Town of Los Gatos
Community Development Department

Surrey Farms Estates Subdivision Project

Recirculated Initial Study/Mitigated Negative Declaration

April 2026

RANEY PLANNING & MANAGEMENT, INC.
25 years
1501 Sports Drive, Suite A, Sacramento, CA 95834

TABLE OF CONTENTS

A. BACKGROUND 2

B. SOURCES 3

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED 5

D. DETERMINATION 6

E. BACKGROUND AND INTRODUCTION 7

F. PROJECT DESCRIPTION 8

G. ENVIRONMENTAL CHECKLIST 21

I. AESTHETICS. 22
II. AGRICULTURE AND FOREST RESOURCES. 32
III. AIR QUALITY. 33
IV. BIOLOGICAL RESOURCES. 41
V. CULTURAL RESOURCES. 58
VI. ENERGY. 62
VII. GEOLOGY AND SOILS. 65
VIII. GREENHOUSE GAS EMISSIONS. 71
IX. HAZARDS AND HAZARDOUS MATERIALS. 74
X. HYDROLOGY AND WATER QUALITY. 77
XI. LAND USE AND PLANNING. 84
XII. MINERAL RESOURCES. 85
XIII. NOISE. 86
XIV. POPULATION AND HOUSING. 93
XV. PUBLIC SERVICES. 94
XVI. RECREATION. 97
XVII. TRANSPORTATION. 98
XVIII. TRIBAL CULTURAL RESOURCES. 104
XIX. UTILITIES AND SERVICE SYSTEMS. 105
XX. WILDFIRE. 109
XXI. MANDATORY FINDINGS OF SIGNIFICANCE. 111

APPENDICES:

Appendix A: Air Quality and Greenhouse Gas Modeling Results
Appendix B: Biological Evaluation Report
Appendix C: Bay Area Hydrology Model Report
Appendix ~~C~~D: Arborist Report
Appendix ~~D~~E: Geotechnical and Geologic Hazard Investigation
Appendix ~~E~~F: VMT Technical Memorandum

RECIRCULATED INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

A. BACKGROUND

1. Project Title: Surrey Farms Estates Subdivision Project

2. Lead Agency Name and Address: Town of Los Gatos
Community Development Department
110 E. Main Street
Los Gatos, CA 95030

3. Contact Person and Phone Number: Erin Walters
Senior Planner
(408) 354-6867

4. Project Location: 178 Twin Oaks Drive
Los Gatos, CA 95030
Assessor's Parcel Number (APN): 532-16-006

5. Project Sponsor's Name and Address: Larry Dodge
Jim Foley
223 West Main Street, Suite D2
Los Gatos, CA 95030

6. Existing General Plan Designation: Agriculture

7. Existing Zoning Designation: Resource Conservation (RC)

8. Required Approvals from Other Public Agencies: ~~None~~ California Department of Fish and Wildlife (CDFW) and San Francisco Bay Regional Water Quality Control Board (SFRWQCB)

9. Surrounding Land Uses and Setting:

The approximately 17.55-acre project site, identified by APN 532-16-006, is located on an undeveloped hillside at 178 Twin Oaks Drive in the Town of Los Gatos, California. The project site contains scattered oak woodlands throughout, and a small portion of East Ross Creek crosses the project site's farthest southwestern corner through a buried culvert. Existing single-family residences are located in the vicinity of the project site, as well as an existing private school located to the north of the site. The project site is located within the Town's 1978 Hillside Specific Plan and is identified as a Hillside Area pursuant to the Hillside Development Standards and Guidelines. The Town of Los Gatos 2020 General Plan designates the project site as Agriculture and the site is zoned RC.

10. Project Description Summary:

    The Surrey Farms Estates Subdivision Project (proposed project) would subdivide the project site into 12 residential lots, ranging in size from approximately 0.1-acre to 5.48 acres. The eastern portion of the project site would remain undeveloped. The western slope would be developed with 11 residences, comprised of eight market-rate single-family residences and three below market-rate detached row houses. An additional single-family residence would be developed on the hillside's northeastern slope. Access to the project site would be provided through a new private driveway off of Twin Oaks Drive west of the project site, as well as a separate access route to Lot 10 from Cerro Vista Court. The proposed project would require Town approval of a Vesting Tentative Subdivision Map, Tree Removal Permit, and Architecture and Site Plan Review. Due to the applicant's formal Senate Bill (SB) 330 application and Builder's Remedy status, the project does not require approval of a General Plan Amendment or Rezone.

11. Status of Native American Consultation Pursuant to Public Resources Code Section 21080.3.1:

    In compliance with Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1), project notification letters were distributed to Costanoan, Northern Valley, Yokut, Bay Miwok, Ohlone, Patwin, Plains Miwok, Bay Miwok, and Delta Yokut tribes on February 24, 2025. As of July 1, 2025, which significantly exceeds the required 30-day consultation response period, the Town has not received a request for consultation.

B. SOURCES

The following documents are referenced information sources used for the purpose of this Initial Study/Mitigated Negative Declaration (IS/MND):

1. Balance Hydrologics. *Summary of BAHM Modeling for the Surrey Farm Project, Town of Los Gatos*. July 31, 2025.
2. Bay Area Air Quality Management District. *2022 California Environmental Quality Act Guidelines.* April 2023.
3. Bay Area Air Quality Management District. *Air Quality Summary Reports*. Available at: https://www.baaqmd.gov/about-air-quality/air-quality-measurement/air-quality-summaries. Accessed May 2025.
4. CalEPA. *Cortese List Data Resources*. Available at: https://calepa.ca.gov/wp-content/uploads/2016/10/SiteCleanup-CorteseList-CurrentList.pdf. Accessed May 2025.
5. California Building Standards Commission. *2022 California Green Building Standards Code*. 2023.
6. California Department of Conservation. *California Important Farmland Finder*. Available at: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed May 2025.
7. California Department of Forestry and Fire Protection. *Santa Clara County: State Responsibility Area Fire Hazard Severity Zones*. Effective April 1, 2024.
8. California Department of Resources Recycling and Recovery. *Estimated Solid Waste Generation Rates*. Available at: https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates. Accessed October 2023.
9. California Department of Toxic Substances Control. *EnviroStor.* Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=178+Twin+Oaks+Drive%2C+Los+Gatos#. Accessed May 2025.

10. California Department of Transportation. *California Scenic Highway Mapping System*. Available at: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa. Accessed October 2023.
11. City of San Jose. *San Jose-Santa Clara Regional Wastewater Facility.* Available at: https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/water-utilities/regional-wastewater-facility. Accessed October 2023.
12. Cornerstone Earth Group. *Geotechnical & Geologic Hazard Investigation, Twin Oaks Drive Subdivision*. October 1, 2024.
13. Cornerstone Earth Group. *Interim Response to Geotechnical Peer Review*. March 5, 2025.
14. Cotton, Shires, and Associates, Inc. *Geological and Geotechnical Peer Review*. January 6, 2025.
15. Department of Resources Recycling and Recovery. *SWIS Facility/Site Activity Details – Guadalupe Sanitary Landfill (43-AN-0015).* Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1376?siteID=3399. Accessed October 2023.
16. Federal Emergency Management Agency. *Flood Insurance Rate Map 06085C0377H.* Available at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html. Accessed April 2025.
17. Holman & Associates Archeological Consultants. *Cultural Resource Study of the Proposed Surrey Farm Estates Project, 170 Twin Oaks Drive, Los Gatos, Santa Clara County, California.* January 25, 2013.
18. Live Oak Associates, Inc. *178 Twin Oaks Drive Project, Biological Evaluation, Los Gatos, Santa Clara County, California.* May 23, 2025.
19. McClintock Landscape Horticultural Services. *Arborist Report, Tree Preservation Plan, Surrey Farms, Project #4185.10, Los Gatos, CA 95032*. December 15, 2024. Revised July 23, 2025.
20. Northwest Information Center. *Record search results for the proposed Surrey Farms Estates Subdivision Project, NWIC File No.: 24-0971*. January 13, 2025.
21. Protect Genasys. *Genasys Protect*. Available at: https://protect.genasys.com/zones/US-CA-XSC-LGA-008. Accessed May 2025.
22. San Jose Water Company. *2020 Urban Water Management Plan*. June 2021.
23. Santa Clara Valley Water District. *2020 Urban Water Management Plan.* June 2021.
24. Santa Clara Valley Water District. *Local Dams and Reservoirs.* Available at: https://www.valleywater.org/your-water/local-dams-and-reservoirs. Accessed May 2025.
25. Santa Clara Valley Water Resources Protection Collaborative. *Guidelines & Standards for Land Use Near Streams*. Revised July 2006.
26. State Water Resources Control Board. *GeoTracker Public Site.* Available at: https://geotracker.waterboards.ca.gov/map/. Accessed May 2025.
27. TJKM. *Vehicle Miles Traveled (VMT) Analysis for 178 Twin Oaks Drive Project in Town of Los Gatos, CA.* April 23, 2025.
28. Town of Los Gatos Council. *Agenda Report*. April 26, 2018.
29. Town of Los Gatos. *2040 General Plan EIR.* June 2022.
30. Town of Los Gatos. *Emergency Operation Plan*. 2015.
31. Town of Los Gatos. *Town of Los Gatos 2020 General Plan*. January 7, 2011.
32. Town of Los Gatos. *Town of Los Gatos 2040 General Plan*. June 30, 2022.
33. Town of Los Gatos. *What is a Historic Resource?* Available at: https://www.losgatosca.gov/1718/Introduction-to-Historic-Preservation. Accessed April 2025.
34. Town of Los Gatos Town Council. *Resolution of the Town Council of The Town of Los Gatos Adopting Vehicle Miles Traveled Thresholds of Significance for Purposes of*

Analyzing Transportation Impacts Under the California Environmental Quality Act. November 17, 2020.
35. U.S. Fish and Wildlife Service. *A System for Mapping Riparian Areas in the Western United States*. Revised August 2019.
36. U.S. Occupational Safety and Health Administration. *OSHA Technical Manual (OTM) Section III: Chapter 5.* Available at: https://www.osha.gov/otm/section-3-health-hazards/chapter-5#measurements. Accessed October 2023.
37. W-Trans. *Hillbrook School Report 2023-2024 School Year, Spring Trimester Monitoring*. December 4, 2024.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is "Less-Than-Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

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

D. DETERMINATION

On the basis of this initial study:

☐ 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 applicant. 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" 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 pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date
Erin Walters, Senior Planner	Town of Los Gatos
Printed Name	For

E. INTRODUCTION

This IS/MND identifies and analyzes the potential environmental impacts of the proposed project. The information and analysis presented in this document are organized in accordance with the order of the California Environmental Quality Act (CEQA) checklist in Appendix G of the CEQA Guidelines. Where the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures sufficient to reduce the impacts to less-than-significant levels are prescribed.

The mitigation measures prescribed for environmental effects described in this IS/MND would be implemented in conjunction with the proposed project, as required by CEQA, and the mitigation measures would be incorporated into the proposed project through Conditions of Approval. The Town would adopt findings and a Mitigation Monitoring and Reporting Program (MMRP) for the proposed project in conjunction with project approval.

On June 30, 2022, the Town of Los Gatos adopted the Town's 2040 General Plan Update,[1] and the associated 2040 General Plan Environmental Impact Report (2040 General Plan EIR)[2] was certified. On April 2, 2024, the Town Council voted to rescind the Land Use and Community Design Elements of the 2040 General Plan. Therefore, the Town's current General Plan consists of the Land Use Element and Community Design Element of the Town of Los Gatos 2020 General Plan,[3] and the remaining elements of the 2040 General Plan. The Town of Los Gatos 2020 General Plan EIR (2020 General Plan EIR) is the effective EIR for the Land Use Element and the Community Design Element. Therefore, when the term "General Plan" is used in this IS/MND, the General Plan in effect is being referenced (i.e., the Town of Los Gatos California 2040 General Plan with the 2020 General Plan's Land Use and Community Design Elements).

Applicable portions of the General Plan and General Plan EIR are incorporated by reference, as necessary, as part of this IS/MND. The General Plan EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations [CCR], Sections 15000 et seq.). The General Plan EIR analyzed full implementation of the General Plan and identified measures to mitigate the significant adverse impacts associated with the General Plan.

In addition, an EIR was prepared for the project site in August 2017 for a residential project of the same name. At the time, the project site was proposed for subdivision into 10 lots for future development of single-family residences. Although the project has since changed and the EIR was never certified by the Town, the setting of the site has remained the same and, thus, a number of the technical reports associated with the former project and 2017 EIR remain applicable to the proposed project. Project-specific technical reports have also been prepared for the proposed project and form the basis of several technical sections of this IS/MND. All technical reports used in the preparation of this IS/MND are attached as appendices.

The Surrey Farms Estates Subdivision Project IS/MND was circulated by the Town of Los Gatos on September 19, 2025, for public review and comment until October 8, 2025. Following the public review period, the Town prepared responses to public comments pertaining to the environmental analysis and the project was considered by Planning Commission on December 17, 2025. In response to public comments and input at the Planning Commission hearing, on February 12, 2026, Live Oak Associates conducted additional on-site field investigation of the ephemeral feature located on the project site after a storm event when water was flowing in the on-site ephemeral feature. This follow-on assessment resulted in the determination that the northerly

1 Town of Los Gatos. *Town of Los Gatos 2040 General Plan*. June 30, 2022.
2 Town of Los Gatos. *2040 General Plan EIR*. June 2022.
3 Town of Los Gatos. *Town of Los Gatos 2020 General Plan*. January 7, 2011.

limits of the ephemeral feature extend into the proposed internal driveway and Lot 5 development footprint. As a result, consistent with CEQA Guidelines Section 15073.5, the IS/MND has been revised and recirculated to identify a new potentially significant impact related to having a substantial adverse effect on aquatic features, and include new mitigation measures under question IV-b,c to reduce the newly identified impact to a less-than-significant level (Mitigation Measures IV-10 and -11). Additional Town-initiated changes have been made consistent with the errata sheet included as Exhibit 14 of the Town's December 17, 2025, Planning Commission Staff Report. All revisions made within this document are shown in ~~strike-through~~ and double-underline format.

F. PROJECT DESCRIPTION

The following provides a description of the project site's current location and setting, as well as the proposed project components and the discretionary actions required for the project.

Project Location and Setting

The approximately 17.55-acre project site, identified by APN 532-16-006, is located on an undeveloped hillside at 178 Twin Oaks Drive in the Town of Los Gatos, California (see Figure 1 and Figure 2).

The project site contains scattered oak woodlands throughout the hillside, which includes steep west-facing slopes in the eastern portion of the site that decrease in grade to near-flat slopes in the western portion. A portion of East Ross Creek crosses the project site's farthest southwestern corner through a buried culvert and the eastern on-site slopes are bisected by an ephemeral ~~drainage channel~~ stream. A 100- to 110-foot Santa Clara Valley Water District (SCWVD) flood easement is located in the southern portion of the project site as well.

Existing single-family residences are located in the vicinity of the project site. In addition, a private, lower and middle school campus known as Hillbrook School is located north of the project site. The project site is located within the Town's 1978 Hillside Specific Plan and the Hillside Area identified by the Hillside Development Standards and Guidelines. The Hillside Area of the Town includes all areas with HR (Hillside Residential) and RC (Resource Conservation) zoning, and some lots with R-1 (Residential, Single-Family) zoning. The Town's General Plan designates the project site as Agriculture and the site is zoned RC. A Williamson Act contract was previously active for the project site, but a non-renewal deed was recorded in April of 2015 and the Williamson Act expired on January 1, 2025.[4] As such, the project site is not currently under a Williamson Act contract.

Project Components

The proposed project would include the subdivision and subsequent development of 12 residential lots, construction of associated utilities and internal roadways, and removal of on-site trees (see Figure 3 and Figure 4). As such, the proposed project would required approval of a Vesting Tentative Subdivision Map, Architecture and Site Plan Review, and Tree Removal Permit, the details of which are discussed below.

[4] Town of Los Gatos Council. *Agenda Report*. April 26, 2018.

