at the site will undoubtedly be severe, as it will for other properties in the general vicinity. Lateral forces due to earthquake loading may be calculated utilizing the formulas presented in the 2013 edition of the California Building Code (CBC), based on the following parameters, which should be ratified by the project structural engineer:

Latitude	34.1093°
Longitude	-118.6680°

Parameter		Table No.
0.2 sec Spectral response acceleration	S_S = 2.059 g	USGS*
1.0 sec Spectral response acceleration	S_1 = 0.6723 g	USGS*
0.2 sec Damped Design Spectral Response	S_{DS} =1.372 g	USGS*
Site classification	C	ASCE 7 Table 20.3-1
Site coefficient for short periods	F_A = 1.0	T) 1613.5.3 (1)
Site coefficient for 1.0 sec period	F_V = 1.3	T) 1613.5.3 (2)

* Data obtained: *http://geohazards.usgs.gov/designmaps/us/application.php*,

Conformance with the above listed criteria for seismic design does not constitute any kind of warranty, guarantee, or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and limb, and catastrophic failure, and not to avoid all damage, since such design may be economically prohibitive.

Fault Rupture

An earthquake is caused when strained energy and rocks are suddenly released by movement along a plane of weakness. Occasionally, fault movement propagates upward through the subsurface materials and causes displacement of the ground surface. Surface rupture usually occurs along the traces of known active or potentially active faults, although many historic events have occurred on faults not previously known to be active.

Liquefaction Potential

According to the State of California Division of Mines and Geology (CDMG), the subject site is not in an area subject to liquefaction. Many factors influence a soils potential for liquefaction during an earthquake. These factors include magnitude and proximity of the earthquake, duration of shaking, soil types, grain size distribution, clay fraction content, density, angularity, effective overburden, location of groundwater table, and soils transmissivity among others.

Accordingly, under the influence of severe ground shaking, the Materials underlying the subject site in the areas of the proposed development, based upon the known consistency of the earth materials and depth to groundwater, are not considered prone to liquefaction.

CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

CalWest Geotechnical has prepared this Update Geotechnical Engineering Report and Change of Geotechnical Consultant, for the proposed residential development on the property identified as Lot 1, Tract 36172, 24600 Thousand Peaks Road, Calabasas, County of Los Angeles, California. Based upon our geotechnical engineering review and evaluation as presented in this report, it is the opinion of this office the proposed development is feasible from a geotechnical engineering standpoint, provided the recommendations presented in this and the referenced reports are made part of the development plans and implemented during construction.

Required "111" Statement: It is the opinion of CalWest Geotechnical that the proposed development will be safe against hazard from landslide, settlement or slippage, and that the proposed development will not have an adverse influence on the stability of the subject site or immediate vicinity, provided the geotechnical recommendations are made part of the plans and are implemented during construction.

As previously stated, the proposed development consists of the construction of a custom single-family residence in the north central portion of the subject site. Additionally, the proposed development will include an attached garage, a swimming pool/spa, and ancillary site improvements. The proposed residence will be serviced by an onsite private sewage disposal system designed by the project environmental health specialist.

The structures which comprise the proposed development are designated Occupancy Category II Structures, per the 2013 California Building Code. It is anticipated that the proposed residence construction will involve typical Type V (CBC designation) framing methods, supported above a conventional and/or deepened conventional foundation system and reinforced concrete slab-on grade, founded into certified compacted fill.

Considering the lapse of time since the completion of the rough grading at the subject site, circa (1988-1990), minor grading will be required within the graded pad, access driveway and motorcourt areas. It is recommended that the upper 24 inches of the previously certified compacted fill within the structural footprints and a minimum of five feet beyond, be removed and recompacted as a recertified compacted fill. Additional grading required for the proposed development will consist of a minor conventional cut and fill grading operation to construct the proposed level pad, driveway, and motorcourt areas. The removal and recompaction should be performed per the grading recommendations presented in the following sections of this report under the observation and approval of this office.

Sewers are not currently available to service the subject site. Accordingly, it is our understanding that it is proposed to construct a private sewage disposal system on the subject site in order to serve

the proposed residence. It is anticipated, the proposed private sewage disposal system will consist of a septic tank and seepage pit(s) designed per the recommendations of the Project Environmental Health Consultant. The system design should be in accordance with the County of Los Angeles Department of Environmental Health guidelines.

Percolation testing presented in the referenced report dated February 20, 1999 indicates that the proposed installation of a private sewage disposal system on the subject site is considered feasible from a geotechnical point of view. The referenced Percolation Testing Report prepared by West Coast Soils, dated February 20, 1999 is included in Appendix D.

The recommendations which follow are presented as guidelines to be utilized during the design and construction of the proposed development, and have been prepared with the understanding that CalWest Geotechnical will be given the opportunity to review the building plans prior to construction, and will observe, test and advise during site grading and foundation construction to allow this office to provide certification of the finished project. Prior to construction, it is recommended that a meeting be held with the project engineering consultants, owner and general contractor to review the plans and specifications, and to discuss scheduling of the project.

GRADING

All grading operations should be performed in compliance with all applicable grading codes and the minimum specifications outlined below. Observation and testing will be necessary during these phases of the project to allow CalWest Geotechnical to provide certification of the finished project.

Site Preparation and Excavation

A. Any trees or shrubs designated for removal should be cut down and all stumps and roots should be removed. All major vegetation, organic soil and debris material should be stripped and wasted from the site.

B. The existing certified compacted fill located in areas to be constructed upon with reinforced concrete slabs-on-grade, foundations, or in areas to receive new certified compacted fill, should be excavated to a minimum depth of 24 inches below the existing grade, or to a depth to expose the previously certified compacted fill, whichever is greater. The approximate horizontal and vertical extent of these excavations should be verified by the project geotechnical consultant in the field.

C. The exposed surface should be scarified to a minimum depth of eight (8) inches, moisture conditioned to produce a soil-water content of about two (2) percent above optimum moisture content and compacted to a minimum 90 percent relative compaction, based on

ASTM Test D1557.

Fill Placement

A. At the completion of scarification, certified compacted fill may be placed to design grades using onsite inorganic soils or approved import.

B. Soil proposed for use as structural fill should be inorganic, free from deleterious materials, and contain no more than 15 percent by weight of rocks larger than four (4) inches (largest dimension).

C. We do not anticipate significant quantities of oversized materials; however, if excavations within well-cemented bedrock units produce irreducible rock that exceeds a maximum dimension of 12 inches, it should not be placed in certified compacted fill without specific geotechnical approval of the material, the disposal location and the disposal method. All disposal areas for oversized materials should be mapped by the project geotechnical consultant and indicated on the final as-built geotechnical map.

D. We expect that materials excavated onsite will be suitable for use as certified compacted fill provided they do not contain appreciable quantities of organic debris.

E. Where in-place moisture content exceeds optimum values, the materials may need to be spread and dried, or mixed with dryer material. Final determination will be provided in the field by the project geotechnical consultants at the time the excavations take place.

F. Excavated material containing excessive organic debris will not be suitable for use in the certified compacted fill. Materials deemed unsuitable should be wasted offsite or as designated by the project architect or geotechnical consultant.

G. The approved material should be placed in layers, each not exceeding eight (8) inches in thickness (before compaction), water conditions to about two percent above optimum moisture content and compacted to a minimum 90 percent relative compaction based on ASTM Test D1557.

H. Fill compaction tests should be performed during placement of the future fills to verify acceptable compaction and moisture content. At a minimum, one test should be performed within each 12 to 24 inches (vertical depth) or 500 cubic yards of fill (whichever is less). More frequent testing may be required by the geotechnical consultant.

I. Cut slopes may be graded at a 1.5:1 (H:V) gradient into site bedrock, and graded fill slopes should be constructed at a maximum gradient of 2:1 (H:V). Fill slopes should be constructed by overfilling and cutting back to the compacted core. Cut slopes should be observed and approved by the project engineering geological and geotechnical consultants.

J. The upper 12 inches of pavement subgrade should be compacted to a minimum relative compaction of 95 percent.

K. If construction takes place during the winter months or unseasonable rainy periods, additional winterizing and erosion-control recommendations may be necessary.

Keys, Benching, and Subdrains

A. All fill placed on slopes exceeding a 5:1 (H:V) gradient should be provided with a keyway at the toe of the fill slope. The keyway should have a minimum width of 15 feet and extend below the surficial soil deposits to expose a minimum of two (2) feet of site bedrock on the downhill side of the key. The bottom of the key should be inclined into the slope at a minimum gradient of two (2) percent.

B. Fill placed above the level of the keyway should be placed above horizontal benches excavated into site bedrock. Benches should be a minimum width of four (4) feet. A minimum 12" of site bedrock material must be visible above the fill level at all times.

C. Subdrains should be placed below all canyon fills and in all fill slope keyways. Subdrains should consist of perforated SDR-35 PVC pipe placed with the perforations downward in a blanket of ¾-inch durable aggregate such that the subdrain pipe is surrounded by a minimum 12 inches of gravel on all sides. The gravel blanket should be wrapped with a geosynthetic filter such as Mirafi 140 or suitable equivalent. Fabric joints should be overlapped a minimum of three (3) feet. Minimum specifications for pipe diameter, aggregate volume and fabric width are provided as follows:

Run Length (ft)	Pipe Diameter (in)	Aggregate Volume (ft)	Fabric Width (ft)
0 – 200	4"	4.5	10.5'
200 – 400	6"	5.0	11.0'
400 – 600	8"	5.6	11.5'

The project geotechnical consultant should observe and approve all subdrain installations prior to placing compacted fill.

Utility Trench Backfill

Contractors should strictly adhere to specifications set forth in the State of California Construction Safety Orders for "Excavations, Trenches, Earthwork". For the purposes of this section of the report, bedding is defined as material placed in a trench up to two (2) feet above a utility pipe, and backfill is defined as all material placed in a trench above the bedding.

A. Unless concrete bedding is required around utility pipes, free-draining sand should be used as bedding. Sand proposed for use in bedding should be tested in our laboratory to verify its

suitability and to measure its compaction characteristics. Sand bedding should be compacted to achieve at least 90 percent relative density based on ASTM Test D1557.

B. Ponding and jetting compaction methods are not permitted.

C. Until the total backfill above the top of the pipe exceeds two (2) feet, machine-placed backfill material should not be allowed to *freefall* more than two (2) feet.

D. Approved, onsite, inorganic soil or imported materials may be used above the base as utility trench backfill. If imported material is proposed for this use, a sample should be tested and approved by the project geotechnical engineer before any is delivered to the site.

E. Proper compaction of trench backfill will be necessary under and adjacent to certified compacted fill, building foundations, concrete slabs and vehicle pavements. In these areas, backfill should be conditioned with water to produce a soil-water content of about two percent above optimum content, and placed in horizontal layers not exceeding six (6) inches in thickness (before compaction).

F. Each layer should be compacted to at least 90 percent relative compaction based on ASTM Test D1557. The upper 12 inches of trench backfill under vehicle pavements should be compacted to at least 95 percent relative compaction.

G. Where any trench crosses the perimeter foundation line of any building, the trench should be completely plugged and sealed with compacted clay soil for a horizontal distance of two feet on either side of the foundation.

Temporary Excavations and Shoring

For preliminary planning purposes, all excavations that exceed five (5) feet in vertical height should have the upper portion trimmed to a 1:1 (H:V) gradient. The geotechnical consultant should be present during grading to observe the temporary excavation. All excavations should be stabilized within 30 days of initial excavation. Water should not be allowed to pond on top of the excavations, nor to flow towards it. No vehicular surcharge shall be allowed within five feet of the top of the cut.

FOUNDATIONS

Conventional Spread Footings: The foundation of the proposed residential development may be comprised of conventional continuous and pad footings founded a minimum of 18 inches into certified compacted fill deepened to a depth that complies with the foundation setback recommendations presented herein, or as specified by the project civil/structural engineer, whichever is deeper. All continuous footings should be reinforced with a minimum of two #4 steel bars placed near the top and bottom of the footing. Reinforcement for pad footings should be specified by the project civil/structural engineer. Footings may be sized utilizing the following

design parameters:

FOUNDATIONS BEARING INTO CERTIFIED COMPACTED FILL

Foundation Type	Minimum Width (in)	Maximum Vertical Bearing (psf)	Allowable Coefficient of Friction	Allowable Passive Earth Pressure (psf/ft depth)	Maximum Passive Earth Pressure (psf)	Minimum Embedment Depth (in)
Continuous	12	1500	0.35	300	2000	18
Pad	24	1500	0.35	300	2000	24

The bearing values may be increased by 20 percent for each additional foot of width or depth to a maximum allowable bearing capacity of 3000 psf.

The bearing values presented above are net bearing values; the weight of concrete below grade may be neglected. Embedment depths should be measured from the lowest adjacent grade.

During foundation construction, care should be taken to minimize evaporation of water from foundation and floor subgrades. Scheduling the construction sequence to minimize the time interval between foundation excavation and concrete placement is important. Concrete should be placed only on foundation excavations that have been kept moist and free from drying cracks and that contain no loose debris or soil.

Lateral Design

The bearing values provided above include the total dead plus frequently applied live loads. When combining passive pressure and friction for lateral resistance, the passive component should be reduced by a factor of one third ($^1/_3$).

Foundation Settlement

Settlement occurs as a result of stresses imposed on a soil. Typically, the most significant stress is the weight of structure(s). However, in certain soils, significant variation of moisture content may also induce volumetric strains. When water infiltrates the soil pore space, depending on the quantity, it has the potential to increase the density or reduce the effective overburden pressure and in certain soils it can reduce the matric suction or leach out cementing agents.

Based on the anticipated foundation loading and corresponding foundation design, in accordance with the preceding sections of this report, the differential settlement is not expected to exceed a $^1/_4$

inch, in 20 feet, the maximum settlement is not expected to exceed $^1/_2$ inch. The majority of the settlement, if any, should occur during the construction phase, with post construction settlement being within acceptable ranges for the proposed type of structure.

Foundation Setback Requirements

The foundations of all structures (except the proposed swimming pool/spa) should be embedded such that the minimum horizontal distance from the face of the slope to the bottom of the foundation is at least $^1/_3$ the overall height of the adjacent descending slope that is steeper than 3:1 (H:V). The minimum setback is five (5) feet; the maximum required setback is 40 feet.

The foundation for the proposed swimming pool/spa should be embedded such that the minimum horizontal distance from the face of slope, or the landslide debris/bedrock contact plane, as applicable, to the bottom of the foundation is at least $^1/_6$ the overall height of the adjacent descending slope that is steeper than 3:1 (H:V). The minimum setback is 5 feet; the maximum required setback is 20 feet.

RETAINING WALLS

Standard cantilevered retaining walls may be designed utilizing the following parameters. Retaining wall foundations should be designed in accordance with the recommendations presented in previous sections of this report. The design parameters presented below incorporate the active pressures, and backfill gradient of the backfill material.

A. The average bulk density of material placed on the backfill side of the wall will be approximately 125 pcf.

B. Standard cantilever retaining walls should be designed considering The following equivalent fluid weights:

- 35 pcf/ft for level backfill behind the retaining
- 48 pcf/ft for 2:1 (H:V) slope behind the retaining wall
- 60 pcf/ft for $1^1/_2$:1 (H:V) slope behind the retaining wall

C. To account for seismic loading conditions, the proposed retaining walls should be designed to resist an additional Equivalent fluid weight of 20 pcf.

D. An increase in these pressures may be necessary if vehicular traffic or any building structures are to be located adjacent to the retaining wall.

E. Subdrains should be placed behind all retaining walls. Subdrains should consist of perforated SDR-35 PVC pipe placed with the perforations downward in a blanket of $^3/_4$" durable aggregate such that the subdrain pipe is surrounded by a minimum of 12" of gravel on all side.

A curtain gravel drain (or approved equivalent), at least 12 inch thick, should extend from the subdrain pipe upwards to a height of two (2) feet below surface grade. Additionally, the gravel blanket should be wrapped with a geosynthetic filter fabric such as Mirafi 140 or a suitable equivalent. Fabric joints should be overlapped a minimum of three feet. Minimum specifications for pipe diameter, aggregate volume and fabric width are provided as follows:

SUBDRAIN SPECIFICATIONS

Run Length (ft)	Pipe Diameter (in)	Aggregate Volume (ft^3)	Fabric Width (ft)
0 - 200'	4"	4.5	10.5'
200 - 400'	6"	5.0	11.0'
400 - 600'	8"	5.6	11.5'

The project geotechnical consultant should observe and approve all subdrain installations prior to placing compacted fill.

F. Wall backfill areas not occupied by specified drainage materials should be backfilled with structural fill placed as specified above under "Grading".

G. All retaining Walls with ascending slope should be provided with a drainage swale (i.e. V-drain channel).

SWIMMING POOL/SPA

The following criteria are provided as guidelines for the proposed swimming pool/spa construction:

A. The swimming pool and spa should be designed considering a free-standing design and an equivalent fluid pressure of 65 pcf.

B. The swimming pool/spa should maintain a minimum horizontal setback from descending slopes equal to $^1/_6$ the overall height of the slope, with a maximum setback of 20 feet.

C. The swimming pool/spa should be provided with a subdrain system or a hydrostatic pressure relief valve. If the subdrain system is opted, it should consist of a four (4) inch diameter SDR-35 perforated pipe encased in two (2) cubic feet per lineal foot of gravel, running the longitudinal length of the pool. Where the subdrain exits the pool, a non-perforated pipe should extend to an outlet discharge location designed by the project civil engineer.

D. The swimming pool/spa decking should be cast free of the swimming pool bond beam via an expansion joint. Water stops should be provided between the bond beam and the pool deck.

E. The swimming pool/spa should be founded entirely into the certified compacted fill or entirely into the sedimentary bedrock.

F. If any portion of the swimming pool/spa lies within a 45° surface projected downward from the

bottom of adjacent structures (retaining walls, pool houses, etc.), then the pool should be designed for possible additional surcharges.

G. Standard pool detail sheets may be utilized provided they are in compliance with our recommendations presented herein. It is recommended that a civil/structural engineer be retained to verify or provide specific structural design and detail for the swimming pool/spa and decking, based upon the criteria presented in this report. We further recommend that the project civil/structural engineer review steel placement prior to placing gunite and that the gunite be placed under deputy inspection.

H. The swimming pool/spa excavation should be observed and approved by the project geotechnical consultants prior to the placement of reinforcing steel and gunite.

I. Surface drainage around the swimming pool/spa must be maintained to prevent water from ponding or from concentrating and flowing over natural or constructed slopes in an uncontrolled fashion. All surface water should be collected and conducted to appropriate discharge facilities via non-erodible devices.

J. Leakage from swimming pool/spas and appurtenant plumbing can create artificial ground water conditions that may adversely affect the pool, spa and adjacent structures or slopes. Therefore, the necessary precautions should be taken to ensure that the pool and plumbing are absolutely leak free.

K. The swimming pool/spa decking should be constructed in accordance with the slab-on-grade recommendations, included herewith.

CONCRETE SLABS-ON-GRADE

Reinforced concrete slabs-on-grade should be a minimum of four (4) inches thick and should be reinforced with a minimum of #4 bars spaced at 16 inches on center in each direction. Concrete should be cast over a minimum four (4) inch thickness of sand, placed over certified compacted fill prepared in accordance with the preceding sections of this report. To minimize floor dampness, a 10 mil visqueen moisture barrier should be placed near the center of the sand layer, a minimum of two (2) inches below the concrete slab.

Non-supported edges should be provided with a thickened slab edge, which has nominal dimensions of eight (8) inches in width and 12 inches in depth. The thickened slab edge should be reinforced with a minimum of one #4 bar placed near the top and bottom of the thickened slab edge.

Recommendations presented in the American Concrete Institute should be complied with for all concrete placement and curing operations. Improper curing techniques or excessive slump (water-cement ratio) could cause excessive shrinkage, cracking or curling. Concrete slabs should be

allowed to cure adequately before placing vinyl or other moisture-sensitive floor coverings.

CHEMICAL TESTING

Corrosivity testing was not performed on the onsite material due to the anticipated grading within the proposed development. Corrosivity testing should be performed on finish grade materials at the end of grading activities to evaluate corrosion potential of finish grade materials. Accordingly, additional recommendations for corrosion resistance will be provided as part of the preparation of the Rough Grade Compaction Report.

AC PAVEMENT

Asphalt cement pavement construction should comply generally with the requirements of the Cal Trans Standard Specifications, latest edition, except that compaction requirements for pavement subgrades should be based on ASTM Tests D1557, as described in the preceding sections of this report. A minimum pavement section of three (3) inches of AC over six (6) inches of Class II Base is recommended where traffic is limited to automobiles and occasional light commercial vehicles. Pavement sections for other conditions should be based on the R value of the pavement subgrade and traffic index based upon the anticipated usage.

DRAINAGE AND MOISTURE PROTECTION

The site should be fine graded to direct drainage away from any structures. Drainage should not be allowed to pond anywhere on the pad, against foundations or pavements, and should be directed toward suitable collection discharge facilities. Where possible, the grade should slope away from buildings (i.e. foundations) at a minimum 5% grade for at least ten (10) feet.

To promote the rapid drainage of surface water from pavements and to minimize the risk of water ponding on pavements, we recommend that pavements be designed with surface gradients of at least one percent along principal directions of drainage. Water seepage or the spread of extensive root systems into the soil subgrades of foundations, slabs or pavements could cause differential movements and consequent distress in these structural elements. This potential risk should be given consideration in the landscape design.

Walls located below grade have a history of moisture intrusion and leakage. Conventional water proofing materials, such as asphalt emulsion have often proved ineffective. Certain precautions can be taken to reduce the possibility of future water proofing problems. Super plasticized and water retardant concrete may be utilized to make pouring easier and reduce cracking and shrinkage.

Waterproofing paints, such as "Thoroseal" may be used, as they have been proven more effective than conventional asphalt emulsion. It is recommended that the project architect provide waterproofing specifications for all below grade walls and structures.

ADDITIONAL SERVICES

It is recommended that this office be provided an opportunity for a general review of the final design plans and supporting documents for overall compliance with the recommendations presented in this report. Additionally, this office should be retained to provide services during grading, foundation excavation and overall construction phases of the project. Observation of foundation excavations should be performed prior to the placement of concrete and reinforcing steel to confirm that the foundations are founded in the recommended bearing materials. Field and laboratory testing of compacted fill should be performed to verify compliance with recommendations presented herein.

PLAN REVIEW

CalWest Geotechnical should review all final design plans and supporting documents. This will allow us to perform a general review for compliance with the recommendations presented in this report.

SITE OBSERVATIONS

Prior to the start of construction, we recommend that a meeting be held with the contractor to discuss the project and that a representative of CalWest Geotechnical be present at that meeting. We further recommend that CalWest Geotechnical perform the following tasks prior to, and during, the construction of the project:

1. Review all final design plans and supporting documents;
2. Observe and advise during all excavations (excavation bottoms and foundations);
3. Observe and advise during the installation of subsurface drainage systems;
4. Observe, test and advise during all grading and placement of certified compacted fill;
5. Observe the construction of all temporary excavations and temporary shoring systems (if any).

ACKNOWLEDGEMENTS

California, historically, has experienced major destruction due to storms, flooding, fire storms, and earthquakes. The design of drainage control devices is based on rainfall records and the requirements of the authoritative building department agencies. Even so, the capacity of drainage

devices often is exceeded, which results in considerable damage. Slopes associated with hillside developments, which have performed satisfactorily over a long period of time, in a majority of cases, could fail as a result, even though such slopes have been designed to the minimum standards set forth by the Uniform Building Code or other authoritative codes.

As for the design of earthquake forces, the records on which engineering design is based, have been accumulated over a relatively short time frame. Every earthquake provides new information and data as to the cause and effect of large earthquakes. As an example, the January 17, 1994 Northridge earthquake recorded ground accelerations that exceeded all previous earthquake records. In addition, the engineering industry has learned that there are many blind-thrust faults present in Southern California. The presence of these faults were known by petroleum geologists, but without much significance attached to the information by seismologists. It should be understood that residential and commercial structures are constructed to the minimum standards as set forth by the Uniform Building Code and other authoritative codes. Higher standards are utilized for hospitals, schools, and other critical structures, that must remain serviceable in the event of a disaster. Generally, Building Code requirements provide minimum standards to prevent catastrophic failure. Accordingly, it is believed that site structures are not likely to collapse, although considerable damage may occur.