Figure 1
Regional Project Location

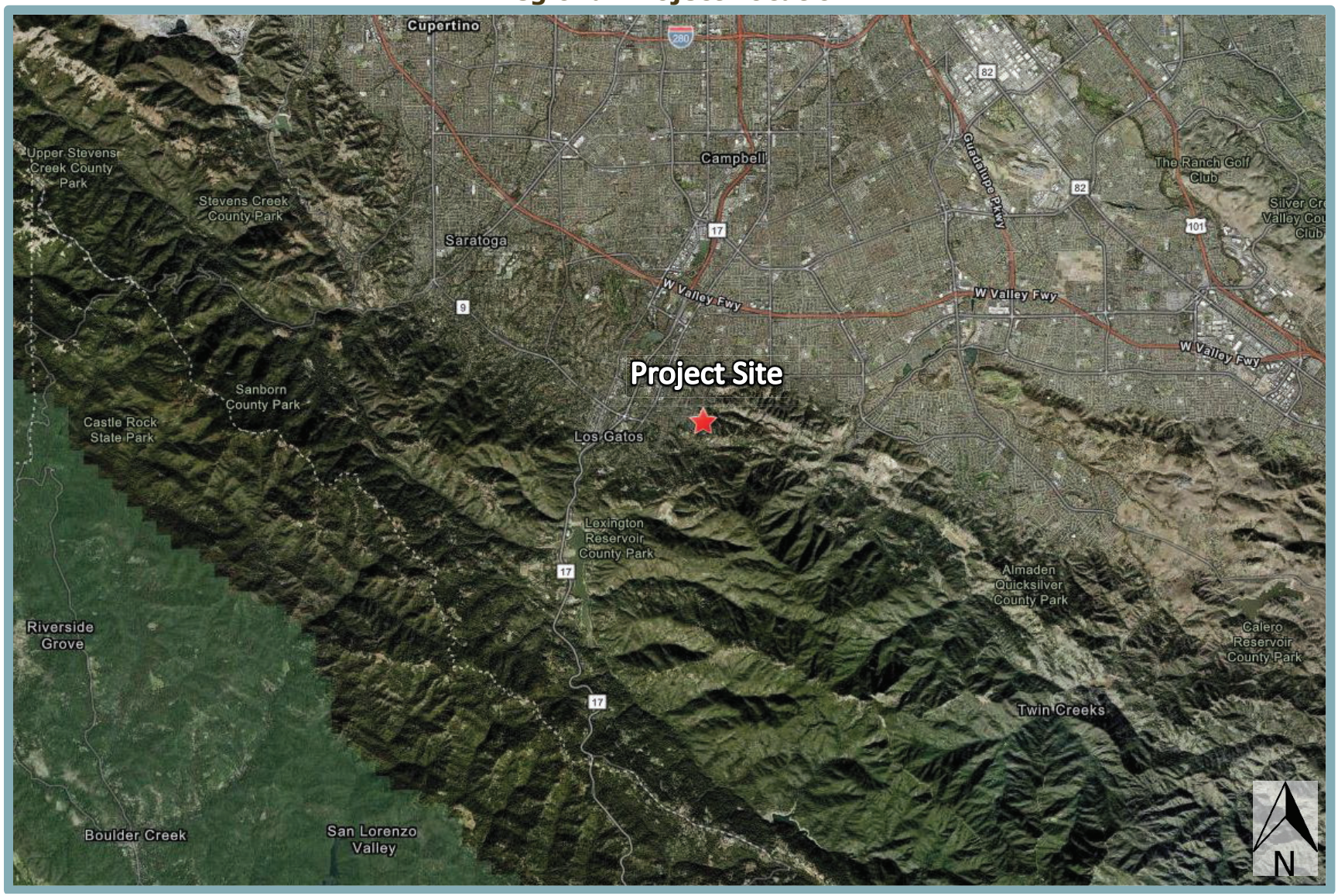


*Figure not OCR Compatible.

Figure 2
Project Site Boundaries

*Figure not OCR Compatible.

Figure 3
Site Plan

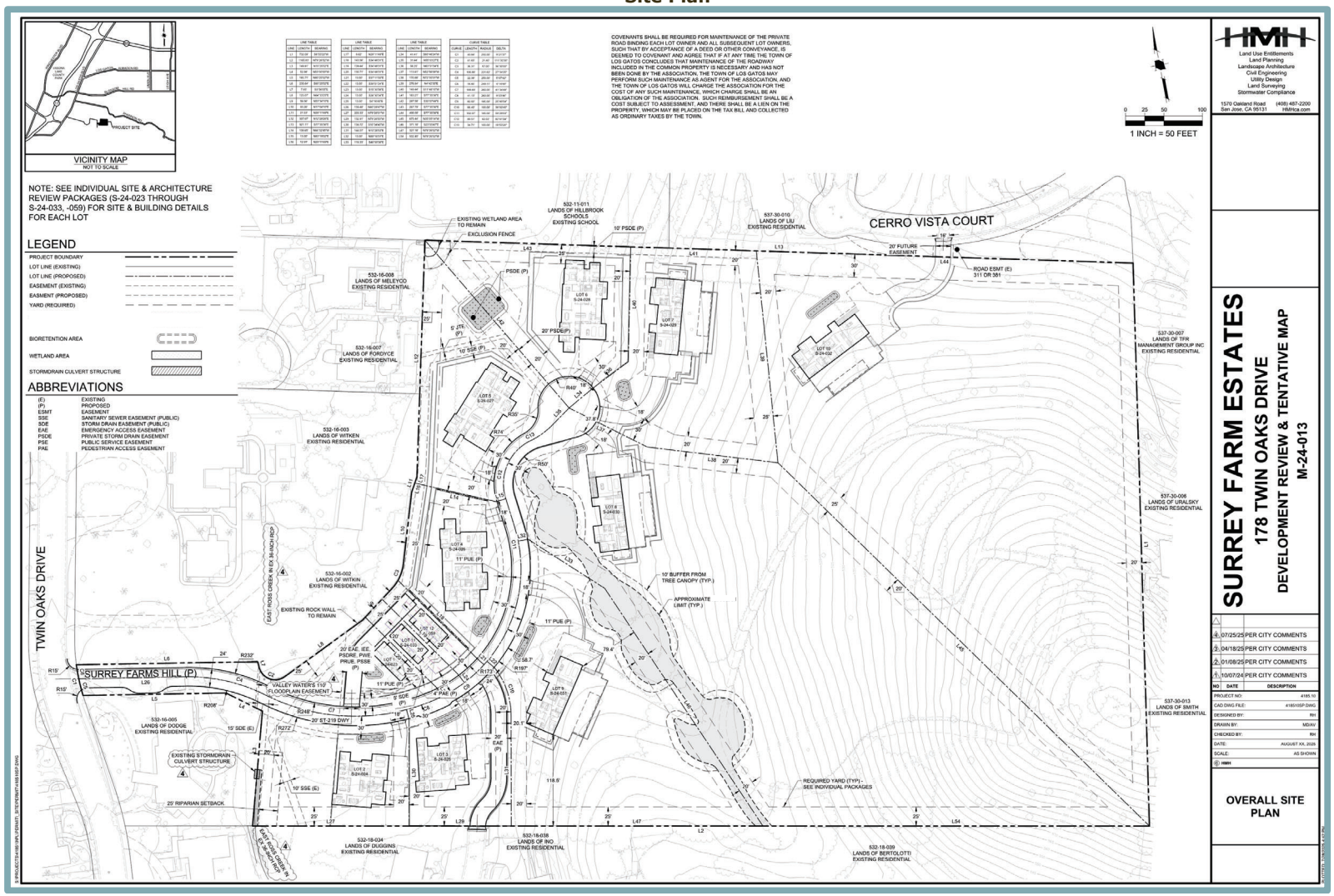
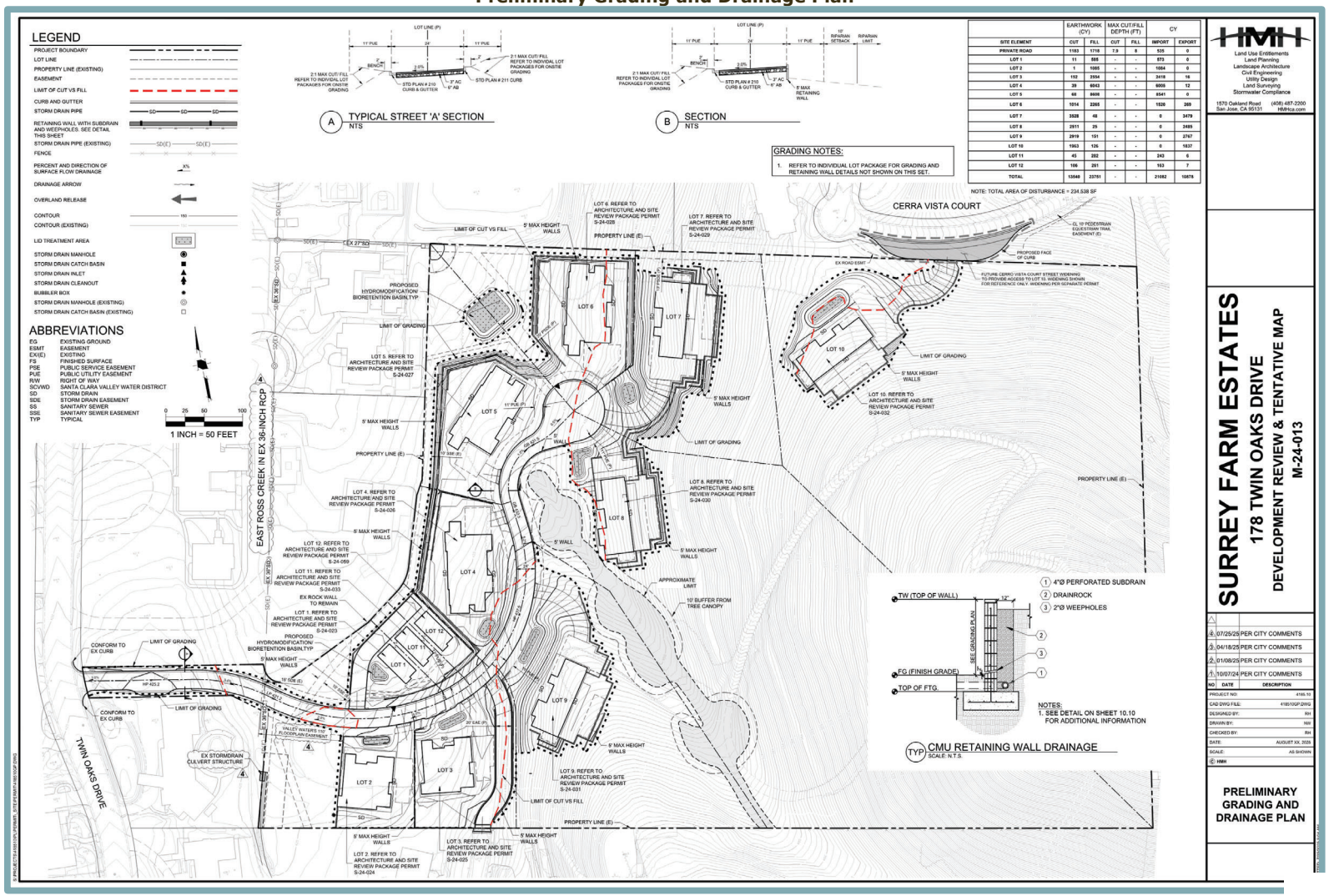


*Figure not OCR Compatible.

Figure 4
Preliminary Grading and Drainage Plan



SITE ELEMENT	EARTHWORK (CY) CUT	FILL	MAX CUT/FILL DEPTH (FT) CUT	FILL	CY IMPORT	EXPORT
PRIVATE ROAD	1193	1718	7.9	8	535	0
LOT 1	11	886	-	-	873	0
LOT 2	1	1085	-	-	1084	0
LOT 3	152	2554	-	-	3418	16
LOT 4	39	6643	-	-	6608	12
LOT 5	68	8608	-	-	8541	0
LOT 6	1014	2265	-	-	1520	269
LOT 7	3528	48	-	-	0	3479
LOT 8	2911	25	-	-	0	2885
LOT 9	2919	151	-	-	0	2767
LOT 10	1963	126	-	-	0	1837
LOT 11	45	202	-	-	243	6
LOT 12	106	251	-	-	163	7
TOTAL	13540	23701	-	-	21082	10878

NO	DATE	DESCRIPTION
4	07/25/25	PER CITY COMMENTS
3	04/18/25	PER CITY COMMENTS
2	01/08/25	PER CITY COMMENTS
1	10/07/24	PER CITY COMMENTS

PROJECT NO: 4195.10
CAD DWG FILE: 4195102P.DWG
DESIGNED BY: RH
DRAWN BY: NW
CHECKED BY: RH
DATE: AUGUST XX, 2025
SCALE: AS SHOWN
© HMH

*Figure not OCR Compatible.

The applicant team has submitted a formal SB 330 application for the project site and the project is subject to Builder's Remedy. Government Code Section 65589.5(d)(5), known as SB 35 Builder's Remedy, is a provision of California's Housing Accountability Act that prevents jurisdictions without a substantially compliant housing element from denying certain housing projects, even if such projects do not comply with the jurisdiction's zoning ordinance or general plan. Although the Town formally certified a compliant Housing Element on July 10, 2024, the project's application was submitted prior to the certification. Therefore, the proposed project does not require Town approval of a General Plan Amendment or Rezone to allow for approval of the proposed residential subdivision. In addition, the Builder's Remedy status of the project allows the project to conform only to the applicable ordinances, policies, and standards in place at the time the project application was submitted.

Because the project is subject to Builder's Remedy, compliance with all of the Town's guidelines, policies, or programs is not required unless noncompliance would constitute a significant health or safety risk. Although not legally required, the proposed project would comply with many of the Town's Hillside Development Standards and Guidelines, such as standards related to lot configuration and building locations within the proposed lots. Further discussion regarding voluntary compliance with Town standards related to specific CEQA topics are addressed in the relevant sections throughout this IS/MND as applicable.

Vesting Tentative Subdivision Map

As discussed above, the proposed project would require approval of a Vesting Tentative Subdivision Map for the subdivision of the project site into 12 residential lots ranging in size from approximately 0.1-acre to 5.48 acres, as well as the construction of associated utilities and internal roadways. Consistent with the Town's Hillside Development Standards and Guidelines, nine of the 12 homes are to be constructed within the project site would be built within the least restrictive development area. The 12 residences would be comprised of nine market-rate single-family residences and three below market-rate detached residences.

The proposed project would also include the development of retaining walls throughout the project site, including along the internal roadway and along the outside perimeter of all the proposed lots as shown in Figure 4. The retaining walls would include a maximum height of five feet, as well as perforated subdrain, drainrock, and weepholes to prevent erosion. As shown on Figure 4, a minimum 10-foot buffer from the canopy of on-site trees surrounding the on-site ephemeral ~~drainage channel~~stream to the nearest proposed development area, and the existing SCWVD flood easement area in the southern portion of the site would remain.

The proposed roadway and utilities improvements associated with the proposed project, as well as the required off-site improvements, are discussed in detail below.

Access and Circulation

As shown on Figure 5, access to Lots 1 through 9, as well as 11 and 12, would be provided by a new private driveway from Twin Oaks Drive west of the site, which would connect to an internal roadway system. The new driveway connection would include a 24-foot-wide right-of-way (ROW) on the project site, which extends from Twin Oaks Drive between two developed parcels to the north and south (APNs 532-16-002 and -005, respectively). Construction of the new driveway would require the removal of on-site trees and an existing shed. Site access to Lot 10 would be provided by a new private driveway extending from Cerro Vista Court. A 20-foot-wide emergency vehicle access (EVA) route would extend south from the site to connect to Brooke Acres Drive.

Figure 5
Vesting Tentative Map

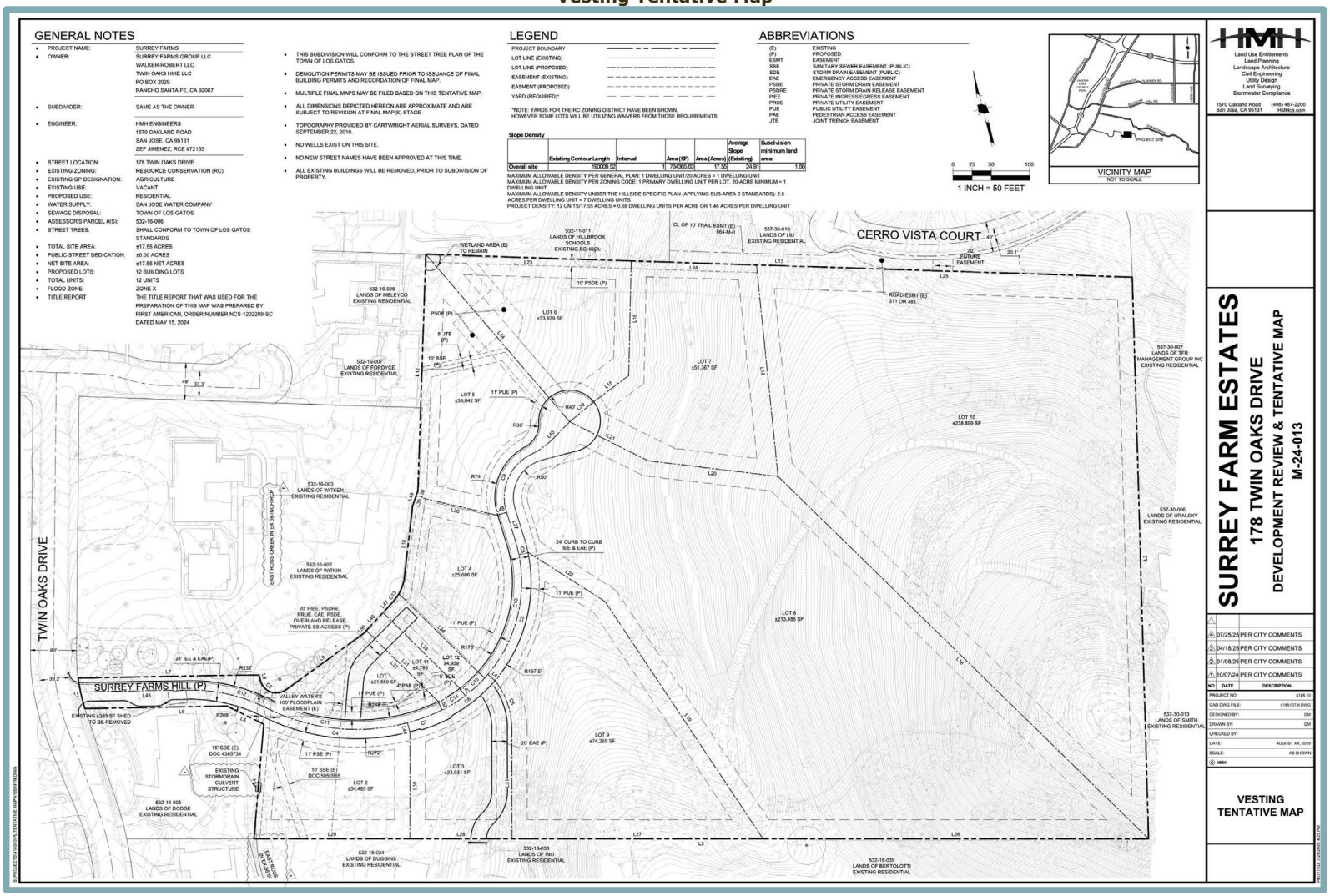


*Figure not OCR Compatible.

A total of 86 parking spaces would be provided throughout the project site, including off-street parking and 27 garage parking spaces.

The proposed project would also maintain open space and future trail easements within and along the southern and eastern boundaries of the site. Specifically, a 50-foot-wide open space easement would be located along the southern boundary, east of the proposed EVA route to just west of the on-site ephemeral stream. From there, the open space easement would transition into a 125-foot-wide open space easement along the remainder of the southern boundary to the east and along the entirety of the eastern boundary.

Utilities

Water and sewer utilities would be provided through new connections to existing utility lines within the project vicinity (see Figure 6). Specifically, the proposed water and sewer lines for Lots 1 through 9, 11, and 12 would connect to an existing eight-inch water main within Twin Oaks Drive and an eight-inch sewer main within the western portion of the site. Water and sewer lines for Lot 10 would connect to the existing six-inch water main and eight-inch sewer main within Cerro Vista Court. The on-site utility lines would be installed within the proposed internal roadways. Water would be provided to the project site by the San Jose Water Company (SJW), and sewer service would be provided by West Valley Sanitation District.

With respect to stormwater drainage, the majority of the proposed lots would function as individual drainage management areas (DMAs), as shown in Figure 7. The three residences within Lots 1, 11, and 12 would combine into one DMA, and the undeveloped areas and roadways would be divided into additional DMAs. Stormwater runoff from each DMA would be directed into an associated bioretention area, which would provide treatment. Lots 1 through 4 and 7 through 10 would each include an individual bioretention area, and Lots 5 and 6 would share a bioretention area. The stormwater bioretention basins would be sized and designed to meet the Town's C.3 Stormwater Standards design criteria.

The proposed project would also include a five-foot earth/concrete swale along the western project site boundary, adjacent to the property line of the existing residences. The earth/concrete swale would not extend into the existing wetland area in the northwestern corner of the site and would be contained within a private open space easement.

The proposed internal roadways would be lined with pervious pavement to allow for infiltration. Following on-site treatment, stormwater flows would be directed to the existing 27- and 36-inch storm drains located north and west of the site, respectively.

Off-Site Improvements

As discussed further under Section XVII of this IS/MND and as required by Mitigation Measure XVII-1, the proposed project would also include the construction of sidewalk connections at the following two locations outside of the project site within the Town: along the north side of Blossom Hill Road between Regent Drive and Union Avenue; and along the east side of Fisher Avenue between Mitchell Avenue and Roberts Road.

Figure 6
Utility Plan

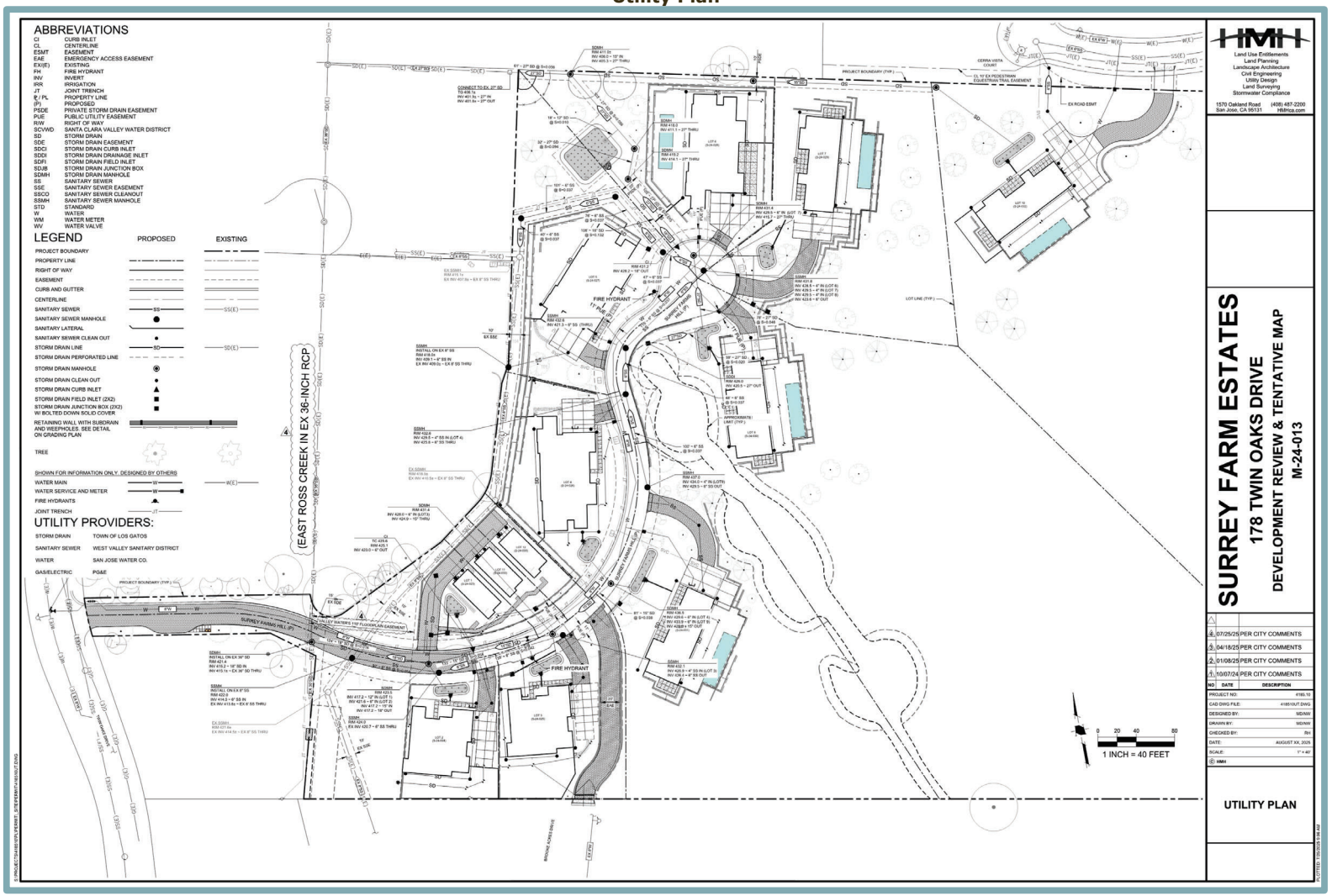


*Figure not OCR Compatible.

Figure 7
Stormwater Control Plan

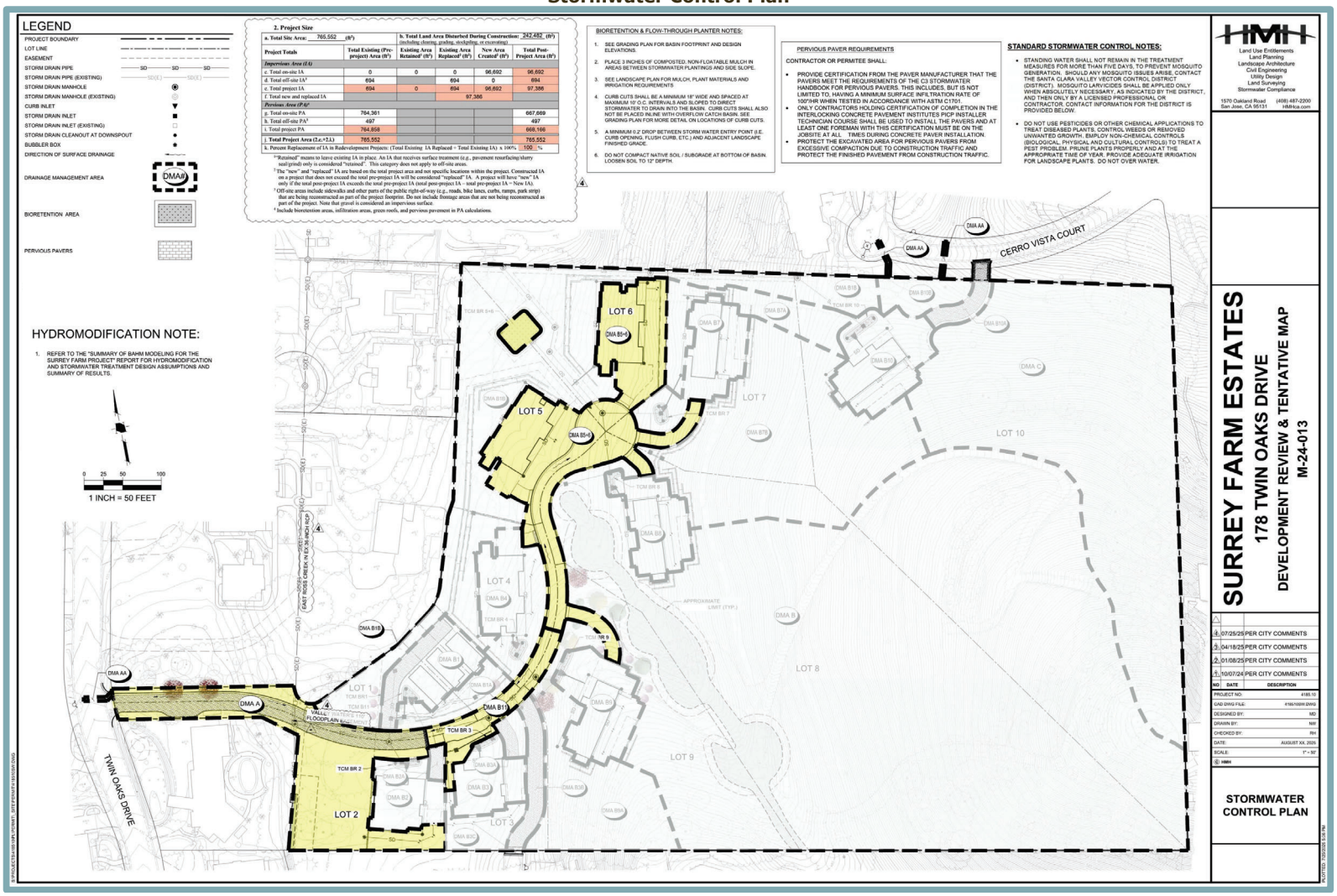


*Figure not OCR Compatible.

Required Approvals

The proposed project would require Town approval of a Vesting Tentative Subdivision Map and be subject to the Town's Architecture and Site Plan Review process, as well as requiring approval of a Tree Removal Permit. The project approvals are described in further detail below.

Architecture and Site Plan Review

The Town's ~~Building Division~~ Community Development Department is responsible for a plan review of all new construction, additions, and remodels for both commercial and residential properties, as well as construction inspection services for projects including electrical, plumbing and mechanical installations. Plan review ensures compliance with applicable State and local codes, policies, guidelines, and standards of all residential and commercial structures within the Town limits, including the Hillside Development Standards and Guidelines. As described in the Town's Code, the purpose of Architecture and Site Plan Review through the Planning Division is to regulate the height, width, shape, proportion, siting, exterior construction and design of buildings to ensure that they are architecturally compatible with their surroundings. Section 29.20.150 of the Town Code lists the matters that the Town must consider when reviewing applications for Architecture and Site Approval. ~~The Town's review is limited to objective standards only, pursuant to SB 330 and Builder's Remedy.~~

Tree Removal Permit

Consistent with Section 26.20.010 of the Town's Municipal Code requires that planting, movement, replacement, or removal of protected trees shall not occur without obtaining a permit. The proposed project would require the removal of a total of 223 on-site protected trees. Thus, the project would require Town approval of a Tree Removal Permit (see Figure 8 and Figure 9).

Discretionary Actions

The proposed project would require the following discretionary approvals from the Town of Los Gatos:

- Adoption of the IS/MND;
- Adoption of a Mitigation Monitoring/Reporting Program;
- Approval of a Vesting Tentative Subdivision Map;
- Approval of a Tree Removal Permit; and
- Architecture and Site Plan Review.

As previously discussed, the proposed project is subject to Builder's Remedy pursuant to Government Code Section 65589.5(d)(5) and therefore does not require a General Plan Amendment or Rezone.