PROPERTY OWNER'S RESPONSIBILITY

The property owner should care for drainage around the site structures and all graded slopes. To maintain the continued effectiveness of onsite drainage devices, there are important procedures that must be undertaken by the property owner on a regular basis. These procedures are specifically for drainage and debris protection, and therefore, the procedures should be performed prior to each rainy season, with sufficient time to allow for thorough maintenance.

In addition to maintenance of drainage devices, an inspection should be made for rodent activity. Small, burrowing rodents, such as ground squirrels and gophers, create avenues for infiltration of surface water, which could create surficial slope failures. Evidence of rodent infestation should result in the employment of a licensed exterminator. It should be emphasized that these procedures may require periodic performance if reinfestation occurs.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report is prepared for use by John Andrews and his authorized agents and should not be considered transferable. Prior to use by others, the subject site and this report should be reviewed by CalWest Geotechnical to determine if any additional work is required to update this report.

The findings presented in this report are valid as of this date and may be invalidated wholly or

partially by changes outside our control. Therefore, this report should be subject to review and should not be relied upon after a period of one year or if any significant changes are made. It is the intent of this report to aid in the design and construction of the described project. Implementation of the advice presented in the "Conclusions and Recommendations" sections of this report is intended to reduce risk associated with construction projects.

The professional opinions and geotechnical advice contained in this report are not intended to imply total performance of the project or guarantee that unusual conditions will not be discovered during or after construction.

The conclusions and recommendations contained within this report are based on field observations of the site conditions. Recommendations are based on the assumption that the subsurface conditions do not deviate appreciably from those indicated by the individual test pits placed on the subject site. If conditions encountered during construction appear to differ from those described in this report, this office should be notified so we may determine if any modifications are necessary. In this way, any required supplemental recommendations can be made with a minimum delay to the project.

The recommendations are based on the preliminary information provided to us at the start of the investigation. Any changes of this information may require additional work. This report has been prepared in accordance with generally accepted engineering practices and makes no warranties, either express or implied, as to the professional advice provided in this report.

Respectfully submitted,

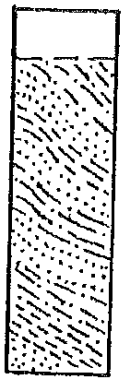
Leonard Liston
President
RCE 31902

Eli Katibah
Staff Engineer

Enc: Appendix A- Vicinity Map
Appendix B- Update Geotechnical Map
Appendix C- As-Built Geologic Final Compaction Report, Lots 1-7, Tract 36172, Prepared by West Coast Soils, Dated February 15, 1990
Appendix D- Percolation Testing Lots 1-7, Tract 36172, Prepared by West Coast Soils, Dated February 20, 1989.

TABLE I

Log of Test Pits

Pit No.		Depth (Feet)	Description
7 Lot 7		0.0 - 5.0	COMPACTED FILL: Mixture of rock fragments and Clayey Sand, mottled light brown to brown, dense, slightly moist
		5.0 - 40.0	BEDROCK: Interbedded Sandstone, Siltstone and Mudstone. Sandstone: orange-brown; Siltstone and Mudstone are light gray to gray. Bedrock is slightly moist to moist, moderately hard, thinly bedded, fractured and moderately weathered
			End at 40 feet; No Water; No Caving; Fill to 5 feet
			BEDDING ATTITUDES:
			N85E; 55NW @ 8 feet N85E; 41NW @ 11 feet E-W; 43N @ 15 feet N85W; 41NE @ 18 feet N75W; 39NE @ 20 feet
			Downhole logged to 20 feet

APPENDIX A

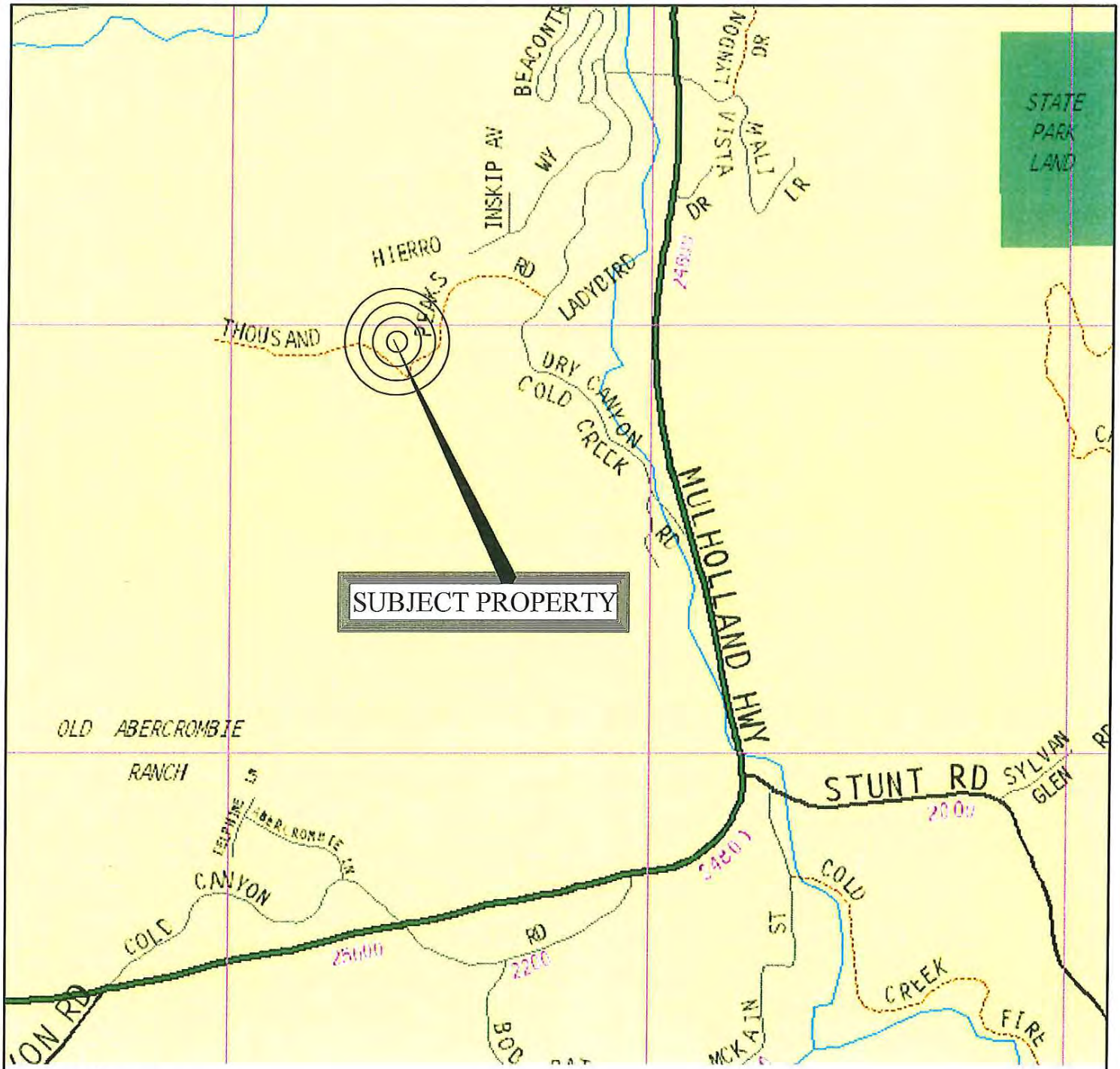
CALWEST GEOTECHNICAL
CONSULTING ENGINEERS
A DIVISION OF LC ENGINEERING, INC.

889 PIERCE COURT, SUITE 101
THOUSAND OAKS, CA. 91360
(818)991-7148
(805)497-1244

PROJECT: Andrew
ADDRESS: 24600 Thousand Peaks Rd, Calabasas
DRAWN: LT REF.: 589 C3
DATE: May, 2014 JOB #: G 5498

VICINITY MAP

SHEET TITLE



N
NORTH

REFERENCE: THOMAS BROTHERS MAP GIDE, PAGE: 589

USGS Design Maps Summary Report

User–Specified Input

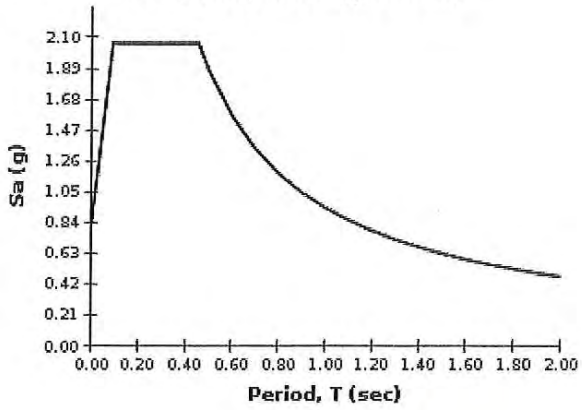
Report Title	Andrews Thu May 15, 2014 23:10:00 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.1093°N, 118.668°W
Site Soil Classification	Site Class C – "Very Dense Soil and Soft Rock"
Risk Category	I/II/III

USGS–Provided Output

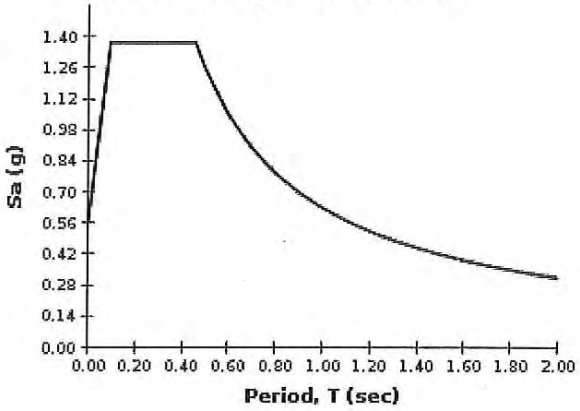
S_S =	2.059 g	S_{MS} =	2.059 g	S_{DS} =	1.372 g
S_1 =	0.723 g	S_{M1} =	0.940 g	S_{D1} =	0.627 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

MCE_R Response Spectrum

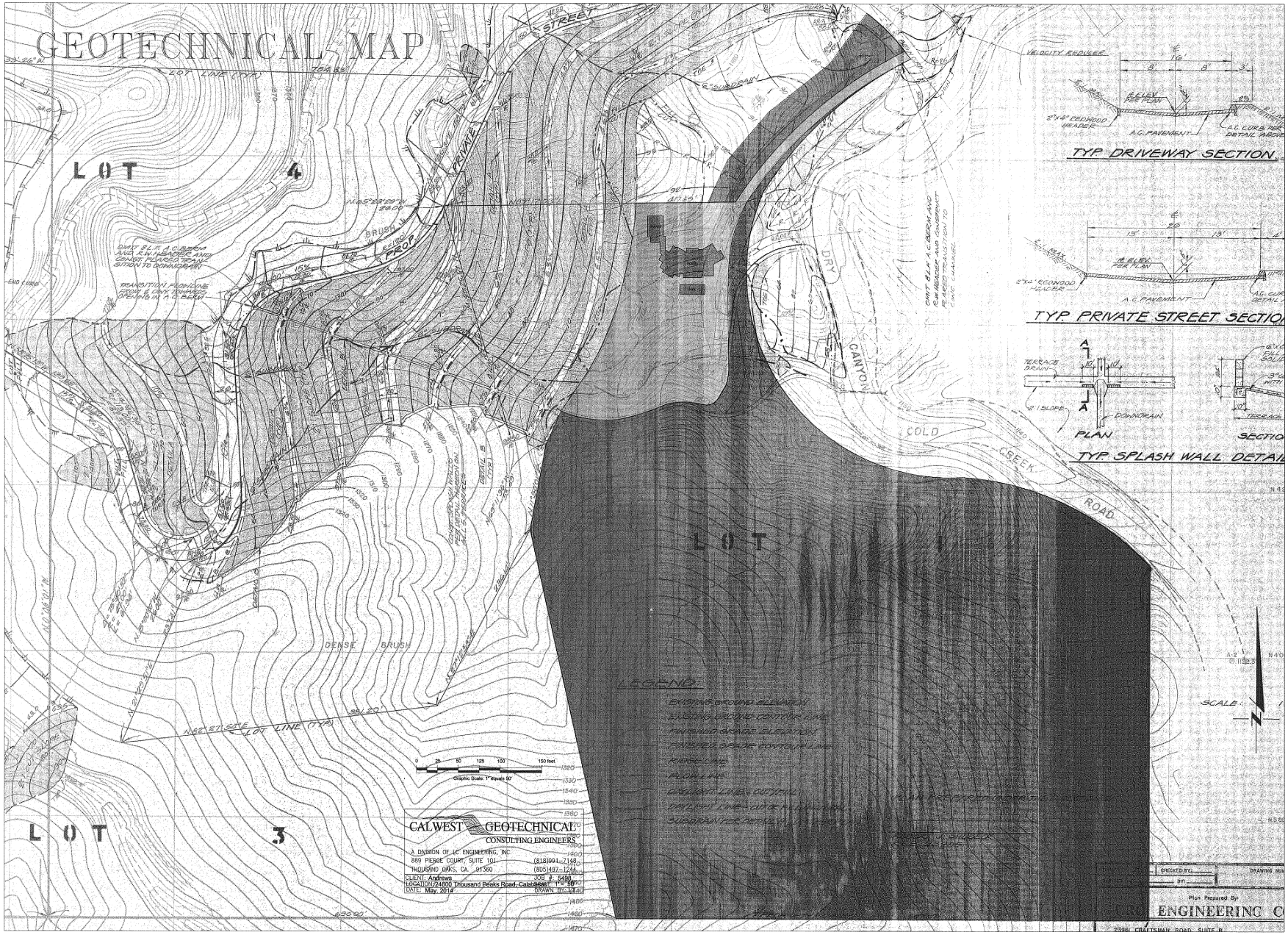


Design Response Spectrum



For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

APPENDIX B



JOHN ANDREWS GROUP
ARCHITECTS, INC.
ARCHITECTURE
PLANNING
INTERIOR DESIGN

2109 Stoner Avenue
Los Angeles, CA 90025
Phone: (310) 445-3337
Fax: (310) 445-3336

☐ SCOPE DOCUMENT

This preliminary drawing indicates the general scope of the project in terms of architectural design concept, the dimensions of the building, the major architectural elements and the type of structural, mechanical, and electrical systems. As scope documents the drawings do not necessarily indicate or describe all work required for full performance and completion of the requirements of the contract documents. On the basis of the general scope indicated or described, the contractor shall furnish all items required for proper execution and completion of the work.

☐ CLIENT:

Thousand Peaks Project

24600 Thousand Peaks Road
CALABASAS, CA. 91302

☐ PROJECT / SCOPE:

Proposed:
New Single Family
RESIDENCE
with Attached 2 Car Garage

☐ REVISIONS:

NO.	DESCRIPTION	DATE	BY

☐ KEY PLAN:

☐ SHEET TITLE:

Site Plan
Lot 1

☐ SCALE: 1/64" = 1'-0"	☐ JOB NO:
☐ DRAWN: KB	☐ DATE: 05/08/14

☐ SHEET NO:

APPENDIX C

AS- BUILT GEOLOGIC

FINAL COMPACTION REPORT

==========

FEBRUARY 15, 1990 JOB NUMBER: 1908-88

PROJECT: RESIDENTIAL DEVELOPMENT,

LOCATION: 24575 DRY CANYON/ COLD CREEK ROAD CALABASAS, LOS ANGELES COUNTY, CA

CLIENT: ANDREWS DEVELOPMEMT CORP.

31238 VIA COLINAS, UNIT E
WESTLAKE VILLAGE, CA 91362
(818) 991-7148 (805) 497-1244

WEST COAST
SOILS
31238 Via Colinas, Unit E • Westlake Village, CA 91362 • (818) 991-7148 • (805) 497-1244
A DIVISION OF L. LISTON & ASSOCIATES, INC.

February 15, 1990 Job Number 1908-88

February 15, 1990 Job Number 1908-88

Andrews Development Corp.
24575 Dry Canyon/Cold Creek Road
Calabasas, CA 91302

SUBJECT: AS-BUILT GEOLOGIC AND FINAL COMPACTION REPORT, PROPOSED RESIDENTIAL DEVELOPMENT, LOTS 1 THROUGH 7, TRACT 36172, 24575 DRY CANYON/COLD CREEK ROAD CALABASAS, LOS ANGELES COUNTY, CALIFORNIA

REFERENCES: ADDENDUM REPORT: SITE OBSERVATIONS AND GRADING MODIFICATIONS, PREPARED BY WEST COAST SOILS, DECEMBER 11, 1989.

PERCOLATION TESTING FOR THE PROPOSED ONSITE PRIVATE DISPOSAL SYSTEMS, LOTS 1 THROUGH 7, PREPARED BY WEST COAST SOILS, JOB NUMBER 1908-88, DATED FEBURUARY 20, 1989.

UPDATE GEOLOGIC AND SOILS ENGINEERING LETTER, PREPARED BY WEST COAST SOLIS, JOB NUMBER 1181-87 DATED JANUARY 18, 1989

IN-GRADING OBSERVATION REPORT NO. 5, NO. 4, NO. 3, NO. 2, AND NO. 1,FOR TRACT 36172, 24575 DRY CANYON/COLD CREEK ROAD, CALABASAS, CALIFORNIA, PREPARED BY WEST COAST SOILS, JOB NUMBER 1181-87, DATED APRIL 19, 1989, JANUARY 20, 1989, DECEMBER 12, 1988, NOVEMBER 7, 1988, AND SEPTEMBER 23, 1988, PLAN CHECK NO.6666.

RESTRICTED USE AREAS, TRACT 36172, DRY CANYON/COLD CREEK ROAD, CALABABAS, LOS ANGELES COUNTY, CALIFONIA, PREPARED BY WEST COAST SOILS, JOB NUMBER 1181-87, DATED NOVEMBER 16, 1988.

GRADING AND DRAINAGE PLAN, PREPARED BY ORO ENGINEERING COMPANY, DATED OCTOBER 28, 1987.

UP-DATE GEOLOGIC AND SOILS ENGINEERING INVESTIGATION REPORT,PREPARED BY WEST COAST SOILS, JOB NUMBER 1181-87 DATED OCTOBER 25, 1989

February 15, 1990 Job Number: 1908-88

Gentlemen:

This report summarizes the results of our compaction testing and geologic observation of the conditions encountered during the grading of the referenced property. The grading operation took place during the period from 8-31-88 to 10-6-89. The compaction test results are summarized on the enclosed Table I, and the test locations are plotted on the enclosed as-built grading plan. In addition, the as-built geologic conditions are enclosed on separate as-built geologic maps. The location of exploratory excavations which were not removed by the grading operations are also shown on the as-built geologic map. The geologic cross-section was also modified to depict the as-built conditions and is attached.

The Compacted fill will be used for the access roads, utility trench backfill, support of the public street. and support the proposed seven single family residences.

GRADING

The grading was performed utilizing four 673 and two 633 Caterpillar scrapers, three D-8 Caterpillar Dozers, 5X5 sheepsfoot and a steel wheel compactor. Compaction was achieved utilizing the above mentioned equipment. Water was added as required via two GMC water trucks.

Prior to placing any fill, all major vegetation and debris material were removed from the site. Any old fill and loose upper soils were removed to bedrock as observed and approved by the project engineer and geologist.

The exposed grade was then scarified to a depth of 12 inches, watered as required to achieve optimum moisture content, and recompacted to a minimum of 90% relative compaction. Fill was then placed in loose lifts of about 6 to 8 inches, brought to near optimum moisture content, and compacted to a minimum of 90% relative compaction.

Electrical, water, phone, and cable tv utility trenches were backfilled with sand to about one (1) foot from grade the remainder of the trench backfill was onsite soils. All backfill was watered as required to achieve optimum moisture content, and compacted to a minimum of 95% relative compaction. The maximimum depth of fill placed in the utility trenches is approximately five (5) feet.

Keyways were constructed at the toe of all fill slopes, subbdrains were then installed on the upslope side of the keyways, and benches were cut into bedrock as compacted fill was placed. The subdrains consist of 4"-perforated pipe with the perforations placed down, and

embedded in approximately 12-inches of gravel. Filter fabric was placed around the pipe and on top of the gravel prior to placing compacted fill.

Canyon subdrains were also placed in the canyon areas as shown on the attached as-built geologic map and were constructed according to the above design. The diameter of the subdrain was according to the approved plans.

In addition, subdrains were also placed in the keyways for stabilization fills in excess of 20-feet in height required by the geologist.

The maximum depth of fill placed during grading is approximately sixty five (65) feet. The soil used in the grading operation consisted of onsite materials.

The building pads were overexcavated a minimum of feet as discussed below under "Expansive Bedrock".

SLOPES

Fill Slopes: Compaction of the face of the 2:1 fill slopes was achieved by over filling and then cutting back to the compacted core. The outer faces were then track walked at the conclusion of the grading operation. The remaining loose surface soils should be removed during fine grading.

Cut Slopes: Cut slopes were constructed at a 2:1 gradient to a maximum height of forty (40) feet. All cut slopes which would receive surface runoff are provivded concrete V-ditches and down drains to prevent the surface drainage from flowing over the face of the slope.

STABILIZATION FILL SLOPES

Geologic observation of the cut slopes was performed during grading to evaluate the effect of the geologic structure. The cut slopes located along the north side of lots 5, 6, and 7 and the western slope on lot 7 exposed contorted bedding in which localized areas were unsupported

and subject to erosion and ravelling. The orientation of the geologic structure is superimposed on the stabilization fill slopes. In order to minimize the potential for erosion, these slopes were provided with a 10-foot thick stabilization fill. These slopes are considered grossly stable._

TESTING

Compaction testing and observation was conducted in accordance with the County of Los Angeles Building Code. Maximum density-optimum moisture data were determined in the laboratory using the ASTM D-1557-78 method of compaction. Field density tests were performed in accordance with ASTM D1556.

The following soil type was used in the compacted fill:

Soil Type	Soil Description	Maximum Dry Density (pcf)	Optimum Moisture
I	silty clay	122.0	12.0

EXPANSIVE SOILS

An expansion test was made on a typical sample taken at foundation grade. The results of the soil expansion test indicate that the approved compacted fill is moderately expansive, 4-8% swell, E.I. = 20-50.

EXPANSIVE BEDROCK

The approved grading plan indicated that the proposed building pad areas were to be overexcavated a minimum of three feet. However, during grading, gray shale and siltstone beds were encountered which contain sulfate minerals. In order to reduce the potential for differential expansion of the bedrock, the fill pads were overexcavated a minimum of five feet. The overexcavation limits extend to approximately 20-feet from the edge of the building pads.

SULFATE CONDITIONS

The compacted fill is considered to be high in sulfate content. In this regard the foundations should be constructed utilizing concrete that is sulfate resistant.

CONCLUSIONS AND RECOMMENDATIONS

Based upon our testing and experience with similar projects, the proposed development is considered feasible from a geotechnical and geological standpoint provided the following recommendations are made part of the development plans and are implemented during construction.

The residential pads were graded in a satisfactory manner and are suitable for support of the proposed seven custom single family residences. The cut and fill slopes were constructed to be safe from landslides, settlement, and slippage. Slopes which required stabilization fills due to contorted bedding are shown on the as-built geologic maps.

The soils used in the grading operation are the same as those encountered and tested in the referenced geotechnical and geological reports. Design parameters itemized in those reports, therefore, remain applicable.

The recommended bearing mateial is the approved compacted fill. This material can be reached with a conventional foundation system.

1. Foundations: The foundation of the proposed residences may be comprised on continuous and pad footings founded a minimum of 18 inches into the approved compacted fill. Design parameters are listed below.

Footing Type	Minimum Width of Footing	Vert. Bearing (PSF)	Allowable Coefficient of Fricient	Pass. Press	Max. Press
Cont.	12 in.	1500	0.35	300	1500
Pad	18 in.	1500	0.35	300	1500

2. Lateral Design: The bearing values indicated above are for the total of dead and frequently applied live loads and may be increased by one-third for short duration loading, which includes the effects of wind or seismic forces. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third.

3. Floor Slabs: Floor slabs should be a minimum of 4 inches thick and cast over a one inch thickness of sand underlain by a polyethlyene vapor barrier. Floor slabs shall be reinforced with a minimum of 6X6-6/6 W.W.M. Prior to the placing of concrete, the sand shall be moistened to aid in the concrete curing.