Figure 8
Tree Mitigation and Protection Plan (1 of 2)

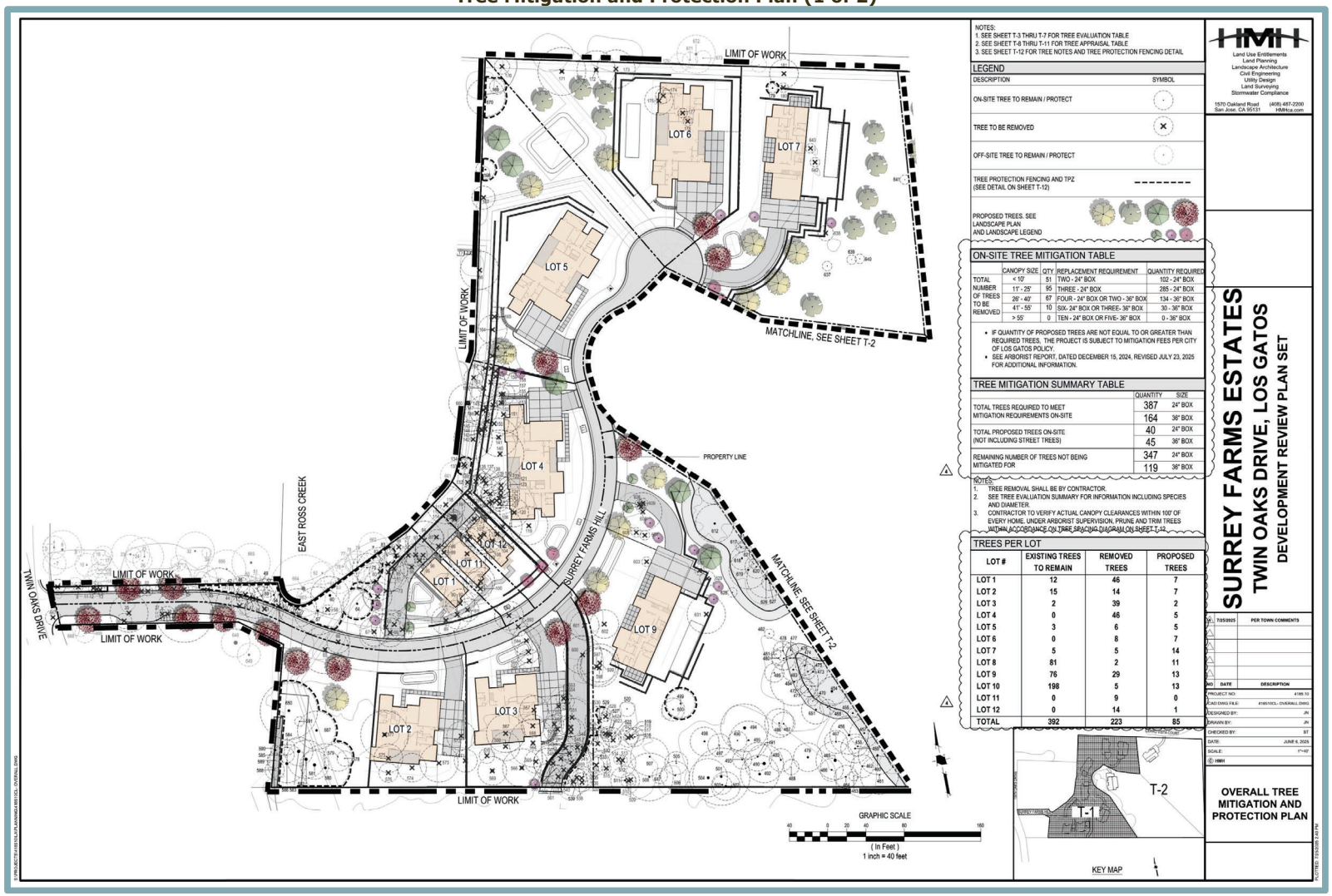
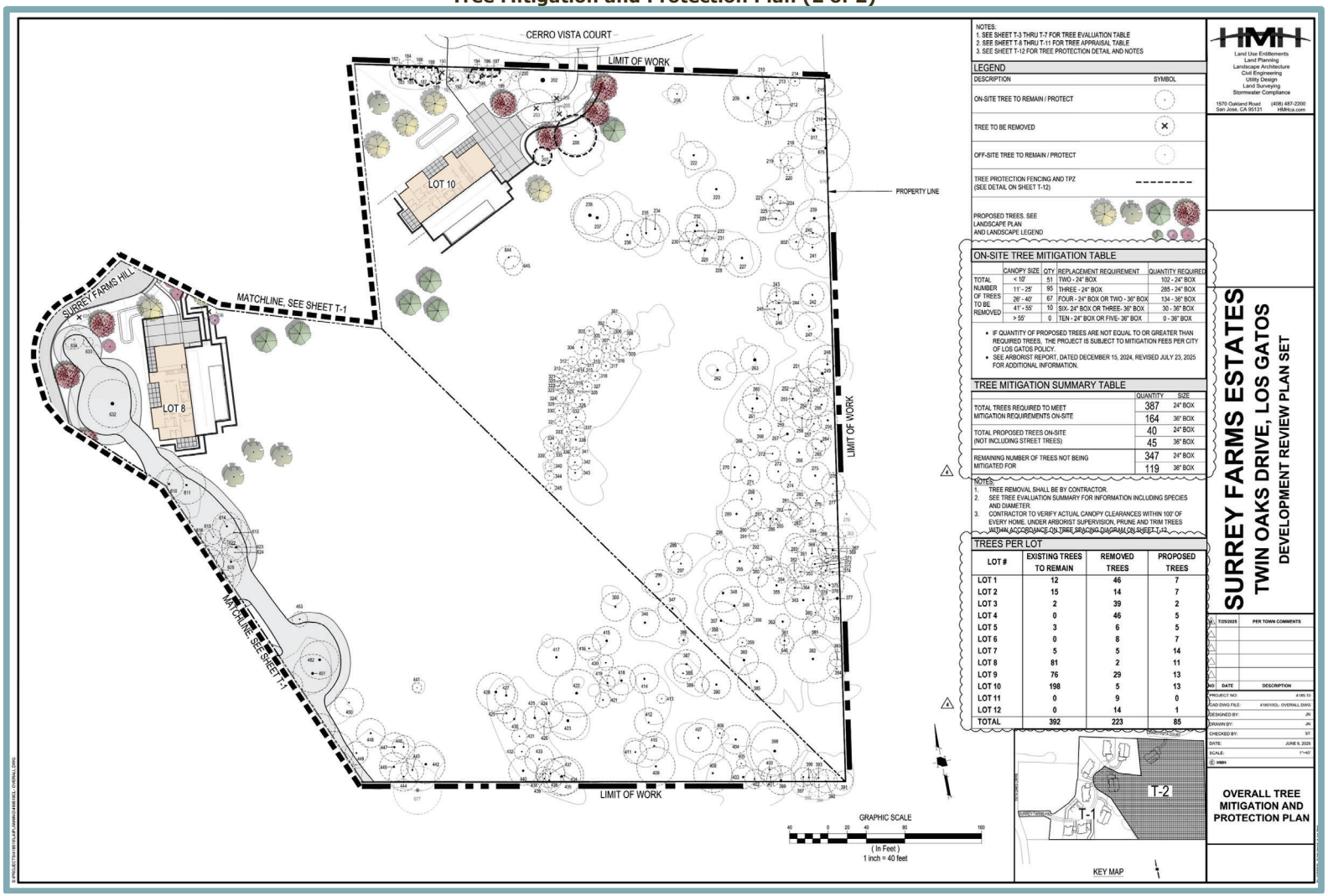


*Figure not OCR Compatible.

Figure 9
Tree Mitigation and Protection Plan (2 of 2)



NOTES:
1. SEE SHEET T-3 THRU T-7 FOR TREE EVALUATION TABLE
2. SEE SHEET T-8 THRU T-11 FOR TREE APPRAISAL TABLE
3. SEE SHEET T-12 FOR TREE PROTECTION DETAIL AND NOTES

LEGEND

DESCRIPTION	SYMBOL
ON-SITE TREE TO REMAIN / PROTECT	
TREE TO BE REMOVED	
OFF-SITE TREE TO REMAIN / PROTECT	
TREE PROTECTION FENCING AND TPZ (SEE DETAIL ON SHEET T-12)	
PROPOSED TREES. SEE LANDSCAPE PLAN AND LANDSCAPE LEGEND	

ON-SITE TREE MITIGATION TABLE

	CANOPY SIZE	QTY	REPLACEMENT REQUIREMENT	QUANTITY REQUIRED
TOTAL NUMBER OF TREES TO BE REMOVED	< 10'	51	TWO - 24" BOX	102 - 24" BOX
	11' - 25'	95	THREE - 24" BOX	285 - 24" BOX
	26' - 40'	67	FOUR - 24" BOX OR TWO - 36" BOX	134 - 36" BOX
	41' - 55'	10	SIX- 24" BOX OR THREE- 36" BOX	30 - 36" BOX
	> 55'	0	TEN - 24" BOX OR FIVE- 36" BOX	0 - 36" BOX

- IF QUANTITY OF PROPOSED TREES ARE NOT EQUAL TO OR GREATER THAN REQUIRED TREES, THE PROJECT IS SUBJECT TO MITIGATION FEES PER CITY OF LOS GATOS POLICY.
- SEE ARBORIST REPORT, DATED DECEMBER 15, 2024, REVISED JULY 23, 2025 FOR ADDITIONAL INFORMATION.

TREE MITIGATION SUMMARY TABLE

	QUANTITY	SIZE
TOTAL TREES REQUIRED TO MEET MITIGATION REQUIREMENTS ON-SITE	387	24" BOX
	164	36" BOX
TOTAL PROPOSED TREES ON-SITE (NOT INCLUDING STREET TREES)	40	24" BOX
	45	36" BOX
REMAINING NUMBER OF TREES NOT BEING MITIGATED FOR	347	24" BOX
	119	36" BOX

NOTES:
1. TREE REMOVAL SHALL BE BY CONTRACTOR.
2. SEE TREE EVALUATION SUMMARY FOR INFORMATION INCLUDING SPECIES AND DIAMETER.
3. CONTRACTOR TO VERIFY ACTUAL CANOPY CLEARANCES WITHIN 100' OF EVERY HOME, UNDER ARBORIST SUPERVISION, PRUNE AND TRIM TREES WITHIN ACCORDANCE ON TREE SPACING DIAGRAM ON SHEET T-12.

TREES PER LOT

LOT #	EXISTING TREES TO REMAIN	REMOVED TREES	PROPOSED TREES
LOT 1	12	46	7
LOT 2	15	14	7
LOT 3	2	39	2
LOT 4	0	46	5
LOT 5	3	6	5
LOT 6	0	8	7
LOT 7	5	5	14
LOT 8	81	2	11
LOT 9	76	29	13
LOT 10	198	5	13
LOT 11	0	9	0
LOT 12	0	14	1
TOTAL	392	223	85

HMH
Land Use Entitlements
Land Planning
Landscape Architecture
Civil Engineering
Utility Design
Land Surveying
Stormwater Compliance
1570 Oakland Road (408) 487-2200
San Jose, CA 95131 HMHca.com

SURREY FARMS ESTATES
TWIN OAKS DRIVE, LOS GATOS
DEVELOPMENT REVIEW PLAN SET

NO	DATE	DESCRIPTION
1	7/25/2025	PER TOWN COMMENTS

PROJECT NO: 4185.10
CAD DWG FILE: 4185150L - OVERALL.DWG
DESIGNED BY: JN
DRAWN BY: JN
CHECKED BY: ST
DATE: JUNE 6, 2025
SCALE: 1"=40'
© HMH

OVERALL TREE MITIGATION AND PROTECTION PLAN

*Figure not OCR Compatible.

G. ENVIRONMENTAL CHECKLIST

The following checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no sufficient mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant with Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

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

Discussion

a,b. Examples of typical scenic vistas include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project's impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista. The General Plan EIR identifies southward views of the Santa Cruz Mountains and ridgelines as the primary protected scenic vistas within the Town. Due to the heavily-wooded nature of the Town, scenic views are most prominent from the southbound lanes of the Town's major north-south running streets. The project site is located in an area of the Town that is heavily obscured from view due to intervening topography and vegetation. Therefore, views of the Santa Cruz Mountains would not be obstructed by project development. In addition, due to the intervening topography and vegetation described above, views of any other potential ridgelines beyond the project site are not visible from the surrounding roadways.

At a local level, the Town does not identify any roadways as scenic routes. In addition, while State Route (SR) 17 is designated as eligible for listing as a State Scenic Highway, State Scenic Highways are not located within the Town of Los Gatos.[5] The project site is located approximately 1.06 miles east of SR 17 and is obscured from view through various natural features and existing development. Therefore, the proposed project would not have the potential to damage scenic resources within the vicinity of a State Scenic Highway.

Based on the above, development of the proposed project would not have a substantial adverse effect on a scenic vista and would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway, and a ***less-than-significant*** impact would occur.

c. The project site is currently undeveloped and is located on a hillside. The project site is adjacent to scattered hillside single-family residences to the northeast, south, and east,

[5] California Department of Transportation. *California Scenic Highway Mapping System*. Available at: https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa. Accessed October 2023.

and is located in the vicinity of an existing single-family residential neighborhood to the west. An existing private school is located to the north of the site. Therefore, the project site is generally located in an urbanized area of the Town. Pursuant to Appendix G of the CEQA guidelines, because the project site is in an urbanized area, the relevant threshold is whether the project would conflict with applicable zoning and other regulations governing scenic quality.

As noted previously, the proposed project would construct two off-site sidewalk improvements, one along the north side of Blossom Hill Road between Regent Drive and Union Avenue and the other along the east side of Fisher Avenue between Mitchell Avenue and Roberts Road. Such improvements would occur along existing roadways within existing ROWs and would be designed consistent with Section 2.16 of the Town's Engineering Standards, which relate to sidewalks as part of street design. Therefore, the analysis below is focused on the potential conflicts with applicable zoning and regulations associated with the on-site project components.

As discussed above, the proposed project currently includes subdivision of the 17.55-acre project site into 12 lots and the subsequent development of 12 single-family residences. The project site is identified as a Hillside Area pursuant to the Hillside Development Standards and Guidelines. The foregoing standards and guidelines include requirements related to hillside grading, development intensity, architectural design, landscape design, and other site elements such as fences, walls, and driveway entries. The project has been designed such that several residential lots would comply with a number of Hillside Development Standards and Guidelines, including standards related to the Least Restrictive Development Areas (LRDAs), the maximum allowable floor area ratio (FAR) for the site, and the location of the proposed residences within the lots. For example, nine of the 12 proposed residences would be located within the LRDAs, where the slopes are less than 30 percent, consistent with the Hillside Development Standards.

However, because the project is invoking Builder's Remedy, compliance with all of the Town's guidelines, policies, or programs is not required unless noncompliance constitutes a significant health or safety risk. As such, multiple aspects of the project are not in compliance with the Hillside Development Standards and Guidelines, such as the extent of grading and maximum heights. Regarding the latter, it should be noted that seven of the residential lots (Lot 1 and Lots 7 through 12) would only exceed the maximum height of 25 feet by approximately one to two feet, and Lots 7 through 10 would be located on the upper sloped portions of the project site. Thus, an effort has been made to minimize the height exceedance on the proposed residential lots that may be more visible.

The Hillside Development Standards and Guidelines require an analysis of how a development project would impact views of the project site from four specific "viewing areas" where the designated Hillside Area can be viewed (see Figure 10). The views of the Hillside Area as seen from the Town's identified points have been recognized as significant. Such areas include the northwest corner of the West Main Street/Bayview Avenue intersection, an area west of the intersection of the southbound SR 17 on-ramp and Los Gatos-Saratoga Road, the southwest corner of the Blossom Hill Road/Los Gatos Boulevard intersection, and the northwest corner of the Selinda Way/Los Gatos-Almaden Road intersection.