The soil underlying all footing and slabs shall be presaturated to a minimum moisture content of 120% of optimum moisture content to a mimimum depth of 6 inches below footing excavations and 21 inches below slab subgrade

APPROVAL

Limits of certified compacted fill are shown on the enclosed grading plan. West Coast Soils assumes no responsibility for compacted fill placed beyond those limits.

Prior to pouring concrete, the footings of the proposed residence should be approved by a representative of this office, to insure that the footings are free of loose or disturbed material, and to make certain that they are founded in the certified compacted fill.

February 15, 1990 Job Number: 1908-88

Please call if you have any questions.

Respectfully submitted,

Leonard Liston

RCE 31901

James O'Tousa

E.G. 1393

LL:GL:DC:JO

Enclosures: Table I

Grading Plan

Engineers Certification

As-Built Geologic Map

As-built Geologic Cross-Section

Distribution: Addressee (5)

File:1908cr

PROJECT: ANDREWS DEVELOPMENT

JOB NO.: 1908-88
DATE: February 15, 1990

FIELD DENSITY TEST RESULTS

* * * SOIL TYPE 1 * * *		* * * SOIL TYPE 2 * * *	
LAB MAX. DENSITY	115.0	LAB MAX. DENSITY	113.0
MOISTURE CONTENT	17.5	MOISTURE CONTENT	14.0
* * * SOIL TYPE 3 * * *		* * * SOIL TYPE 4 * * *	
LAB MAX. DENSITY	109.0	LAB MAX. DENSITY	136.0
MOISTURE CONTENT	17.5	MOISTURE CONTENT	6.0

DATE	TEST No.	ELEVATION Below N.G. (ft)	MOISTURE CONTENT (%)	UNIT DRY DENSITY (lbs/cu ft)	SOIL TYPE	RELATIVE COMPACTI (%)
13-SEP-88	1	1164	19.0	107.1	1	93.1
13-SEP-88	2	1166	20.5	108.0	1	93.9
13-SEP-88	3	1168	19.3	107.3	1	93.3
15-SEP-88	4	1172	17.3	103.9	1	90.3
15-SEP-88	5	1166	18.4	108.9	1	94.7
15-SEP-88	6	1174	20.2	106.4	1	92.5
16-SEP-88	7	1170	20.7	107.1	1	93.1
16-SEP-88	8	1172	19.3	105.4	1	91.7
19-SEP-88	9	1174	18.9	107.9	1	93.8
19-SEP-88	10	1174	18.3	106.4	1	92.5
20-SEP-88	11	1176	21.4	105.6	1	91.8
20-SEP-88	12	1176	18.5	108.9	1	94.7
20-SEP-88	13	1178	19.7	107.4	1	93.4
20-SEP-88	14	1180	20.3	106.9	1	93.0
23-SEP-88	15	1162	17.0	106.9	1	93.0
23-SEP-88	16	1164	18.5	108.3	1	94.2

23-SEP-88	17	1166	17.8	104.7	1	91.0
23-SEP-88	18	1168	19.4	106.3	1	92.4
26-SEP-88	19	1282	12.6	103.4	2	91.5
26-SEP-88	20	1280	11.8	104.7	2	92.7
26-SEP-88	21	1272	12.9	103.9	2	91.9
27-SEP-88	22	1274	13.4	104.9	2	92.8
27-SEP-88	23	1264	12.5	105.7	2	93.5
3-OCT-88	24	1196	11.5	105.4	2	93.3
3-OCT-88	25	1196	12.9	106.3	2	94.1
3-OCT-88	26	1170	13.5	105.9	2	93.7
4-OCT-88	27	1200	14.1	106.3	2	94.1
4-OCT-88	28	1202	14.7	103.4	2	91.5
5-OCT-88	29	1204	13.5	104.9	2	92.8
5-OCT-88	30	1206	14.0	106.3	2	94.1
6-OCT-88	31	1208	12.9	105.9	2	93.7
6-OCT-88	32	1210	13.7	106.3	2	94.1
7-OCT-88	33	1166	11.5	105.3	2	93.2
7-OCT-88	34	1166	12.0	102.1	2	90.4
10-OCT-88	35	1166	14.9	108.4	2	95.9
10-OCT-88	36	1168	14.5	106.2	2	94.0
11-OCT-88	37	1168	15.0	106.6	2	94.3
11-OCT-88	38	1170	13.1	102.6	2	90.8
14-OCT-88	39	1170	15.0	104.7	2	92.7
14-OCT-88	40	1172	13.6	105.6	2	93.5
17-OCT-88	41	1172	13.9	104.7	2	92.7
17-OCT-88	42	1174	12.1	104.0	2	92.0
17-OCT-88	43	1174	13.4	105.3	2	93.2
17-OCT-88	44	1176	14.6	102.0	2	90.3

18-OCT-88	45	1178	16.3	108.4	2	95.9
18-OCT-88	46	1178	15.6	104.6	2	92.6
18-OCT-88	47	1180	14.3	105.4	2	93.3
18-OCT-88	48	1182	13.2	102.6	2	90.8
19-OCT-88	49	1182	18.0	107.3	2	95.0
19-OCT-88	50	1184	18.4	106.8	2	94.5
20-OCT-88	51	1186	15.8	106.1	2	93.9
20-OCT-88	52	1188	15.3	105.4	2	93.3
20-OCT-88	53	1190	16.1	105.9	2	93.7
20-OCT-88	54	1192	15.1	104.7	2	92.7
21-OCT-88	55	1194	14.8	101.7	2	90.0
21-OCT-88	56	1196	14.1	102.3	2	90.5
21-OCT-88	57	1196	14.6	103.4	2	91.5
21-OCT-88	58	1198	15.3	104.1	2	92.1
21-OCT-88	59	1198	13.9	102.9	2	91.1
24-OCT-88	60	1200	16.2	103.7	2	91.8
24-OCT-88	61	1200	15.8	105.9	2	93.7
24-OCT-88	62	1202	14.9	106.4	2	94.2
25-OCT-88	63	1204	12.3	103.4	2	91.5
25-OCT-88	64	1204	12.9	104.9	2	92.8
25-OCT-88	65	1206	16.3	107.2	2	94.9
25-OCT-88	66	1208	15.8	106.2	2	94.0
25-OCT-88	67	1208	16.9	105.9	2	93.7
26-OCT-88	68	1210	17.2	106.4	2	94.2
26-OCT-88	69	1210	17.9	107.3	2	95.0
26-OCT-88	70	1212	16.3	105.8	2	93.6
26-OCT-88	71	1212	16.6	106.3	2	94.1
27-OCT-88	72	1214	15.0	106.6	2	94.3

27-OCT-88	73	1214	16.5	108.2	2	95.8
27-OCT-88	74	1216	16.1	104.2	2	92.2
27-OCT-88	75	1218	15.7	105.3	2	93.2
28-OCT-88	76	1220	14.9	107.1	2	94.8
28-OCT-88	77	1222	15.3	106.2	2	94.0
11-NOV-88	78	1224	16.2	107.3	2	95.0
11-NOV-88	79	1202	15.9	108.1	2	95.7
11-NOV-88	80	1220	19.8	108.7	2	96.2
2-NOV-88	81	1198	14.9	105.3	2	93.2
2-NOV-88	82	1200	15.3	104.9	2	92.8
2-NOV-88	83	1202	15.0	106.2	2	94.0
2-NOV-88	84	1204	15.8	105.7	2	93.5
3-NOV-88	85	1206	16.3	104.9	2	92.8
3-NOV-88	86	1208	15.9	103.8	2	91.9
3-NOV-88	87	1210	15.5	105.6	2	93.5
3-NOV-88	88	1212	14.9	105.6	2	93.5
4-NOV-88	89	1214	16.2	104.9	2	92.8
4-NOV-88	90	1216	15.8	106.3	2	94.1
4-NOV-88	91	1218	15.5	105.2	2	93.1
7-NOV-88	92	1220	14.9	106.2	2	94.0
7-NOV-88	93	1222	15.2	107.3	2	95.0
7-NOV-88	94	1224	15.7	109.1	2	96.5
7-NOV-88	95	1226	15.5	106.9	2	94.6
7-NOV-88	96	1226	14.9	105.8	2	93.6
8-NOV-88	97	1228	16.3	104.9	2	92.8
8-NOV-88	98	1230	15.4	103.9	2	91.9
8-NOV-88	99	1232	15.9	105.8	2	93.6
8-NOV-88	100	1234	14.7	106.3	2	94.1

8-NOV-88	101	1236	15.0	107.2	2	94.9
9-NOV-88	102	1238	15.9	106.3	2	94.1
9-NOV-88	103	1240	16.4	107.4	2	95.0
9-NOV-88	104	1242	16.0	105.9	2	93.7
10-NOV-88	105	1244	15.8	106.9	2	94.6
10-NOV-88	106	1246	16.8	107.1	2	94.8
15-NOV-88	107	1248	17.1	106.4	2	94.2
15-NOV-88	108	1250	16.5	106.0	2	93.8
16-NOV-88	109	1252	15.9	105.4	2	93.3
16-NOV-88	110	1254	14.8	107.3	2	95.0
16-NOV-88	111	1256	16.1	106.2	2	94.0
16-NOV-88	112	1258	17.3	105.4	2	93.3
16-NOV-88	113	1260	15.3	106.3	2	94.1
16-NOV-88	114	1262	16.3	105.9	2	93.7
17-NOV-88	115	1264	17.1	104.9	2	92.8
17-NOV-88	116	1266	16.8	106.3	2	94.1
17-NOV-88	117	1268	15.3	107.2	2	94.9
17-NOV-88	118	1270	16.2	107.8	2	95.4
17-NOV-88	119	1272	17.4	109.1	2	96.5
17-NOV-88	120	1274	18.1	106.3	2	94.1
18-NOV-88	121	1276	19.1	105.3	2	93.2
18-NOV-88	122	1278	16.4	104.9	2	92.8
18-NOV-88	123	1280	15.9	106.3	2	94.1
18-NOV-88	124	1282	19.9	107.1	2	94.8
18-NOV-88	125	1284	16.8	105.4	2	93.3
21-NOV-88	126	1286	16.7	107.2	2	94.9
21-NOV-88	127	1288	15.3	106.4	2	94.2
21-NOV-88	128	1290	15.9	105.2	2	93.1

22-NOV-88	129	1292	15.4	105.4	2	93.3
22-NOV-88	130	1294	17.1	108.1	2	95.7
22-NOV-88	131	1296	16.3	107.2	2	94.9
23-NOV-88	132	1298	14.9	106.3	2	94.1
23-NOV-88	133	1300	15.6	106.9	2	94.6
23-NOV-88	134	1302	16.1	104.9	2	92.8
23-NOV-88	135	1304	15.9	105.2	2	93.1
23-NOV-88	136	1306	16.3	106.1	2	93.9
28-NOV-88	137	1308	15.2	107.2	2	94.9
28-NOV-88	138	1310	14.9	106.5	2	94.2
28-NOV-88	139	1312	15.1	105.9	2	93.7
30-NOV-88	140	1314	14.9	107.2	2	94.9
30-NOV-88	141	1316	16.1	106.3	2	94.1
30-NOV-88	142	1318	17.3	107.7	2	95.3
30-NOV-88	143	1320	15.2	105.1	2	93.0
30-NOV-88	144	1322	14.6	105.9	2	93.7
1-DEC-88	145	1324	17.1	106.2	2	94.0
1-DEC-88	146	1326	16.3	105.1	2	93.0
1-DEC-88	147	1328	15.2	107.9	2	95.5
2-DEC-88	148	1330	17.3	106.2	2	94.0
2-DEC-88	149	1332	17.4	105.9	2	93.7
2-DEC-88	150	1334	16.9	107.8	2	95.4
2-DEC-88	151	1336	15.2	105.4	2	93.3
5-DEC-88	152	1338	14.7	106.3	2	94.1
5-DEC-88	153	1340	13.9	105.2	2	93.1
5-DEC-88	154	1342	15.1	105.0	2	92.9
5-DEC-88	155	1344	16.3	105.5	2	93.4
5-DEC-88	156	1346	17.1	107.1	2	94.8

5-DEC-88	157	1348	13.2	106.3	2	94.1
6-DEC-88	158	1350	14.2	107.1	2	94.8
6-DEC-88	159	1352	15.3	106.5	2	94.2
6-DEC-88	160	1354	17.1	105.1	2	93.0
7-DEC-88	161	1356	16.1	107.1	2	94.8
7-DEC-88	162	1358	17.1	105.3	2	93.2
7-DEC-88	163	1360	16.5	104.9	2	92.8
7-DEC-88	164	1362	15.0	105.9	2	93.7
7-DEC-88	165	1364	14.9	108.3	2	95.8
8-DEC-88	166	1366	15.1	106.2	2	94.0
8-DEC-88	167	1368	14.8	107.1	2	94.8
8-DEC-88	168	1370	15.3	105.3	2	93.2
8-DEC-88	169	1372	14.5	105.1	2	93.0
12-DEC-88	170	1374	15.1	106.2	2	94.0
12-DEC-88	171	1376	16.3	107.2	2	94.9
12-DEC-88	172	1378	17.2	105.9	2	93.7
12-DEC-88	173	1380	16.2	106.5	2	94.2
13-DEC-88	174	1382	15.1	107.1	2	94.8
13-DEC-88	175	1384	14.9	105.9	2	93.7
13-DEC-88	176	1386	13.3	106.4	2	94.2
14-DEC-88	177	1388	15.1	107.3	2	95.0
14-DEC-88	178	1390	16.3	106.7	2	94.4
14-DEC-88	179	1392	15.2	105.9	2	93.7
16-DEC-88	180	1394	14.1	106.3	2	94.1
16-DEC-88	181	1396	13.2	104.9	2	92.8
16-DEC-88	182	1398	15.1	107.2	2	94.9
19-DEC-88	183	1400	16.1	108.1	2	95.7
19-DEC-88	184	1402	14.3	106.3	2	94.1

19-DEC-88	185	1404	15.2	105.9	2	93.7
20-DEC-88	186	1408	16.1	106.3	2	94.1
20-DEC-99	187	1410	15.9	107.2	2	94.9
20-DEC-88	188	1382	16.5	106.2	2	94.0
20-DEC-88	189	1384	17.1	107.1	2	94.8
20-DEC-88	190	1386	18.2	105.9	2	93.7
21-DEC-88	191	1388	17.1	106.1	2	93.9
21-DEC-88	192	1390	16.9	106.5	2	94.2
22-DEC-88	193	1392	15.5	106.3	2	94.1
22-DEC-88	194	1394	15.0	107.2	2	94.9
22-DEC-88	195	1398	16.3	108.1	2	95.7
22-DEC-88	196	1400	17.2	105.3	2	93.2
22-DEC-88	197	1402	16.9	106.5	2	94.2
23-DEC-88	198	1404	17.1	107.2	2	94.9
23-DEC-88	199	1406	15.3	106.9	2	94.6
27-DEC-88	200	1408	13.3	107.2	2	94.9
27-DEC-88	201	1410	17.1	107.3	2	95.0
27-DEC-88	202	1414	16.8	109.1	2	96.5
29-DEC-88	203	1416	15.1	106.3	2	94.1
29-DEC-88	204	1418	14.9	105.9	2	93.7
30-DEC-88	205	1420	15.2	107.1	2	94.8
30-DEC-88	206	1422	17.3	106.2	2	94.0
30-DEC-88	207	1426	16.2	105.3	2	93.2
30-DEC-88	208	1428	17.1	107.8	2	95.4
9-JAN-89	209	1430	15.8	107.2	2	94.9
9-JAN-89	210	1432	16.2	107.2	2	94.9
9-JAN-89	211	1408	19.6	109.7	2	97.1
10-JAN-89	212	1406	18.4	108.1	2	95.7

10-JAN-89	213	1410	17.9	107.1	2	94.8
10-JAN-89	214	1408	16.3	106.9	2	94.6
10-JAN-89	215	1410	18.8	107.2	2	94.9
10-JAN-89	216	1456	19.1	105.9	2	93.7
11-JAN-89	217	1458	21.4	105.6	2	93.5
11-JAN-90	218	1460	18.5	108.9	2	96.4
11-JAN-90	219	1461	17.5	105.2	2	93.1
12-JAN-90	220	1460	16.3	107.2	2	94.9
12-JAN-90	221	1390	15.4	109.6	2	97.0
12-JAN-89	222	1388	16.3	106.9	2	94.6
16-JAN-89	223	1392	21.4	107.2	2	94.9
16-JAN-89	224	1390	19.8	106.9	2	94.6
17-JAN-89	225	1392	17.8	105.6	2	93.5
17-JAN-89	226	1394	17.0	107.9	2	95.5
17-JAN-89	227	1396	16.8	106.9	2	94.6
17-JAN-89	228	1398	18.5	108.3	2	95.8
18-JAN-89	229	1400	17.3	107.2	2	94.9
18-JAN-89	230	1402	16.9	106.9	2	94.6
20-JAN-89	231	1404	19.0	107.2	2	94.9
20-JAN-89	232	1406	20.5	108.5	2	96.0
20-JAN-89	233	1406	17.3	109.3	2	96.7
23-JAN-89	234	1408	18.2	110.1	2	97.4
23-JAN-89	235	1408	17.3	109.3	2	96.7
23-JAN-89	236	1410	18.2	107.2	2	94.9
25-JAN-89	237	1410	17.3	106.9	2	94.6
25-JAN-89	238	1384	18.4	107.2	2	94.9
26-JAN-89	239	1386	19.2	108.3	2	95.8
26-JAN-89	240	1388	20.1	109.2	2	96.6

30-JAN-89	241	1388	18.4	107.2	2	94.9
30-JAN-89	242	1390	19.1	108.4	2	95.9
30-JAN-89	243	1390	20.3	109.2	2	96.6
1-FEB-89	244	1392	17.3	105.3	2	93.2
1-FEB-89	245	1392	18.4	107.2	2	94.9
1-FEB-89	246	1394	19.3	108.4	2	95.9
2-FEB-89	247	1394	17.3	106.3	2	94.1
2-FEB-89	248	1396	18.4	105.9	2	93.7
3-FEB-89	249	1398	19.3	104.3	2	92.3
3-FEB-89	250	1388	20.1	107.2	2	94.9
3-FEB-89	251	1390	17.2	106.4	2	94.2
7-FEB-89	252	1390	20.1	108.3	2	95.8
8-FEB-89	253	1392	19.1	109.1	2	96.5
9-FEB-89	254	1392	18.3	107.2	2	94.9
10-FEB-89	255	1394	17.1	106.8	2	94.5
10-FEB-89	256	1396	17.9	107.3	2	95.0
27-FEB-89	257	1398	15.2	103.8	2	91.9
27-FEB-89	258	1400	15.2	102.7	2	90.9
22-MAY-89	259	1410	12.7	107.1	2	94.8
22-MAY-89	260	1412	12.7	110.2	2	97.5
23-MAY-89	261	1414	12.0	107.2	2	94.9
23-MAY-89	262	1416	12.0	103.7	2	91.8
24-MAY-89	263	1394	12.0	104.2	2	92.2
24-MAY-89	264	1394	12.7	105.5	2	93.4
25-MAY-89	265	1396	12.7	110.9	2	98.1
25-MAY-89	266	1397	12.7	108.1	2	95.7
31-MAY-89	267	1397	13.6	108.8	2	96.3
31-MAY-89	268	1384	13.6	105.0	2	92.9

1-JUNE-89	269	1384	13.6	108.2	2	95.8
1-JUNE-89	270	1385	14.3	106.0	2	93.8
1-JUNE-89	271	1386	14.3	108.9	2	96.4
2-JUNE-89	272	1387	13.5	110.0	2	97.3
2-JUNE-89	273	1372	13.5	107.6	2	95.2
2-JUNE-89	274	1374	13.5	107.4	2	95.0
2-JUNE-89	275	1376	13.6	110.0	2	97.3
2-JUNE-89	276	1354	12.7	106.0	2	93.8
2-JUNE-89	277	1356	12.7	106.0	2	93.8
2-JUNE-89	278	1396	12.7	108.9	2	96.4
6-JUNE-89	279	1398	11.6	104.2	2	92.2
6-JUNE-89	280	1176	11.6	110.2	2	97.5
11-JULY-89	281	1168	14.1	110.1	2	97.4
11-JULY-89	282	1140	12.7	111.8	2	98.9
13-JULY-89	283	1220	15.1	110.3	2	97.6
13-JULY-89	284	1418	1412	111.3	2	98.5
13-JULY-89	285	1386	15.9	110.4	2	97.7
18-JULY-89	286	1387	11.3	111.0	2	98.2
18-JULY-89	287	1390	11.3	111.5	2	98.7
20-JULY-89	288	1410	13.6	111.3	2	98.5
27-JULY-89	289	1389	12.9	106.4	2	94.2
27-JULY-89	290	1383	12.9	106.9	2	94.6
1-AUG-89	291	1387	12.1	107.2	2	94.9
1-AUG-89	292	1400	12.1	105.2	2	93.1
4-OCT-89	293	1440	12.7	107.1	2	94.8
4-OCT-89	294	1442	12.7	105.2	2	93.1
4-OCT-89	295	1444	13.7	101.4	3	93.0
4-OCT-89	296	1446	13.7	101.4	3	93.0

4-OCT-89	297	1448	13.7	101.8	3	93.4
5-OCT-89	298	1450	14.7	103.4	3	94.9
5-OCT-89	299	1452	14.7	102.9	3	94.4
5-OCT-89	300	1454	14.7	103.4	3	94.8
5-OCT-89	301	1456	13.7	102.9	3	94.4
5-OCT-89	302	1458	13.7	101.8	3	93.4
5-OCT-89	303	1459	13.7	101.7	3	93.3
6-OCT-89	304	1456	12.8	100.9	3	92.5
6-OCT-89	305	1456	12.8	103.4	3	94.9
6-OCT-89	306	1458	14.3	101.3	3	92.9
6-OCT-89	307	1458	14.3	103.5	3	94.9
13-DEC-89	308	1240	15.9	106.6	1	92.6
14-DEC-89	309	1285	17.9	102.7	1	91.0
14-DEC-89	310	1190	14.7	106.4	1	92.5
15-DEC-89	311	1350	14.9	106.6	1	92.7
15-DEC-89	312	1420	16.8	105.1	1	91.3
15-DEC-89	313	1387	14.3	105.7	1	91.9
18-DEC-89	314	1182	15.4	104.6	1	90.9
18-DEC-89	315	1186	15.4	104.0	1	90.4
18-DEC-89	316	1180	15.4	110.6	1	96.1
27-DEC-89	317	1390	15.3	110.1	1	95.7
28-DEC-89	318	1394	15.8	111.0	1	96.5
5-JAN-90	319	1389	15.4	110.6	1	95.8
7-FEB-90	320	1386	15.7	112.4	1	97.7
7-FEB-90	321	1384	15.9	111.9	1	97.3
7-FEB-90	322	1391	15.9	111.9	1	97.3
8-FEB-90	323	1370	13.6	112.7	1	97.7
8-FEB-90	324	1280	13.6	110.8	1	96.3

12-FEB-90	325	1386	7.3	111.0	4	96.5
12-FEB-90	326	1390	7.3	133.6	4	96.6
12-FEB-90	327	1331	8.5	128.2	4	95.5
14-FEB-90	328	1243	8.7	131.6	4	98.0
14-FEB-90	329	1400	8.7	130.9	4	19.4
14-FEB-90	330	1188	8.7	129.6	4	96.7

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

BUILDING AND SAFETY DIVISION

ENGINEERED GRADING

CONSULTANT STATEMENT

Job Address or Tract No. 24575 Dry Canyon/Cold Creek Road Locality Calabasas Permit No. _____

Owner Andrews Development Corp Contractor _____

☒ ROUGH GRADING

☐ BY FIELD ENGINEER

Based upon observations, rough grading of the lots listed below has been completed in conformance with plans therefor marked "APPROVED" by the County, and Building Code Chapter 70. The Work includes but is not limited to the following: grading to approximate final elevations; staking of property lines; location and gradient of cut and fill slopes; location, cross-sectional configuration and flow-line gradient of drainage swales and terraces (graded ready for paving); berms installed where indicated; and required drainage slopes provided on building pads.

LOT NOS. 1 through 7/ Tract #36172

As-built plans have been prepared
Latest Plan revision date _____.