Figure 10
Hillside Viewing Area Locations

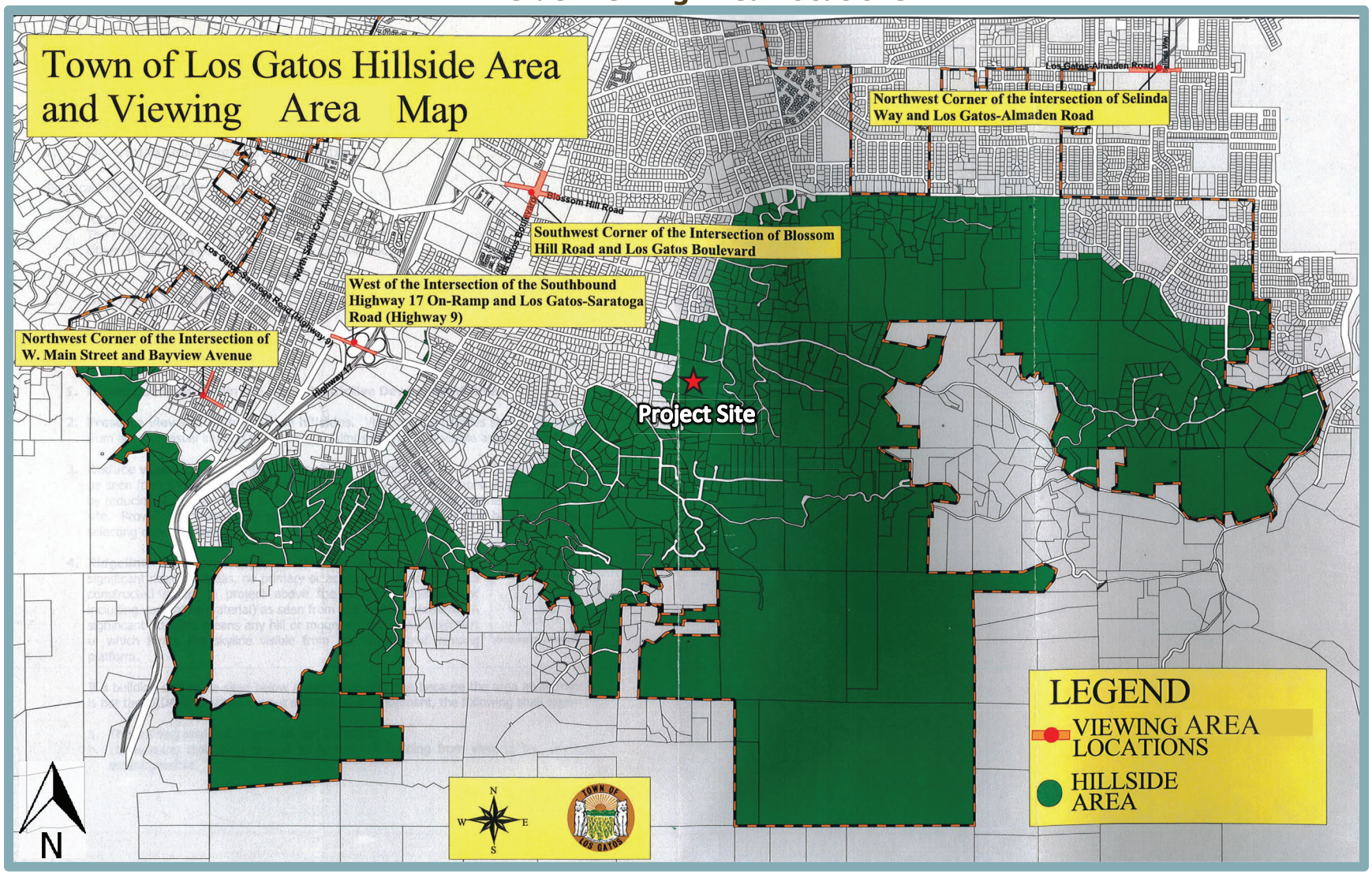


*Figure not OCR Compatible.

Although the project site is located within the designated Hillside Area, the project site is not visible from any of the foregoing viewing areas due to the existing intervening urban development. As such, the proposed project would not interfere with existing views of the designated Hillside Area from Town-designated viewing areas.

From an aesthetics perspective, it is reasonable to conclude that not every conflict with a scenic regulation would result in a significant aesthetic impact, pursuant to CEQA. Because the Hillside Development Standards and Guidelines contain standards related to preserving views of hillsides, computer-generated photo simulations of the project were prepared from public viewpoints.[6] Although the simulated public viewpoints do not coincide with the Town's designated Hillside Area viewing areas, the simulations were prepared to meet the Town's Height Pole, Flagging, Netting, and Signage Policy For Additions and New Construction Policy and are used herein to facilitate an understanding as to whether the project's deviations from Hillside Development Standards are consequential from an aesthetics perspective. Potential views of the project site from public spaces were determined to include views from Longmeadow Drive (Figure 11, View #1), which is located west of the project site; from the Hillbrook School campus north of the site (Figure 12, View #2); from Cerro Vista Court (Figure 13, View #3); and from Brooke Acres Drive, south of the project site (Figure 14, View #4).

Figure 11 presents the existing view of the project site in comparison to the view of the project site with development of the proposed project from View #1. As shown in the figure, the existing view of the site from Longmeadow Drive consists of the street frontages and existing trees associated with the existing single-family residences, as well as the existing vegetation on the project site in the background. With the proposed project, the view from Longmeadow Drive would include a partial view of three of the 12 proposed single-family residences in the background. The majority of the project site would remain screened by the existing trees and vegetation. The proposed project would not conflict with existing regulations related to views of the Hillside Area from Longmeadow Drive. Because the proposed project would not substantially affect views of the Hillside Area from Longmeadow Drive, the proposed project would not conflict with the applicable Hillside Development Standards and Guidelines regulations governing scenic quality.

---

[6] It is important to distinguish between public and private views. Private views are views seen from privately owned land and are typically viewed by individual viewers, including views from private residences. Public views are views that are experienced by the collective public. CEQA case law has established that CEQA documents are not required to consider impacts on private views and may limit their analysis of aesthetic effects to impacts on public views. For example, in *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477, 492-494, the court held that a county, in preparing an EIR for a proposed condominium project, acted within its discretion in choosing not to consider private views. The court noted that "California landowners do not have a right of access to air, light and view over adjoining property" and added that "[u]nder CEQA, the question is whether a project will affect the environment of persons in general, not whether a project will affect particular persons." (*Id*. at p. 492.) In this same vein, another court, in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188, 195, observed that "all government activity has some direct or indirect adverse effect on some persons." Such conclusions are consistent with the inquiries set forth in Appendix G of the CEQA Guidelines, which ask whether projects outside urbanized areas would "substantially degrade the existing visual character or quality of *public* views" of a project site and its surroundings. (Italics added.) In light of these considerations, the Town has determined that it is appropriate to focus the aesthetic impact analysis on potential impacts to public views, rather than private views.

Figure 11
Existing and Proposed View of the Project Site from Longmeadow Drive (View #1)

Figure 12
Existing and Proposed View of the Project Site from Hillbrook School (View #2)

Figure 13
Existing and Proposed View of the Project Site from Cerro Vista Court (View #3)

178 Twin Oaks - Los Gatos, CA

VisionScape IMAGERY
A Visualization Firm

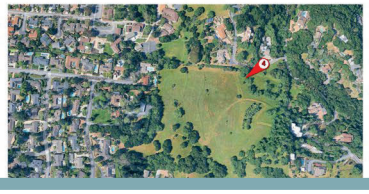


Figure 14
Existing and Proposed View of the Project Site from Brooke Acres Drive (View #4)

178 Twin Oaks - Los Gatos, CA

VisionScape IMAGERY
A Visualization Firm

Figure 12 presents the existing view of the project site in comparison to the view of the site with development of the proposed project from View #2. As shown in the figure, the view of the project site from the sport fields associated with Hillbrook School consists of the open field in the foreground, trees in the midground, and a distant view of the surrounding ridges in the background. Two of the 12 proposed single-family residences would be visible in the midground. However, the proposed residences would be predominantly obscured by the existing trees, and the ridge in the background would remain visible. In addition, the sport fields are only used for short periods of time throughout the day, as compared to consistently used areas such as classrooms. Therefore, the proposed project would not conflict with existing regulations related to views of the Hillside Area from Hillbrook School. Because the proposed project would not substantially affect views of the Hillside Area from Hillbrook School, the proposed project would not conflict with the applicable Hillside Development Standards and Guidelines regulations governing scenic quality.

Figure 13 presents the existing view of the project site in comparison to the view of the site with development of the proposed project from View #3. As shown therein, views of the project site from Cerro Vista Court are obscured by the intervening trees and topography. Following project development, views would remain largely unchanged, save for the addition of a driveway and single-family residence. Therefore, the proposed project would not conflict with existing regulations related to views of the Hillside Area, including the existing views from Blossom Hill Park.

Figure 14 presents the existing view of the project site in comparison to the view of the site with development of the proposed project from View #4. As shown in the figure, the existing view of the site from Brooke Acres Drive is entirely obscured by existing trees. With the proposed project, the view from Brooke Acres Drive would consist of the emergency access route to the proposed development from the south, including landscaping trees and two partially obscured single-family residences. The proposed project would not conflict with existing regulations related to views of the Hillside Area and would not substantially affect views of the Hillside Area from Brooke Acres Drive. Therefore, the proposed project would not conflict with the applicable Hillside Development Standards and Guidelines regulations governing scenic quality.

Overall, because the proposed project would not be visible from the four viewing areas identified in the Hillside Development Standards and Guidelines, and because the proposed project would be designed compliant with Hillside Development Standards and Guidelines policies to the extent feasible such that public views of the Hillside Area would not be significantly affected, the proposed project would not conflict with applicable zoning and other regulations governing scenic quality, including policies related to reducing visual impacts of projects, and a ***less-than-significant*** impact would occur.

d. The project site is currently undeveloped and is surrounded by existing residences and the Hillbrook School. Therefore, existing sources of light and glare including, but not limited to, headlights on cars and trucks travelling along nearby roadways and private driveways, exterior light fixtures, and interior light spilling through windows, are present within the project vicinity. Therefore, while the development of the project site with 12 single-family residences would add new sources of light and glare to the site, such sources would be similar in nature to the existing surrounding conditions and would not adversely affect day or nighttime views in the area.

In addition, the Community Design Element of the 2020 General Plan contains policies and goals for light and glare, implementation of which would reduce potential impacts from new development. Policy CD-3.2 states that street and structural lighting shall achieve minimal visual impact by preventing glare, limiting light on neighboring properties, and avoiding light pollution of the night sky. Policy CD-17.3 requires design standards that include a review of project lighting to be considered for every project. The Town's 1978 Hillside Specific Plan also notes that lighting design for new development within the Specific Plan area should be controlled to screen excessive light sources in the hillside areas from neighboring residential areas and the valley floor.

According to the project applicant, all exterior lighting (i.e., both building-mounted and landscape lighting) would be designed consistent with the Hillside Design Standards and Guidelines outdoor lighting standards, which require the minimum lighting required for pedestrian safety and require compliance with the Town's Municipal Code. To reduce the potential for disturbance due to nighttime lighting, the project would comply with Town Code Section 29.10.09015, which requires all permanent exterior light fixtures to use shields so that bulbs are not visible and to ensure that light is directed to the ground surface and does not spill onto neighboring parcels or produce glare when seen from nearby homes. As such, the proposed project would comply with both the Town's Municipal Code and policies within the Hillside Design Standards and Guidelines.

The implementation of the Town's programs, policies, and code requirements would reduce the light and glare related impacts from the proposed project. Thus, implementation of the project would result in a ***less-than-significant*** impact with respect to creating a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

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

Discussion

a,e. The project site is not currently used for agricultural production. Additionally, according to the U.S. Department of Conservation's Important Farmland Finder, the project site and the off-site improvement footprint are primarily characterized as "Other Land" and are not considered farmland.[7] The project site does not contain and is not located adjacent to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland). Given the designation of the site as Other Land, development of the proposed project would not convert Farmland to a non-agricultural use or otherwise result in the loss of Farmland. Therefore, ***no impact*** would occur as a result of the proposed project.

b. The project site is not currently under a Williamson Act contract. A Williamson Act contract was active for the project site, but a non-renewal deed was recorded in April of 2015. In addition, the Williamson Act expired on January 1, 2025.[8] While the Town's General Plan designates the project site as Agriculture and the site is zoned RC, the project site is not currently used for agricultural production and single-family residential uses are allowed under the RC zoning designation. Therefore, buildout of the proposed project would not conflict with an agricultural use or a Williamson Act contract, and a ***less-than-significant*** impact would occur.

c,d. The project site is not considered forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC Section 4526), and is not zoned Timberland Production (as defined by Government Code Section 51104[g]). Therefore, the proposed project would have ***no impact*** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

---

7 Department of Conservation. *California Important Farmland Finder*. Available at: https://maps.conservation.ca.gov/dlrp/ciff/. Accessed May 2025.

8 Town of Los Gatos Council. *Agenda Report.* April 26, 2018.

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

Discussion

a,b. The Town of Los Gatos is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB area is currently designated as a nonattainment area for the State and federal ozone, State and federal fine particulate matter 2.5 microns in diameter ($PM_{2.5}$), and State respirable particulate matter 10 microns in diameter (PM_{10}) ambient air quality standards (AAQS). The SFBAAB is designated attainment or unclassified for all other AAQS. It should be noted that on January 9, 2013, the U.S. Environmental Protection Agency (USEPA) issued a final rule to determine that the Bay Area has attained the 24-hour $PM_{2.5}$ federal AAQS. Nonetheless, the Bay Area must continue to be designated as nonattainment for the federal $PM_{2.5}$ AAQS until such time as the BAAQMD submits a redesignation request and a maintenance plan to the USEPA, and the USEPA approves the proposed redesignation. The USEPA has not yet approved a request for redesignation of the SFBAAB; therefore, the SFBAAB remains in nonattainment for 24-hour $PM_{2.5}$.

In compliance with regulations, due to the nonattainment designations of the area, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans are prepared in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which was adopted on October 24, 2001, and approved by the California Air Resources Board (CARB) on November 1, 2001. The plan was submitted to the USEPA on November 30, 2001, for review and approval. The most recent State ozone plan is the 2017 Clean Air Plan, adopted on April 19, 2017. The 2017 Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air contaminants (TACs), and greenhouse gases (GHGs). Although a plan for achieving the State PM_{10} standard is not required, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 Clean Air Plan. The control strategy serves as the backbone of the BAAQMD's current PM control program.

The aforementioned air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the

State and federal AAQS within the SFBAAB. Adopted BAAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with applicable air quality plans. The BAAQMD's established significance thresholds associated with development projects for emissions of the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NO_X), as well as for PM_{10} and $PM_{2.5}$, expressed in pounds per day (lbs/day) and tons per year (tons/yr), are listed in Table 1. By exceeding the BAAQMD's mass emission thresholds for ROG, NO_X, PM_{10}, or $PM_{2.5}$, a project would be considered to conflict with or obstruct implementation of the BAAQMD's air quality planning efforts.

Table 1
BAAQMD Thresholds of Significance

Pollutant	Construction	Operational	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10

Source: BAAQMD, CEQA Guidelines, April 2023.

Particulate matter can be split into two categories: fugitive and exhaust. The BAAQMD thresholds of significance for exhaust are presented in Table 1. BAAQMD does not maintain quantitative thresholds for fugitive emissions of PM_{10} or $PM_{2.5}$, rather, BAAQMD requires all projects within the District's jurisdiction to implement Basic Construction Mitigation Measures (BCMMs) related to dust suppression.

The proposed project's construction and operational emissions were quantified using the California Emissions Estimator Model (CalEEMod) web-based software version 2022 – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, trip generation rates, vehicle mix, trip length, average speed, etc. Where project-specific information is available, such information should be applied in the model. Accordingly, the proposed project's modeling assumes the following inherent site design features and project-specific construction information:

- Construction would commence in September 2025 and take place over approximately two years;
- During grading, a total of 10,878 cubic yards (CY) of soil would be exported from the site and 21,082 CY would be imported; and
- The proposed project would include construction of 12 single-family residences on a disturbance area of 5.38 acres.

In addition, Mitigation Measure XVII-1 included in Section XVII, Transportation, of this IS/MND, requires off-site sidewalk improvements along the north side of Blossom Hill Road between Regent Drive and Union Avenue and along the north side of Fisher Avenue between Mitchell Avenue and Roberts Road. Separate modeling was conducted using

CalEEMod to estimate the emissions associated with construction of the off-site sidewalk improvements. Although the timing of the off-site sidewalk improvements is unknown, in order to provide a conservative analysis, both off-site improvements are considered to occur concurrently with the on-site project construction.

The proposed project's estimated emissions associated with construction and operations are presented below. All CalEEMod results are included as Appendix A to this IS/MND.

Construction Emissions

According to the CalEEMod results, the proposed project, as well as the off-site sidewalk improvements, would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 2. The combined emissions of the on-site and off-site construction activities could exceed the BAAQMD threshold of significance for NO_X.

Table 2
Maximum Unmitigated Construction Emissions (lbs/day)

Pollutant	Proposed Project Emissions	Threshold of Significance	Exceeds Threshold?
On-Site Project Emissions			
ROG	3.37	54	**NO**
NO_X	31.70	54	**NO**
PM_{10}*	21.20	82	**NO**
$PM_{2.5}$*	11.40	54	**NO**
Off-Site Sidewalk Improvement Emissions			
ROG	3.82	54	**NO**
NO_X	32.70	54	**NO**
PM_{10}*	5.49	82	**NO**
$PM_{2.5}$*	1.82	54	**NO**
Total Emissions			
ROG	7.19	54	**NO**
NO_X	64.40	54	**YES**
PM_{10}*	26.69	82	**NO**
$PM_{2.5}$*	13.22	54	**NO**

* Emissions from exhaust only. BAAQMD has not yet adopted thresholds for fugitive PM emissions.