Remarks: _____

Engineer _____ Reg. No. 31902 Date 2-16-90
(Signature)

☒ BY SOIL ENGINEER

Based upon tests and observations, the earth fills placed on the following lots were installed upon properly prepared base material and compacted in compliance with requirements of Building Code Section 7016. Fill slope surfaces have been compacted and buttress fills or similar stabilization measures have been installed in accordance with my recommendations as approved by the Building Official. Sub-drains have been provided where required and locations of said sub-drains are shown on plans dated _____.

LOT NOS. 1 through 7

See report dated 2-15-90 for compaction test data and procedure, recommended allowable soil bearing values and other special recommendations.

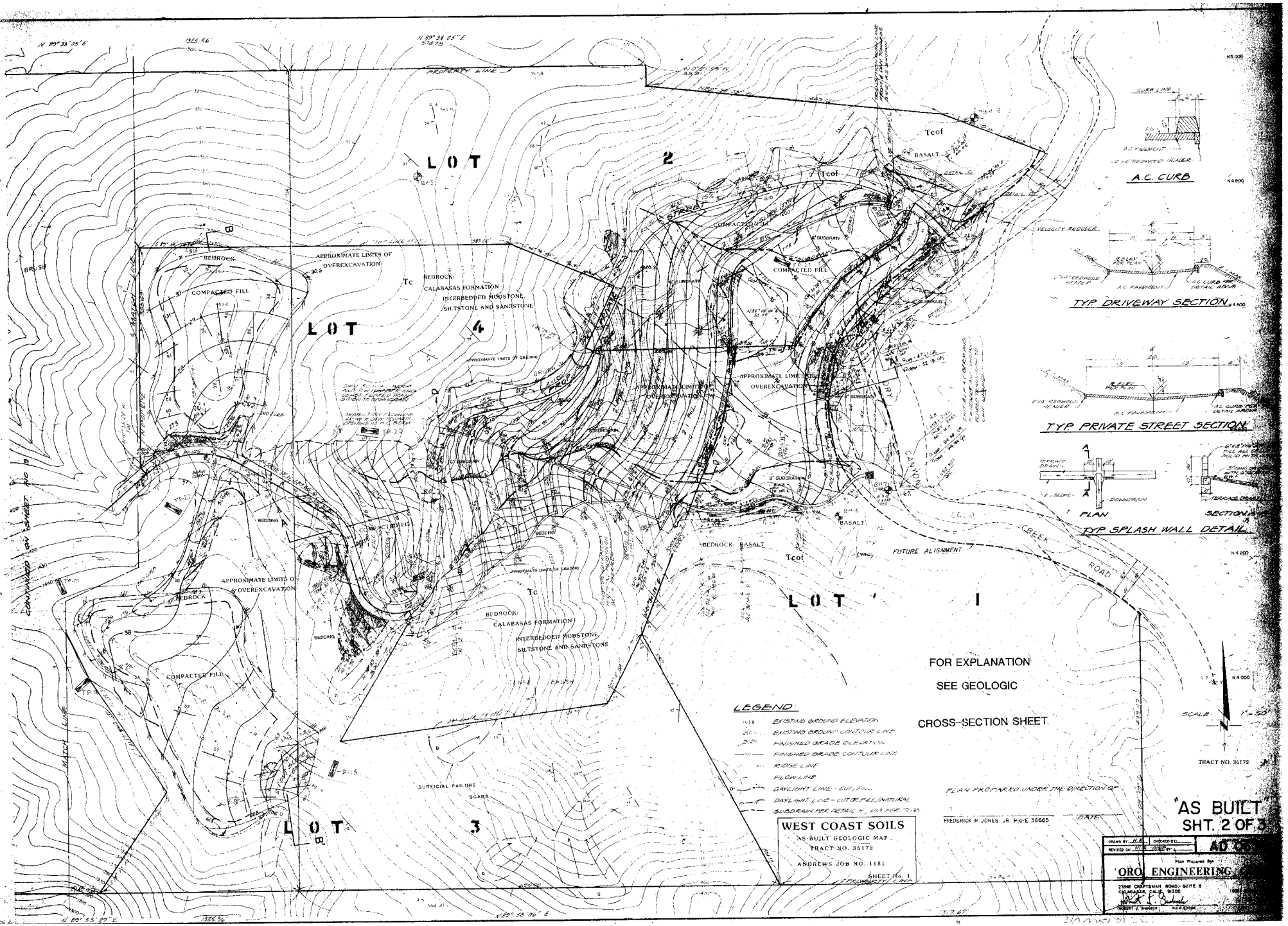
EXPANSIVE SOILS (YES) (NO) LOT NOS. _____

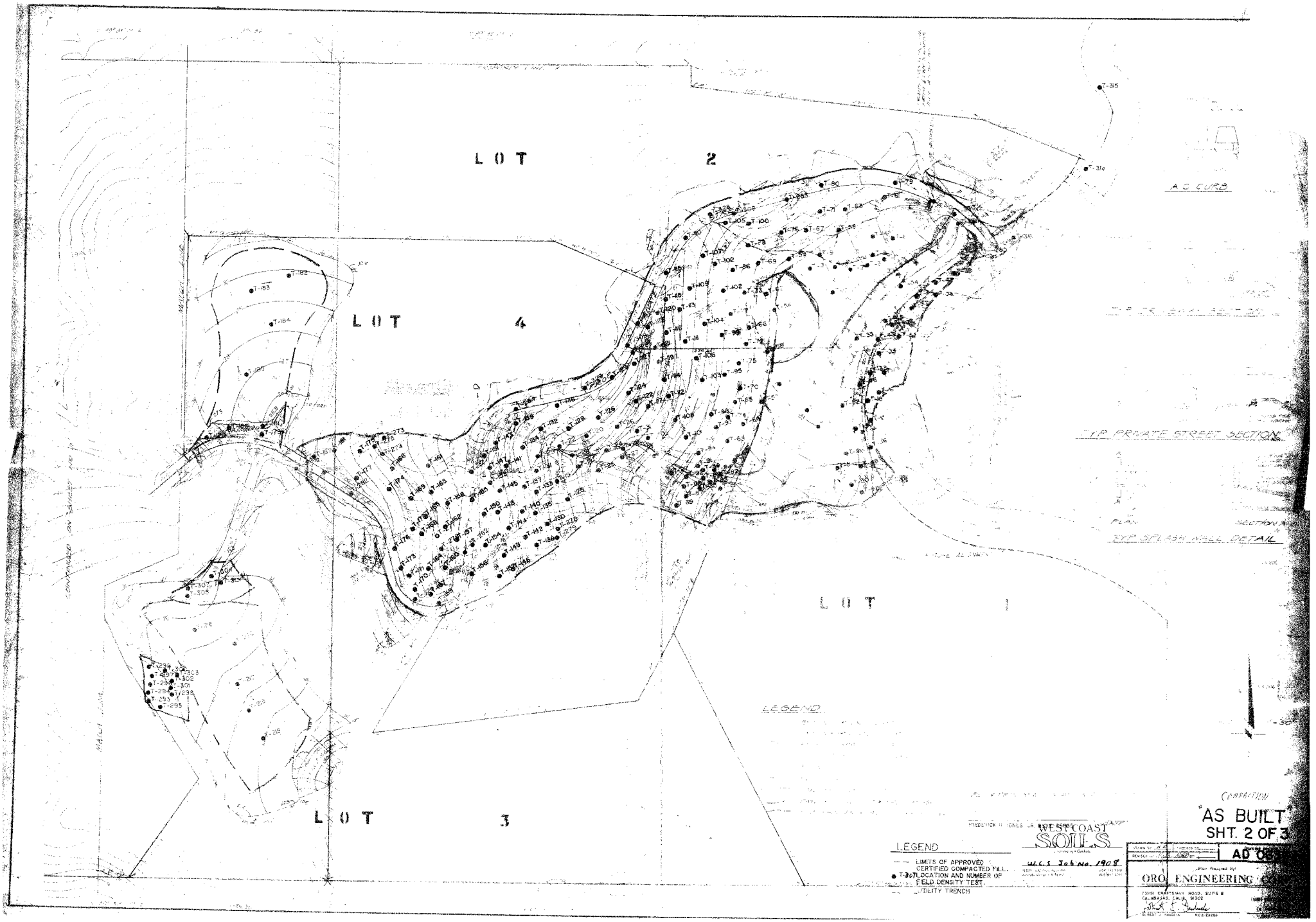
BUTTRESS FILLS (YES) (NO) LOT NOS. _____

Remarks _____

Engineer _____ Reg. No. 31902 Date 2-16-90
(Signature)

REGISTERED PROFESSIONAL ENGINEER LEONARD LISTON No. 31902 FEB 16 1990 Exp. Dec. 92 CIVIL STATE OF CALIFORNIA


LOT 2
LOT 4
LOT 1
LOT 3
PROPERTY LINE
STREET
ROAD
CANYON
CREEK
FUTURE ALIGNMENT
APPROXIMATE LIMITS OF OVEREXCAVATION
APPROXIMATE LIMITS OF GRADING
BEDROCK: CALABASAS FORMATION INTERBEDDED MUDSTONE, SILTSTONE AND SANDSTONE
BEDROCK: BASALT
COMPACTED FILL
SURFICIAL FAILURE SCARS
BEDDING
Tc
Tcof
A.C. CURB
TYP. DRIVEWAY SECTION
TYP. PRIVATE STREET SECTION
TYP. SPLASH WALL DETAIL
PLAN
SECTION
FOR EXPLANATION SEE GEOLOGIC CROSS-SECTION SHEET
LEGEND:
EXISTING GROUND ELEVATION
EXISTING GROUND CONTOUR LINE
FINISHED GRADE ELEVATION
FINISHED GRADE CONTOUR LINE
RIDGE LINE
FLOW LINE
DAYLIGHT LINE - CUT, FILL
DAYLIGHT LINE - (CUT OR FILL) / NATURAL
SUBDRAIN PER DETAIL H, U/A PER PLAN
PLAN PREPARED UNDER THE DIRECTION OF
FREDERICK R. JONES JR. R.G.E. 36605
DATE
WEST COAST SOILS
AS-BUILT GEOLOGIC MAP
TRACT NO. 36172
ANDREWS JOB NO. 1181
SHEET No. 1
SCALE 1" = 50'
TRACT NO. 36172
"AS BUILT"
SHT. 2 OF 3
ORO ENGINEERING
23961 CRAFTSMAN ROAD, SUITE B
CALABASAS, CALIF. 91302


LOT 2
LOT 4
LOT 1
LOT 3
A.C. CURB
TYP. PRIVATE STREET SECTION
PLAN
SECTION
TYP. SPLASH WALL DETAIL
LEGEND
LIMITS OF APPROVED CERTIFIED COMPACTED FILL.
T-307 LOCATION AND NUMBER OF FIELD DENSITY TEST.
UTILITY TRENCH
WEST COAST SOILS
W.C.S. Job No. 1908
COMPACTION
"AS BUILT"
SHT. 2 OF 3
AD 06
ORO ENGINEERING CO.
23961 CRAFTSMAN ROAD, SUITE E
CALABASAS, CALIF. 91302

APPENDIX D

February 20, 1989 Job No. 1908-88

Andrews Development Company
13950 Ventura Boulevard, Suite 243
Sherman Oaks, CA 91423

SUBJECT: PERCOLATION TESTING FOR THE PROPOSED ONSITE PRIVATE DISPOSAL SYSTEMS, LOTS 1 THROUGH 7, TRACT 36172, 24575 DRY CANYON/COLD CREEK ROAD, CALABASAS, COUNTY OF LOS ANGELES, CALIFORNIA.

REFERENCES: IN-GRADING OBSERVATION REPORTS, PREPARED BY WEST COAST SOILS, JOB NUMBER 1181-87, DATED 1-20-89, 12-12-88, 11-7-88, AND 9-23-88.

UPDATED GEOLOGIC AND SOILS ENGINEERING INVESTIGATION, PREPARED BY WEST COAST SOILS, JOB NUMBER 1181-87, DATED MAY 11, 1987.

GRADING AND DRAINAGE PLAN, PREPARED BY ORO ENGINEERING COMPANY, DATED OCTOBER 26, 1987.

Gentlemen:

As requested, we have performed percolation testing with respect to future installation of private sewerage disposal systems on the subject lots.

The percolation tests were performed on the subject lots in the vicinity of the proposed private sewage disposal systems. Percolation tests were performed on the subject lots in accordance with the "Environmental Resources Agency of the County of Los Angeles, and the Uniform Plumbing Code.