Source: CalEEMod, February 2025 and CalEEMod, May 2025 (see Appendix A).

All projects under the jurisdiction of the BAAQMD are required to implement all of the BAAQMD's BCMMs, which include the following:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The proposed project's required implementation of the BAAQMD's BCMMs listed above would help to further minimize construction-related emissions. In particular, implementation of the foregoing measures would reduce fugitive dust emissions resulting from project construction. However, as shown in Table 2, the combined emissions of the on-site and the off-site construction activities would exceed the BAAQMD threshold of significance for NO_X. Therefore, if the off-site sidewalk improvements were constructed concurrently with the on-site project components, the proposed project could conflict with or obstruct implementation of the applicable air quality plans during project construction, and a potentially significant impact could occur.

Operational Emissions

According to the CalEEMod results, future development of the site with 12 single-family residences would result in maximum unmitigated operational criteria air pollutant emissions as shown in Table 3. As shown in the table, the proposed project's operational emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ would be below the applicable thresholds. Consequently, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans during project operation.

Table 3
Unmitigated Maximum Operational Emissions

Pollutant	Proposed Project Emissions		Threshold of Significance		Exceeds Threshold?
	lbs/day	tons/yr	lbs/day	tons/yr	
ROG	1.02	0.18	54	10	**NO**
NO_X	0.45	0.08	54	10	**NO**
PM_{10}*	0.75	0.13	82	15	**NO**
$PM_{2.5}$*	0.20	0.04	54	10	**NO**

* Emissions from exhaust only. BAAQMD has not yet adopted thresholds for fugitive PM emissions.

Source: CalEEMod, February 2025 (see Appendix A).

Conclusion

As stated previously, the applicable regional air quality plans include the 2001 Ozone Attainment Plan and the 2017 Clean Air Plan. Because the proposed project would not result in operational emissions of criteria pollutants in excess of BAAQMD's applicable threshold of significance, conflicts with or obstruction of implementation of the applicable regional air quality plans during operation would not occur. However, the combined emissions of the on-site and the off-site construction activities would exceed the BAAQMD

threshold of significance for NO_X. Thus, the proposed project could result in a ***potentially significant*** impact.

Mitigation Measure(s)

As shown in Table 2, when considered separately, both the on-site project construction emissions and the off-site sidewalk improvement construction emissions would be below the applicable thresholds of significance for ROG, NO_x, PM_{10}, and $PM_{2.5}$. If simultaneous construction of the on-site and off-site components of the proposed project cannot be avoided, use of higher-tiered heavy-duty equipment during construction of the off-site improvements would reduce the associated NO_X emissions to 6.85 lbs/day, which would reduce the total NO_X emissions associated with the combined on- and off-site construction activities to 38.55 lbs/day, which would be below the applicable BAAQMD threshold. Therefore, implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

III-1 *The project applicant shall show on Improvement Plans via notation that the project contractor shall restrict the construction of the off-site sidewalk improvements along the north side of Blossom Hill Road between Regent Drive and Union Avenue and along the north side of Fisher Avenue between Mitchell Avenue and Roberts Road from occurring simultaneously with the on-site construction of the proposed project.*

Alternatively, if simultaneous construction of the on-site and off-site components of the proposed project cannot be avoided, prior to the initiation of ground disturbance associated with the off-site sidewalk improvements, the project applicant shall show on project improvement plans via notation the following requirements:

- *The contractor shall ensure that all construction equipment greater than 50 horsepower to be used in the construction of the off-site sidewalk improvements, including owned, leased, and subcontractor vehicles, shall be Tier 4 final off-road construction equipment. In addition, all off-road equipment operating at the off-site construction site must be maintained in proper working condition according to manufacturer's specifications.*
- *Idling shall be limited to five minutes or less in accordance with the In-Use Off-Road Diesel Vehicle Regulation as required by CARB. Clear signage regarding idling restrictions shall be placed at the entrances to the construction site.*
- *Portable equipment over 50 horsepower must have either a valid BAAQMD Permit to Operate (PTO) or a valid statewide Portable Equipment Registration Program (PERP) placard and sticker issued by CARB.*

Conformance with the foregoing requirements shall be confirmed through review and approval of plans by the Town of Los Gatos ~~Community Development~~ Parks and Public Works Department.

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by

health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. The nearest existing sensitive receptors to the project site are the Hillbrook School, which includes sport fields adjacent to the northern project site boundary, and the hillside residences surrounding the project site~~.~~, T~~the~~ nearest ~~of which~~ residential structure is located approximately 50 feet from the nearest on-site disturbance areas (i.e., the western project site boundary).

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and TAC emissions, which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Emissions of CO are of potential concern, as the pollutant is a toxic gas that results from the incomplete combustion of carbon-containing fuels such as gasoline or wood.

In order to provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, the BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a project would result in a less-than-significant impact related to localized CO emission concentrations if all of the following conditions are true for the project:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, underpass, etc.).

While BAAQMD has established the foregoing screening criteria for potential impacts, the SFBAAB has been in attainment of California AAQS (CAAQS) and National AAQS (NAAQS) for CO for more than 20 years.[9] Due to the continued attainment of CAAQS and NAAQS, and advances in vehicle emissions technologies, the likelihood that any single project would create a CO hotspot is minimal. Future development of the site with 12 single-family residences would not contribute to high levels of traffic congestion that could result in long-term generation of CO. Furthermore, areas where vertical and/or horizontal mixing do not occur, such as underpasses or similar features, do not exist in the project area. Therefore, based on the BAAQMD's screening criteria for localized CO emissions,

[9] Bay Area Air Quality Management District. *Air Quality Summary Reports*. Available at: https://www.baaqmd.gov/about-air-quality/air-quality-measurement/air-quality-summaries. Accessed May 2025.

the proposed project would not be expected to result in substantial levels of localized CO at surrounding intersections or generate localized concentrations of CO that would exceed standards or cause health hazards.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk.

The proposed project would not involve any land uses or operations that would be considered major sources of TACs, including DPM. As such, the project would not generate any substantial pollutant concentrations during operations.

Short-term, construction-related activities could result in the generation of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. However, construction is temporary and occurs over a relatively short duration in comparison to the operational lifetime of the proposed project. Health risks are typically associated with exposure to high concentrations of TACs over extended periods of time (e.g., 30 years or greater), whereas the construction period associated with the proposed project would likely be limited to approximately two years.

All construction equipment and operation thereof would be regulated by the CARB In-Use Off-Road Diesel Vehicle Regulation, which is intended to help reduce emissions associated with off-road diesel vehicles and equipment, including DPM. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. In addition, construction equipment would operate intermittently throughout the day and only on portions of the site at a time.

Because construction equipment on-site or at the off-site sidewalk improvement areas would not operate for long periods of time and would be used at varying locations within the site, associated emissions of DPM would not occur at the same location (or be evenly spread throughout the entire project site) for long periods of time. Due to the temporary nature of construction and the relatively short duration of potential exposure to associated emissions, the potential for any one sensitive receptor in the area to be exposed to concentrations of pollutants for a substantially extended period of time would be low. Therefore, construction associated with the proposed project would not be expected to expose any sensitive receptors to substantial pollutant concentrations.

Conclusion

Based on the above, the proposed project, including the off-site improvements, would not expose any sensitive receptors to substantial concentrations of localized CO or TACs

during construction or operation. Therefore, the proposed project would result in a ***less-than-significant*** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

d. Emissions of concern include those leading to odors, emission of dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in questions 'a' through 'c' above. Therefore, the following discussion focuses on emissions of odors and dust.

Pursuant to the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.[10] Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The presence of an odor impact is dependent on a number of variables including: the nature of the odor source; the frequency of odor generation; the intensity of odor; the distance of odor source to sensitive receptors; wind direction; and sensitivity of the receptor.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative analysis to determine the presence of a significant odor impact is difficult. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The proposed project would not introduce any such land uses.

Construction activities often include diesel-fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, the construction phase is temporary in nature and would only occur over approximately two years. In addition, hours of operation for construction equipment would be restricted consistent with Section 16.20.035 of the Town's Municipal Code. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize emissions, including emissions leading to odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

As noted previously, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's BCMMs. The BCMMs would act to reduce construction-related dust by ensuring that haul trucks with loose material are covered, reducing vehicle dirt track-out, and limiting vehicle speeds within the improvement area, among other methods, which would ensure that construction of the proposed project does not result in substantial emissions of dust. Following construction, the entire improvement area would be either paved or landscaped. Thus, project operations would not generate significant amounts of dust that would adversely affect a substantial number of people.

For the aforementioned reasons, construction and operation of the proposed project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people, and a ***less-than-significant*** impact would result.

[10] Bay Area Air Quality Management District. *2022 California Environmental Quality Act Guidelines.* April 2023.

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

Discussion

a. The following discussion is based primarily on the findings of a Biological Evaluation prepared for the project by Live Oak Associates, Inc (see Appendix B).[11] The off-site sidewalk improvements would occur within the ROW of existing roadways and, thus, would occur within previously disturbed areas. As such, the proposed off-site sidewalk improvements are not anticipated to result in any impacts related to biological resources, and the following discussion focuses on potential impacts associated with the proposed on-site development.

Several species of plants and animals within the State of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats the species occupy are converted to agricultural and urban uses. State and federal laws have provided the ~~California Department of Fish and Wildlife (~~CDFW~~)~~ and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered

[11] Live Oak Associates, Inc. *178 Twin Oaks Drive Project, Biological Evaluation, Los Gatos, Santa Clara County, California.* May 23, 2025.

rare, threatened, or endangered. Collectively, these plants and animals are referred to as "special-status species." Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. Special-status species include the following:

- Plant and wildlife species that have been formally listed as threatened or endangered, or are candidates for such listing by the USFWS or National Marine Fisheries (NMFS);
- Plant and wildlife species that have been listed as threatened or endangered or are candidates for such listing by the CDFW;
- CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue;
- CDFW Fully Protected Species; and
- Species on CNPS Lists 1 and 2, which are considered to be rare, threatened, or endangered in California by the CNPS and CDFW.

In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal.

In order to identify potential biological resource constraints and assess the suitability of habitats on the project site to potentially support State- and federally protected species, a literature review of the following databases was conducted as part of the Biological Evaluation report:

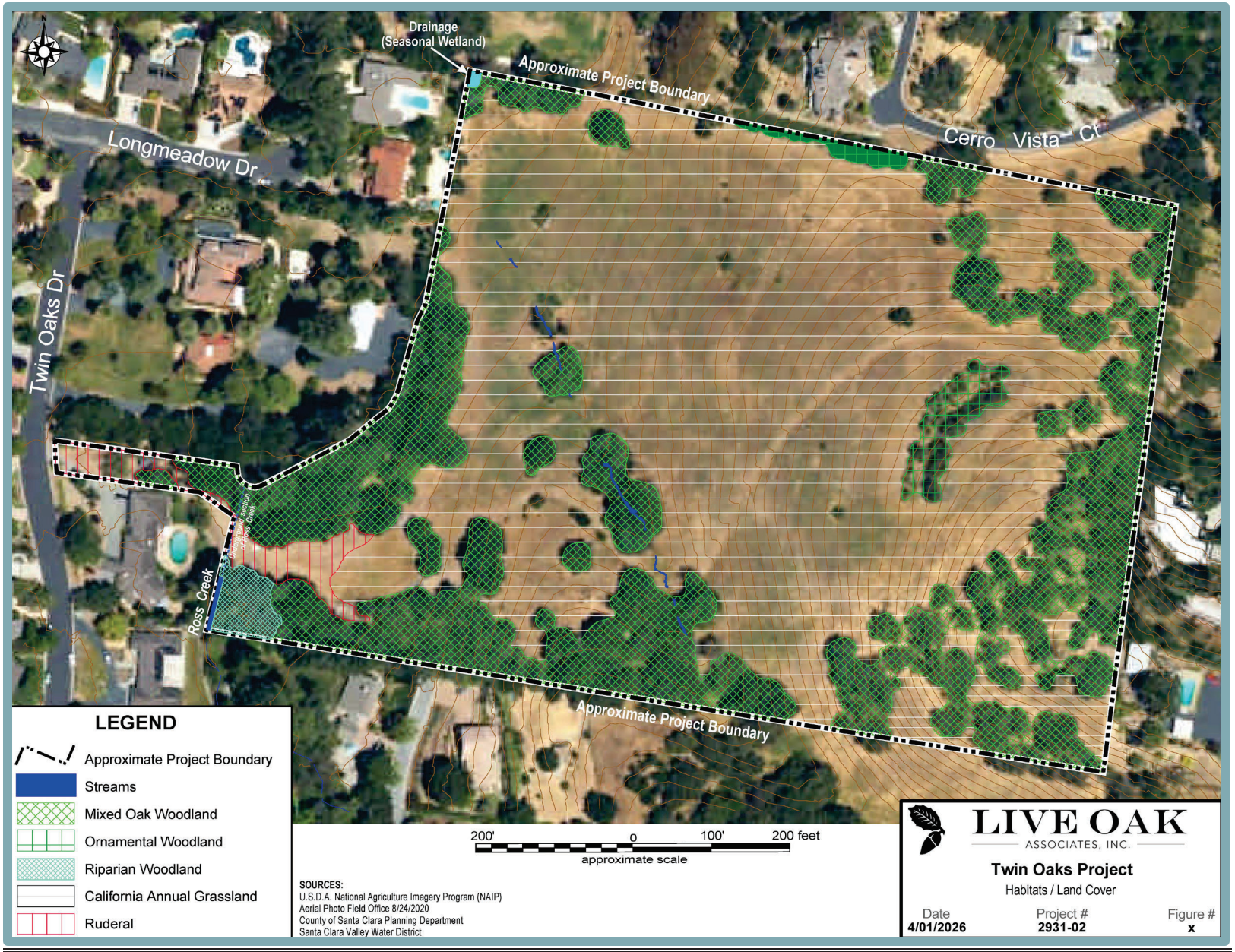
- California Natural Diversity Database (CNDDB);
- Special-status species lists prepared by the CDFW, USFWS, and CNPS;
- USFWS National Wetlands Inventory website;
- US Natural Resources Conservation Service Web Soil Survey website;
- Manuals and references related to plants and animals found in and around Santa Clara County; and
- A biological reconnaissance, wetland evaluation, three-season floristic survey, and tree inventory prepared for the project site by Wood Biological Consulting as part of the 2017 EIR.

A field survey of the project site was conducted on December 19, 2024, as part of the Biological Evaluation to identify on-site habitats, which could potentially support special-status species, and to determine the likelihood of any occurrences of special-status species. An additional site visit was conducted on May 14, 2025 to confirm the characteristics of the on-site ephemeral ~~drainage~~stream.

Based on the results of the database review and field surveys, on-site habitats were determined to include California annual grassland, ruderal, mixed oak woodland, ornamental woodland, creek (Ross Creek), ~~drainage with swales~~ephemeral stream, drainage (seasonal wetland), and riparian woodland (see Figure 15). The site consists primarily of California annual grassland with stands of mixed oak woodland occurring on the edges of the site and isolated clusters of oaks throughout the site.

The results of the database review and field survey conducted as part of the Biological Evaluation are discussed in further detail below.

Figure 15
On-Site Habitats


Drainage
(Seasonal Wetland)
Approximate Project Boundary
Longmeadow Dr
Cerro Vista Ct
Twin Oaks Dr
Ross Creek
Approximate Project Boundary
LEGEND
Approximate Project Boundary
Streams
Mixed Oak Woodland
Ornamental Woodland
Riparian Woodland
California Annual Grassland
Ruderal
200' 0 100' 200 feet
approximate scale
SOURCES:
U.S.D.A. National Agriculture Imagery Program (NAIP)
Aerial Photo Field Office 8/24/2020
County of Santa Clara Planning Department
Santa Clara Valley Water District
LIVE OAK
ASSOCIATES, INC.
Twin Oaks Project
Habitats / Land Cover
Date
4/01/2026
Project #
2931-02
Figure #
x

Special-Status Plants

Based on the literature review conducted as part of the Biological Evaluation, a total of 17 special-status plant species have been identified within the project region. Three special-status plant species were eliminated from consideration as the species are endemic on serpentine or alkaline soils, which do not occur within the project site, and another three species were eliminated from consideration due to the project site being outside of the species' elevation range. Of the remaining 11 species, nine were considered absent from or unlikely to occur on the site as a result of a lack of suitable habitat, either because the species is a perennial that would have been identifiable if present during the December site visit, or because habitat on the site is marginal for the species and the species has not been documented in the project vicinity (i.e., within three miles of the site).