SITE DESCRIPTION

The subject lots represent Tract 36172, which is located at 24575 Dry Canyon/Cold Creek Road, Calabasas, County of Los Angeles, California. The lots are currently in the grading stage and should be completed in March, 1989.

The lots generally consist of level cut and fill graded pads and driveways. Slope gradients vary from nearly horizontal on graded pad areas to as steep as 1 1/2:1 on the natural and graded slopes.

The neighboring development consists of single family hillside residences on similiar properties.

Drainage will be achieved by sheet flow runoff and concentrated flow in approved drainage devices.

EARTH MATERIALS

The earth materials are logged and shown herein on Logs of Test Pits. The earth materials consisted of fill and bedrock as described below.

Fill: Mixture of rock fragments and clayey sand, mottled brown, dense, slightly moist.

Bedrock: Bedrock encountered consists of interbedded Sandstone, Siltstone, and Mudstone, and Basalt. Sandstone: orange brown; Siltstone; light gray to gray. Bedrock is slightly moist to moist, moderately hard, thinly bedded, fractured, and moderately weathered. The Basalt is brown to black, fractured, moderately weathered, and jointed. shale, which is tan to pale greenish gray, hard to very hard, thinly to thickly bedded, and moderately weathered.

Groundwater and Caving: Groundwater was encountered at a depth of 35 feet in test boring 5. However the groundwater is not expected to be a problem during construction. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time measurements were made and reported herein.

CONCLUSIONS AND RECOMMENDATIONS

Based upon our exploration, percolation testing, and experience with similar projects, the proposed installation of private sewage disposal systems on the subject lots is considered feasible from a geotechnical standpoint provided the following recommendations are made part of the development plans and are implemented during construction.

Based upon our investigation and corresponding geotechnical analysis, the proposed development will be free from geologic hazards, such as landslides, undue differential settlement or slippage. In addition, the proposed development will not have any adverse effect on the site or the adjacent properties provided our recommendations are followed during construction.

Private sewerage disposal systems, consisting of a septic tank, and seepage pit(s) may be installed on each of the lots.

The underlying bedrock is capable of absorbing the effluent from the proposed single family residences. The percolation rates for each of the test pits are indicated on the following table. It should be noted that locating the seepage pits futher south on lots 5, 6, and 7 as indicated on the enclosed site plan, will result in better percolation rates due to the bedrock type and performance of lots 3 and 4.

The use of a private sewerage disposal system on the subject property should not adversely affect the stability of the site or adjoining properties. The system should be designed in accordance with the requirements of the County of Los Angeles Health Department and Uniform Plumbing Code.

Please do not hesitate to call this office if you have any questions.

Respectfully submitted,

Leonard Liston
RCE 31902

LL:ll

Enclosures: Log of Test Pits
Calculation Sheet
Percolation Test Data
Site Plan

Distribution: Addressee (4)

PERCOLATION TEST DATA

Lot/Test Pit Number	Total Depth	24 Hour Drop	*Percolation Rate
1	22 Ft.	9 Ft.	3.1
2	34 Ft.	10 Ft.	2.2
3	40 Ft.	10 Ft.	1.9
4	40 Ft.	30 Ft.	5.6
5	35 Ft.	26 Ft.	5.6
6	38 Ft.	10 Ft.	7.4
7	40 Ft.	18 Ft.	3.4

*Percolation Rate: Gallons/Square Foot/Day

TABLE I

Log of Test Pits

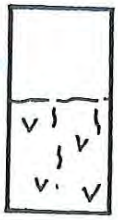
Pit No.		Depth (Feet)	Description
1 Lot 1		0.0 - 10.0	FILL: Mixture of rock fragments and Clayey Sand, mottled light brown to brown, dense, slightly moist
		10.0 - 22.0	BEDROCK: Basalt, mottled brown to black, slightly moist, hard, fractured, moderately weathered, jointed, contains few silicate amygdales; decrease in amount of joints at depth of 18 feet
			End at 22.0 feet; No Water; No Caving; Fill to 10 feet
2 Lot 2		0.0 - 0.5	FILL: Mixture of rock fragments and Clayey Sand, mottled light brown to brown, dense, slightly moist
		0.5 - 34.0	BEDROCK: Basalt, mottled red-brown to black, slightly moist, hard, fractured, moderately weathered, jointed, contains few silicate amygdales; decrease in amount of joints at a depth of 20 feet
			End at 34 feet; No Water; No Caving; Fill to 0.5 feet

TABLE I

Log of Test Pits

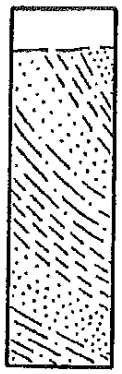
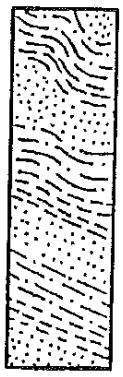
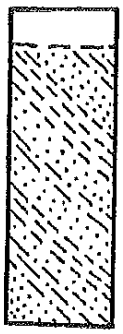
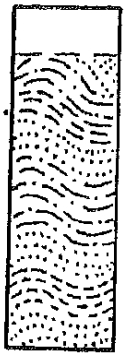
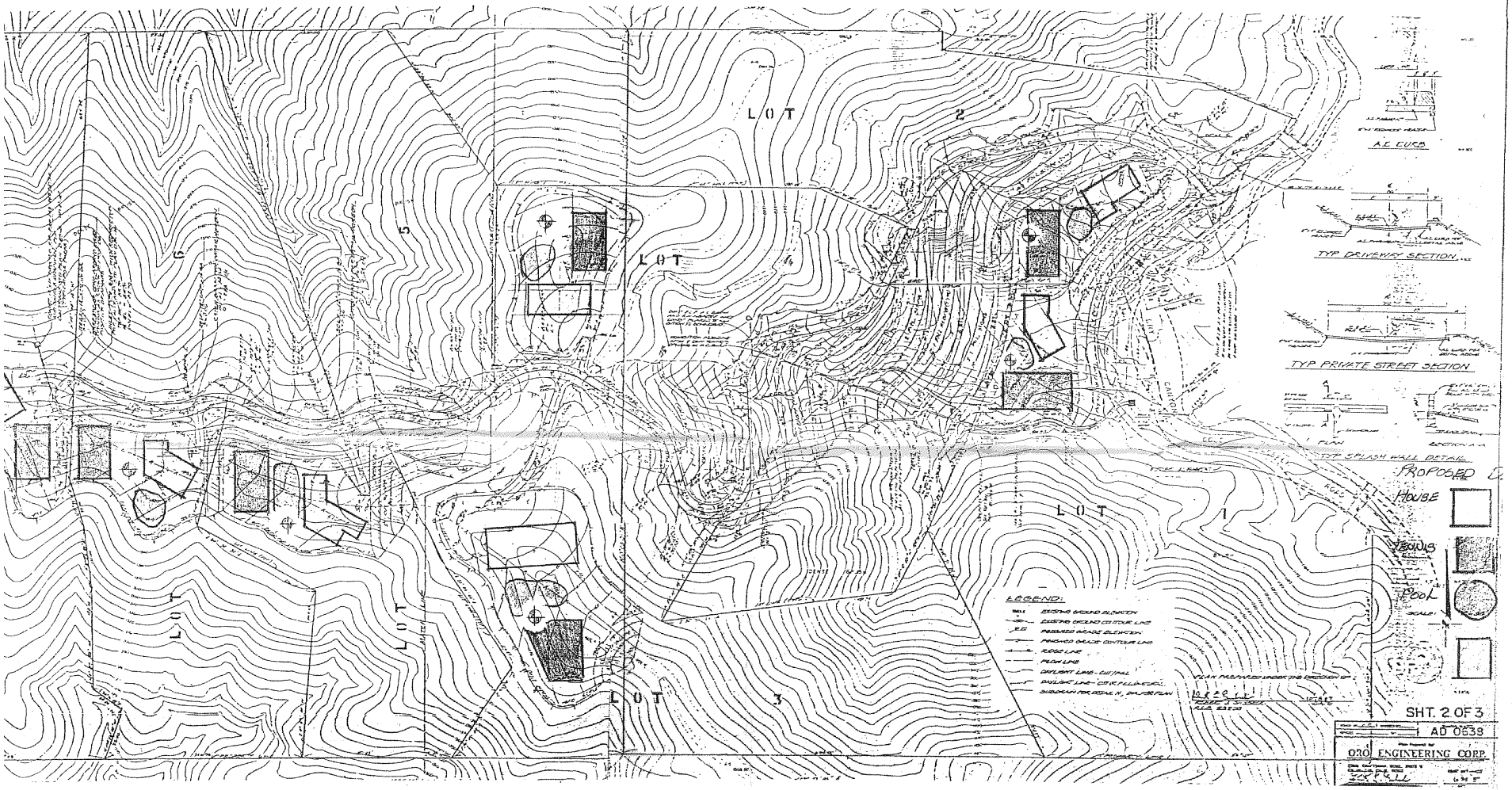
Pit No.		Depth (Feet)	Description
3 Lot 3		0.0 - 5.0	COMPACTED FILL: Mixture of rock fragments and Clayey Sand, mottled light brown to brown, dense, slightly moist
		5.0 - 40.0	BEDROCK: Interbedded Sandstone, Siltstone and Mudstone. Sandstone: orange-brown; Siltstone and Mudstone: light gray to gray; Bedrock is slightly moist, moderately hard, thinly bedded, fractured and moderately weathered End at 40 feet; No Water; No Caving Fill to 5 feet BEDDING ATTITUDES: N75E; 70NW @ 6 feet N75E; 45NW @ 10 feet N75E; 40NW @ 15 feet N70E; 35NW @ 20 feet Downhole logged to 20 feet.
4 Lot 4		0.0 - 40.0	BEDROCK: Interbedded Sandstone, Siltstone and Shale, mottled light brown to brown, slightly moist, moderately hard to very hard, thinly bedded, fractured and moderately weathered End at 40 feet; No Water; No Caving; No Fill BEDDING ATTITUDES: N45E; 40NW @ 5 feet N35E; 38NW @ 10 feet N45E; 30NW @ 15 feet N60E; 25NW @ 20 feet Downhole logged to 20 feet

TABLE I

Log of Test Pits

Pit No.		Depth (Feet)	Description
5 Lot 5		0.0 - 4.0	COMPACTED FILL: Mixture of rock fragments and Clayey Sand, mottled gray to light brown, dense, slightly moist
		4.0 - 35.0	BEDROCK: Interbedded Sandstone, Siltstone and Mudstone. Sandstone: orange-brown; Siltstone and Mudstone: light gray to gray. Bedrock is slightly moist to moist, moderately hard, thinly bedded, fractured and moderately weathered
			End at 35 feet; Water @ 35 feet; No Caving Fill to 4 feet
			BEDDING ATTITUDES: N70W; 52NE @ 5 feet N70W; 40NE @ 10 feet N75W; 45NE @ 15 feet N72W; 46NE @ 20 feet
			Downhole logged to 20 feet.
6 Lot 6		0.0 - 5.0	COMPACTED FILL: Mixture of rock fragments and Clayey Sand, mottled light brown to brown, dense, slightly moist
		5.0 - 38.0	BEDROCK: Interbedded Sandstone, Siltstone and Mudstone. Sandstone: orange-brown; Siltstone and Mudstone: light gray to gray. Bedrock is slightly moist to moist, moderately hard to hard, thinly bedded, fractured and moderately weathered
			End at 38 feet; 6" of water in bottom of hole, presumably due to rain; No Caving; Fill to 5 feet
			BEDDING ATTITUDES: N50W; 50NE @ 6 feet N85E; 45NW @ 16 feet N65W; 52NE @ 10 feet N25W; 17Sw @ 19 feet N65E; 30NW @ 14 feet N60W; 48NE @ 20 feet
			Downhole logged to 20 feet



TRACT 36172

LOTS 1 THRU 7

PERCOLATION TESTING FOR ONSITE PRIVATE SEWAGE DISPOSAL SYSTEMS

LEGEND:

LOCATION OF PERCOLATION TEST

WEST COAST SOILS
Engineering • Geology
JOB NO. 1908-BB 2-20-89
31129 Via Colinas, Suite 705, Westlake Village, CA 91362
(818) 991-7148
(805) 497-1244