The Biological Evaluation concluded that the remaining two special-status plant species identified within the project vicinity (Santa Clara red ribbons and bent-flowered fiddleneck) are unlikely to occur on-site because the site supports only marginally suitable habitat for the species. In addition to the December field survey, which did not observe special-status plant species, the Biological Evaluation notes that three-season floristic surveys were previously conducted on the site in 2012 and 2013, and special-status plant species were not observed on-site. Therefore, Santa Clara red ribbons and bent-flowered fiddleneck are determined to be absent from the project site, and the proposed project would not result in adverse effects to special-status plant species.

Special-Status Wildlife

According to the Biological Evaluation, a total of 19 special-status wildlife species have been identified within the project region. Eleven special-status wildlife species were eliminated from consideration as the project site does not contain suitable habitat, the site is located outside of the species' known range, and/or known occurrences have not been identified within the vicinity of the site. The 11 species eliminated from consideration include Crotch's bumble bee, western bumble bee, California tiger salamander, foothill yellow-legged frog, Swainson's hawk, tricolored blackbird, Santa Cruz black salamander, California giant salamander, northern California legless lizard, northwestern pond turtle, and burrowing owl. For example, Crotch's bumble bee was eliminated due to a lack of suitable habitat and nectar plants within the project site, as well as the nearest recorded CNDDB observation occurring more than three miles from the site. Similarly, California tiger salamander, foothill yellow-legged frog, and California giant salamander each rely on specific conditions of wetland habitats that are absent from the project site. In addition, the project site lacks suitable breeding and roosting habitat for tricolored blackbird, and the on-site conditions are not only poor nesting habitat for Swainson's hawk, but the nearest occurrence of the species was recorded more than 15 miles southwest of the project site.

The remaining eight species with the potential to occur on-site include California red-legged frog, white-tailed kite, golden eagle, purple martin, pallid bat, Townsend's big-eared bat, San Francisco dusky-footed woodrat, and American badger. The Biological Evaluation notes that although the foregoing species would not be likely to dwell on-site, they may regularly or occasionally use the project site for foraging. Despite the fact that the site does not provide regionally important foraging habitat for such species, should they be present on-site during construction activities, mortality of individuals could occur. Furthermore, the Biological Evaluation determined that although burrowing owl is unlikely to occur on-site, mitigation for potential impacts to the species should be included out of an abundance of caution.

The proposed project's potential to result in adverse effects to the nine special-status wildlife species identified above, as well as any additional nesting raptors and migratory birds protected by the MBTA, is discussed in further detail below.

California Red-Legged Frog

California red-legged frog is a California "species of special concern." The species occurs in dense, shrubby riparian vegetation such as arroyo willow, cattails, and bulrushes with still or slow-moving water. The species prefers perennial streams or ponds, and a salinity of less than 4.5 percent. The closest recorded location of California red-legged frog is generally mapped in the vicinity of Los Gatos Creek, approximately one mile west of the project site; dense urban development is located between the Creek and the site.

According to the Biological Evaluation, although Ross Creek does not support sufficient water depth or vegetation structure to provide breeding habitat for California red-legged frog, the creek channel may be suitable for dispersal and foraging habitat for the species. Given the potential for California red-legged frog to be present within the site, on-site construction activities could result in an adverse impact to California red-legged frog. As such, a potentially significant impact could occur.

White-Tailed Kite, Golden Eagle, Purple Martin, and Other Nesting Raptors and Migratory Birds

White-tailed kite and golden eagle are both California Fully Protected species. Both species are found within rolling foothills, while white-tailed kite is often found in valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland, and golden eagle is found in mountain areas, sage-juniper flats, and deserts. White-tailed kite prefers open grasslands, meadows, or marshes for foraging located close to isolated, dense-topped trees for nesting and perching; golden eagle prefers cliff-walled canyons or large trees for providing nesting, and forages in open areas. According to the Biological Evaluation, the project site provides suitable foraging habitat for both species but does not provide suitable nesting habitat for white-tailed kite or golden eagle. The Biological Evaluation notes that suitable nesting trees for the white-tailed kite occur on the margins of the project site, and that, while nesting within the project site is unlikely for the golden eagle, suitable nesting habitat for the species occurs south of the project site.

Purple martin is a California "species of special concern." The species inhabits woodlands and low-elevation coniferous forests of Douglas fir, ponderosa pine, and Monterey pine. Purple martin nests in old woodpecker cavities as well as human-made structures and nests widely in human-made birdhouses. The species' nests are often located in tall, isolated trees or snags, as well as within tree cavities in vertical sections of trees. Although tree cavities in vertical sections of trees and appropriate bird houses suitable for nesting are absent from the project site, grassy edges near the on-site woodland may serve as suitable foraging habitat. In addition, suitable nesting habitat occurs in the Santa Cruz Mountains in the vicinity of the project site.

In addition to the suitable foraging habitat provided by the project site for the white-tailed kite, golden eagle, and purple martin, as well as the marginally suitable nesting habitat for the white-tailed kite, the site contains existing trees that could provide nesting habitat for raptors and migratory birds protected by the MBTA. As part of the proposed project, 223 on-site trees would be removed. Construction activities that adversely affect the nesting success of raptors and migratory birds (i.e., lead to the abandonment of active nests) or

result in mortality of individual birds constitute a violation of State and federal laws. Thus, if such species occur on-site during the breeding season, project construction activities could result in an adverse effect to species protected under the MBTA.

Pallid Bat and Townsend's Big-Eared Bat

Both pallid bat and the Townsend's big-eared bat are California "species of special concern." Pallid bat typically occurs in grasslands, chaparral, woodlands, and forests; and is most common in dry rocky open areas providing roosting opportunities. Roost sites include caves, mines, rock crevices, and large cavities along horizontal portions of trees. Townsend's big-eared bat is primarily a cave-dwelling species, but may also roost in buildings, bridges, rock crevices, and hollow trees. The closest recorded locations of pallid bat and Townsend's big-eared bat are approximately 2.5 miles east and four miles southwest of the site, respectively.

On-site trees within the mixed oak woodland contain cavities along horizontal portions of trees that are potentially suitable for roosting bats, and suitable foraging habitat is present in grassland edge habitat. Tree removal during on-site construction activities could result in harm to individual roosting bats. Thus, the proposed project could result in adverse impacts to pallid bat and the Townsend's big-eared bat, and a potentially significant impact could occur.

San Francisco Dusky-Footed Woodrat

San Francisco dusky-footed woodrat is a California "species of special concern," and is typically found in hardwood forests, oak riparian, and shrub habitats.

During the field survey conducted as part of the Biological Evaluation, San Francisco dusky-footed woodrat nests were observed on-site, within the oak woodland understory in the north portion of the site. As such, if construction activities are to occur within the on-site San Francisco dusky-footed woodrat habitat, the proposed project could result in adverse impacts to San Francisco dusky-footed woodrat, and a potentially significant impact could occur.

American Badger

American badger is a California "species of special concern." The species is found in a variety of habitats, especially in open habitats such as oak-savannah and grasslands where the species' presence is typically identified by distinctive, large underground dens (burrows) excavated in friable (loose) soils. The nocturnal mammal is rarely observed during field surveys.

According to the Biological Evaluation, the grasslands on-site could provide suitable habitat for the American badger. Therefore, on-site construction activities could result in an adverse impact to American badgers, and a potentially significant impact could occur.

Burrowing Owl

Burrowing owl is a candidate for listing under the California Endangered Species Act (CESA). Burrowing owl generally occurs in a variety of open, arid habitats; typically grasslands, desert scrub, agricultural fields, washes, and disturbed areas such as golf courses or vacant lots. Burrows, perch sites, and friable soil are vital habitat components for the species, and habitats with low-lying, sparse vegetation are preferred. Ground squirrel burrows and other fossorial mammal burrows are typically used for nesting and

as year-round refuge sites. The species may also utilize culverts, abandoned pipes, rubble piles, and other manmade structures if burrows are absent. The breeding season for burrowing owls is from February 1 to August 31.

As discussed above, although potential foraging habitat for burrowing owl is present on-site, the site does not contain suitable burrows for nesting. While limited occurrences have been reported in the vicinity of Los Gatos, the species mainly occurs in the region along the southern edge of the San Francisco Bay and to the southeast in Coyote Valley. Burrowing owl is unlikely to breed on-site. Nonetheless, out of an abundance of caution, the Biological Evaluation concluded that mitigation for the species should be implemented.

Conclusion

Based on the above, although the proposed project would not have the potential to result in potentially adverse effects to special-status plant species, construction activities associated with the proposed project could have an adverse effect, either directly or through habitat modifications, on wildlife species identified as special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS. Therefore, a ***potentially significant*** impact could result.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impacts to a *less-than-significant* level.

California Red-Legged Frog

IV-1 *Within 48 hours prior to any ground disturbing activities or vegetation clearing within 50 feet of Ross Creek, a pre-construction survey for California red-legged frog shall be conducted by a qualified biologist. Survey results shall be submitted to the Town of Los Gatos Community Development Department.*

IV-2 *If California red-legged frog is encountered, activities shall cease until the animal moves out of any proposed work area on its own or is relocated by a permitted qualified biologist. Proof of compliance with this mitigation measure shall be provided to the Town of Los Gatos Community Development Department.*

IV-3 *During construction activities, fiber netting such as silt fence or similar material shall be used for erosion control where appropriate throughout the project site and within 50 feet of Ross Creek to ensure that California red-legged frog does not get trapped. Proof of compliance with this mitigation measure shall be provided to the Town of Los Gatos Community Development Department.*

White-Tailed Kite and Other Nesting Raptors and Migratory Birds

IV-4 *If tree removal or ground disturbing activities are scheduled to commence during the nesting season (February 1st through August 31st), a pre-construction nesting bird survey shall be conducted by a qualified biologist within seven days prior to such activities to identify possible nesting activity. Survey results shall be submitted to the Town of Los Gatos Community Development Department. If active nests are not found further mitigation is*

not required. If one or more active nests are found, a construction-free buffer of suitable dimensions shall be established around any active raptor or migratory bird nest for the duration of the project, or until the qualified biologist has determined that the chicks have fledged and are foraging independently from their parents. The buffer shall be identified on the ground with flagging or fencing. The buffer distance shall be determined by the on-site qualified biologist based on the species, level of disturbance activity, location of the nest, and the topography between the nest and the construction activity; the construction-free buffer shall consist of a minimum starting distance of 250 feet for raptors and 25 feet for other birds. Proof of compliance with this mitigation measure shall be provided to the Town of Los Gatos Community Development Department.

Pallid Bat and Townsend's Big-Eared Bat

IV-5 *Prior to the commencement of construction activities, a qualified biologist shall conduct a bat habitat assessment of all potential roosting habitat features, including trees within the proposed impact footprint within the project vicinity. The habitat assessment shall identify all potentially suitable roosting habitat and may be conducted up to one year prior to the start of construction. The results of the assessment shall be submitted to the Town of Los Gatos Community Development Department.*

IV-6 *If potential roosting habitat is identified (cavities in trees or potential roosts within structures) within the areas proposed for impact, the biologist shall survey the potential roosting habitat during the active season (generally April through October or from January through March on days with temperatures in excess of 50 degrees Fahrenheit) within seven days prior to the start of construction activities to determine the presence of roosting bats. The surveys are recommended to be conducted utilizing methods that are considered acceptable by CDFW and bat experts. Methods may include evening emergence surveys, acoustic surveys, inspecting potential roosting habitat with fiberoptic cameras, or a combination thereof.*

If a non-breeding bat colony is discovered, the individuals shall be humanely evicted via two-step removal under the direction of a qualified biologist to ensure that harm or take would not occur to any bats as a result of tree removal. Two-step removal can only occur during March 1 to April 15 and September 1 to October 15 to avoid harm to maternity and overwintering colonies.

If a maternity colony is detected, then a qualified biologist shall determine an appropriate size for a construction-free buffer to be established around the tree and remain in place until the qualified biologist has determined that the nursery is inactive. Tree removal shall preferably be done between March 1 and April 15 or August 15 and October 15 to avoid interfering with an active nursery.

Proof of compliance with this mitigation measure shall be provided to the Town of Los Gatos Community Development Department.

San Francisco Dusky-Footed Woodrat

IV-7 *A qualified biologist shall conduct a pre-construction survey for San Francisco dusky-footed woodrat nests between 30 and 14 days prior to the onset of construction activities. The survey shall encompass all construction zones within the woodland habitat and developed areas, and surrounding lands within 25 feet. Results of the assessment shall be submitted to the Town of Los Gatos Community Development Department.*

Identified nests shall be avoided, where possible, and buffered by a minimum of 20 feet. If avoidance is not possible, the nest(s) shall be manually deconstructed by a qualified biologist when helpless young are not present, typically during the non-breeding season (October through January). If is the qualified biologist has determined that young may be present during the nest deconstruction, a suitable buffer of a minimum of 20 feet shall be established around the nest until a qualified biologist determines that the young are independent enough to successfully move from the deconstructed nest. Approximate age of the juveniles shall be recorded when observed and appropriate time shall be extrapolated out to when they would be independent from their parents; then the deconstruction can continue after the biologist confirms that the young are not present in the nest at the time. Proof of compliance with this mitigation measure shall be provided to the Town of Los Gatos Community Development Department.

American Badger

IV-8 *During the course of the pre-construction surveys for other species, a qualified biologist shall also determine the presence or absence of badgers prior to the start of construction. If badgers are found to be absent, other mitigations for the protection of badgers shall not be warranted.*

If an active badger den is identified during pre-construction surveys within or immediately adjacent to an area subject to construction, a construction-free buffer of up to 300 feet shall be established around the den. Once a qualified biologist has determined that badger has vacated the burrow, the burrow can be collapsed or excavated, and ground disturbance can proceed. Should the burrow be determined to be a natal or reproductive den, and because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present on-site during construction activities in the vicinity of the burrows to ensure the buffer is adequate to avoid direct impacts to individuals or natal/reproductive den abandonment. The monitor shall be present until is the qualified biologist has determined that young are of an independent age and construction activities would not harm individual badgers.

Additionally, all workers shall attend a "tailgate" training that includes a description of the species, a brief summary of the species' biology, and minimization measures and instructions on what to do if American badger is observed.

Proof of compliance with this mitigation measure shall be provided to the Town of Los Gatos Community Development Department.

Burrowing Owl

IV-9 *A qualified biologist shall conduct a preconstruction survey for burrowing owl following the 2012 CDFW Guidelines, or the most recent guidelines, which includes two surveys, one within 14 days prior to the start of construction and the second within 24 hours prior to the start of construction. If a lapse in project-related work of 15 calendar days or longer occurs, an additional survey shall be required prior to reinitiation. A written summary of the survey results shall be submitted to the Town of Los Gatos Community Development Department before any construction permits are issued. If burrowing owls or active burrows/refugia are not found, then further mitigation measures are not necessary.*

Identified burrowing owls shall be avoided and active burrowing owl burrows shall be avoided with a 250-foot non-disturbance buffer until the burrow is abandoned. The project biologist shall conduct a weekly check-in to confirm the buffer is still intact and confirm the current activity of that burrow. Proof of compliance with this mitigation measure shall be provided to the Town of Los Gatos Community Development Department.

b,c. Riparian areas are plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies (i.e., rivers, streams, lakes, or drainage ways). Riparian areas have one or both of the following characteristics:[12]

1. Distinctly different vegetative species than adjacent areas.
2. Species similar to adjacent areas but exhibiting more vigorous or robust growth forms.

Riparian areas are usually transitional between wetland and upland.

As discussed above, the Biological Evaluation identified riparian woodland in the vicinity of Ross Creek in the site's southwest corner. However, distinctive riparian vegetation is absent along this portion of Ross Creek, ~~and only the presence of Ross Creek qualifies the surrounding vegetation as a riparian~~ but present elsewhere along the creek corridor. Furthermore, consistent with the Town's Standards and Guidelines for Land Use Near Streams, the proposed project would include a 25-foot riparian setback from the top-of-bank of Ross Creek and incorporate the 100- to 110-foot flood easement from Ross Creek. As such, according to the site plan prepared for the proposed project, development within the riparian woodland area is not proposed, and Ross Creek would not be directly impacted by the proposed project.

The vegetation along the on-site ephemeral stream (see Figure 15) does not meet the above definition, as the trees and shrubs along the stream are just as likely to occur with the upland habitat along the ephemeral stream. Live Oak did not observe any riparian trees or shrubs with wetland indicator status in the ephemeral stream corridor. Further,

[12] U.S. Fish and Wildlife Service. *A System for Mapping Riparian Areas in the Western United States* [pg. 6]. Revised August 2019.

the ephemeral stream lacks the hydrology to attract riparian or water-loving vegetation. Therefore, the proposed project would not directly or indirectly impact riparian habitat.

With respect to jurisdictional waters of the U.S. ~~and State~~, according to the Biological Evaluation, the United States Army Corps of Engineers (USACE) prepared a letter in June 2016 stating that the only jurisdictional waters of the U.S. within the project site consists of a 342-sf (0.008-acre) concrete-lined drainage considered a seasonal wetland in the northwestern corner of the site. An existing 27-inch storm drainage line currently runs in an east-to-west direction through the drainage, to which the proposed project would connect (see Figure 6). However, as shown in Figure 3, development associated with the proposed project would be set back from the on-site drainage area, including the proposed storm drainage connection, and the jurisdictional waters would be protected by an exclusion fence. As such, the proposed project would not result in any impacts to jurisdictional waters of the U.S. ~~or State~~.

~~The on-site ephemeral drainage with swales was determined not to be considered jurisdictional water of the U.S. or the State. Nonetheless,~~ The on-site ephemeral feature historically supports water only during and shortly after storm events. The Town of Los Gatos follows the Guidelines and Standards for Land Use By Streams document ("Guidelines and Standards").[13] The Town Council adopted a resolution implementing the Guidelines and Standards at its meeting on February 20, 2007. What had previously been identified in this IS/MND as an "ephemeral drainage" has portions with an incised channel and portions without. According to the definition of a stream in the Guidelines and Standards (Chapter 2, subsection E), only the portions of the feature having a channel meet the definition of a stream, and therefore, only those portions need a buffer. Notwithstanding, for purposes of this recirculated environmental document, the entire on-site feature will be referred to as an ephemeral stream.

Given that there is no riparian habitat associated with this ephemeral stream, the buffer is from the "top of bank" of the sections of the ephemeral stream where it has an incised channel. The Guidelines and Standards does not identify a stream or riparian setback per se; the only setback identified is a "Slope Stability Protection Area", which is 10-15 feet for ephemeral streams with the addition of 5 feet for properties over 10,000 square feet. Although the Guidelines and Standards do not identify a stream or riparian setback, it is reasonable to use the Slope Stability Protection Area as a proxy. The habitat value of the ephemeral stream is low, as it only flows during and just after storms and does not support any wetlands; therefore, Live Oak has determined that a buffer of 15 feet would be reasonable to reduce the potential for impacts to this feature.

The upslope area that contributes runoff to the ephemeral stream is located within the southern and eastern portions of the site. The majority of Lot 8, which is located upslope and to the east of the stream, and that currently sheet flows towards the stream during storm events, would remain undisturbed. This upslope area is shown as DMA B in the Stormwater Control Plan sheet of the Bay Area Hydrology Model (BAHM) report prepared for the proposed project (see Appendix C).[14] Similarly, much of the upslope areas on Lot 9, located on the western side of the stream, would not be disturbed. Accordingly, development of the proposed project would not substantially alter the amount of

[13] Santa Clara Valley Water Resources Protection Collaborative. *Guidelines & Standards for Land Use Near Streams.* Revised July 2006.

[14] Balance Hydrologics. *Summary of BAHM Modeling for the Surrey Farm Project, Town of Los Gatos*. July 31, 2025.

stormwater entering the ephemeral stream during storm events, as those upslope areas that would remain undisturbed would continue to sheet flow to the stream. In addition, as shown in ~~Figure 3~~Figure 16, the majority of the proposed project would be designed to ~~incorporate a minimum 10-foot~~ avoid the ephemeral stream and comply with the required 15-foot buffers from the ~~between the proposed development and the vegetation surrounding the ephemeral drainage~~ "top of bank" of the incised channel sections of the ephemeral stream. The exception to this consists of the northerly extent of the ephemeral stream, which would be impacted by proposed construction activities associated with the internal roadway and the residential development on Lot 5 (see Figure 16). Such construction activities would require fill of the northern extent of the ephemeral stream, which is presumed to be a water of the State. Post-construction, the periodic water flowing in the ephemeral stream during and shortly after storm events would be captured by the proposed storm drain system just south of the internal driveway~~As such, the ephemeral drainage with swales would not be directly impacted by the proposed project. Similarly, as discussed above, the proposed project would retain the 100- to 110-foot flood easement between the development footprint and Ross Creek. Therefore, the proposed project would not result in the disturbance of any on-site wetlands~~.

Based on the above, the proposed project would ~~not~~ have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS, or have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means, and a ***~~less than~~ significant*** impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

IV-10 *Prior to initiation of any ground disturbance activities, the project applicant shall submit to the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) an application for Clean Water Act Section 401 Water Quality Certification and/or Waste Discharge Requirements for Projects Involving Discharge of Dredged and/or Fill Material to Waters of the State. The project proponent shall be responsible for conducting all project activities in accordance with the permit provisions outlined in the applicable SFRWQCB permit, which may include but not necessarily be limited to the following minimization and compensation measures.*

Minimization. *Because full avoidance is not possible, actions shall be taken to minimize impacts to the ephemeral stream (e.g., potentially waters of the State and under the jurisdiction of both RWQCB and CDFW). Measures taken during construction activities should include placing construction fencing around the ephemeral stream to be preserved to ensure that construction activities do not inadvertently impact these areas.*

Figure 16
Ephemeral Stream Setbacks

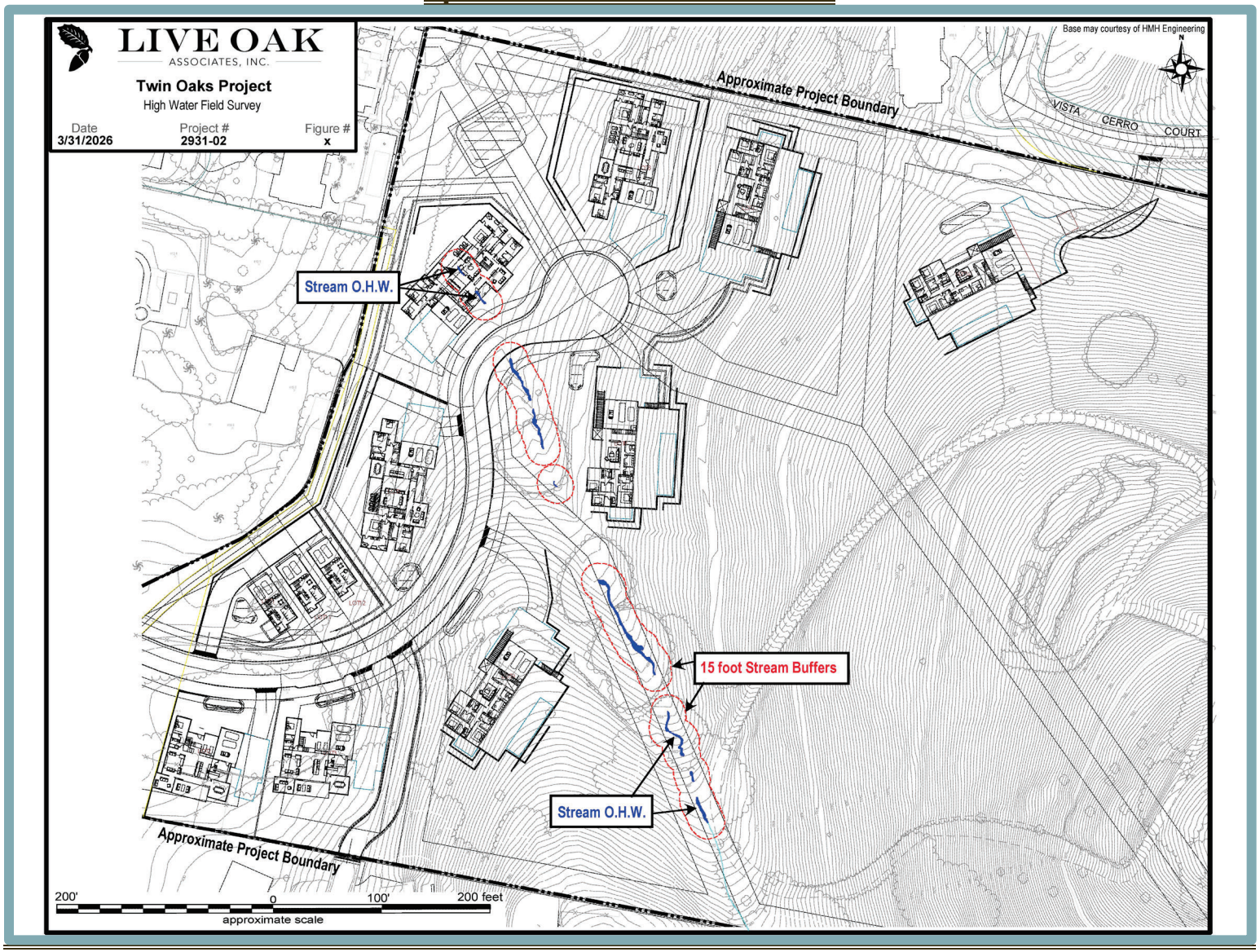


*Figure not OCR Compatible.

Compensation. *The proposed project would impact some small areas of the ephemeral stream. Therefore, the project shall replace the lost habitat value resulting from this impact through the creation, restoration, and/or enhancement of habitat at one or more appropriate locations near the impacted areas at a minimum of a 1:1 replacement-to-loss ratio as well as reseeding or replanting of vegetation in temporarily disturbed areas. The final mitigation amounts will be based on actual impacts to be determined during the design phase. If impacts are lessened, then the amount of mitigation should be appropriately reduced.*

It is anticipated that all compensation measures can be accommodated on-site within the existing ephemeral stream. An important consideration is to remove the existing culvert in the upper area of the stream. An on-site habitat mitigation and monitoring plan (HMMP) would need to be developed with the goal of creating, restoring, and/or enhancing the ephemeral stream with habitat functions and values greater than or equal to those existing in the impact zone. At a minimum, the HMMP should include:

- *The location of all enhancement and/or restoration activities;*
- *Planting specifications;*
- *Site maintenance and management requirements;*
- *Monitoring requirements;*
- *Final success criteria; and*
- *Adaptive management procedures.*

Written verification of the 401 Water Quality Certification or Waste Discharge Requirements shall be provided to the Town of Los Gatos Community Development Department, prior to initiation of any ground disturbance activities.

IV-11 *The CDFW maintains jurisdiction over the bed and bank of the bed, channel, and banks of any river, stream, or lake (Fish and Game Code Section 1602) and impacts to such areas may require a Lake or Streambed Alteration Agreement (LSAA). Prior to initiating construction activities, the project shall notify CDFW of the intentions of the project to determine if an LSAA is required. If required, mitigation may include restoration or enhancement of resources on-site as specified in Mitigation Measure IV-10. Written verification of the Section 1600 LSAA or, if a LSAA is not required, written correspondence from CDFW to this effect, shall be provided to the Town of Los Gatos Community Development Department, prior to initiation of any ground disturbance activities.*

d. According to the Biological Evaluation, the project site is not within an identified regional movement corridor or landscape linkage and does not support any nursery sites. Because substantial portions of the project site are not proposed for development, significant portions of existing on-site habitat would not be altered, and local urban species currently crossing the site for regular and dispersal movements would still be able to cross the site following project buildout. Therefore, the proposed project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established

resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Thus, a ***less-than-significant*** impact would occur.

e. Division II of Chapter 29.10 of the Town's Municipal Code comprises the Town's Tree Protection Ordinance. The applicable portion of the Town's Tree Protection Ordinance protects trees that meet the following criteria:

- All trees which have a twelve-inch or greater diameter (thirty-seven and one-half-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eighteen inches or greater diameter (fifty-six and one-half-inch circumference) of the sum of all trunks, where such trees are located on developed residential property.
- All trees which have an eight-inch or greater diameter (twenty-five-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eight inches or greater diameter (twenty-five-inch circumference) of the sum of all trunks, where such trees are located on developed Hillside residential property.
- All trees of the following species which have an eight-inch or greater diameter (twenty-five-inch circumference) located on developed residential property:
    - Blue Oak (*Quercus douglasii*);
    - Black Oak (*Quercus kellogii*);
    - California Buckeye (*Aesculus californica*);
    - Pacific Madrone (*Arbutus menziesii*).
- All trees which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk, when removal relates to any review for which zoning approval or subdivision approval is required.
- Any tree that existed at the time of a zoning approval or subdivision approval and was a specific subject of such approval or otherwise covered by landscape or site plans.
- Any tree that was required by the Town to be planted or retained by the terms and conditions of a development application, building permit or subdivision approval in all zoning districts, tree removal permit or code enforcement action.
- All trees, which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk and are located on property other than developed residential property.
- All publicly owned trees growing on Town lands, public places or in a public right-of-way easement, which have a four-inch or greater diameter (twelve and one-half-inch circumference) of any trunk.
- A protected tree shall also include a stand of trees, the nature of which makes each dependent upon the other for the survival of the stand.
- The following trees shall also be considered protected trees and shall be subject to the pruning permit requirements set forth in Section 29.10.0982 and the public noticing procedures set forth in Section 20.10.0994:
    - Heritage trees;
    - Large protected trees.

As discussed above, mixed oak woodland is present throughout the project site, some of which would be impacted by the proposed development. In order to determine if on-site trees proposed for removal qualify for protection under the provisions of the Town's Municipal Code, an Arborist Report was prepared for the site by McClintock Landscape

Horticultural Services (McClintock) (see Appendix ~~C~~D),[15] which has been peer reviewed by Monarch Consulting Arborists. During a site tree survey conducted of the project site, the Arborist Report identified ~~603~~673 on-site trees measuring four inches or greater in diameter at breast height (DBH), consisting of 26 species. According to the Arborist Report, ~~546~~630 of the on-site trees qualify for protection under the Town's Tree Protection Ordinance.

According to the Tree Mitigation and Protection Plan prepared for the proposed project, 223 protected trees would be removed, which would require a total of 551 replacement trees to be planted on-site, pursuant to the Town of Los Gatos Tree Protection Ordinance. A total of 85 trees are proposed to be planted on-site, which would not meet the on-site tree replacement requirements (see Figure 8 and Figure 9). Thus, payment of in-lieu fees consistent with Division II of Chapter 29.10 of the Town's Municipal Code would be required to mitigate for the shortfall in on-site tree replacement.

Given that the proposed project would result in the removal of on-site trees considered protected under the Town's Tree Protection Ordinance, including mixed oak woodland, and would not meet the on-site tree replacement requirements, a ***potentially significant*** impact could occur related to conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

IV-~~9~~12 *Prior to the start of construction activities, the applicant shall comply with the Town of Los Gatos Tree Protection Ordinance and a tree removal permit shall be obtained from the Town for the removal of any on-site trees that qualify as a protected tree. If the trees proposed for removal are found to be in good condition, and the tree removal permit is granted primarily for the convenience of the applicant, then the full cost and responsibility of such removal shall be borne by the applicant, including planting of replacement trees. According to the Tree Mitigation and Protection Plan prepared for the proposed project, the project would not meet the required on-site tree replacement requirement; thus, the project applicant shall pay the appropriate in-lieu fees, pursuant to the requirements of Division II of Chapter 29.10 of the Town's Municipal Code. The above noted requirements shall be completed to the satisfaction of the Town of Los Gatos ~~Parks and Public Works Department~~ Planning Division.*

f. The project site is not located in an area that has an approved Habitat Conservation Plan, Natural Community Conservation Plan, or local, regional, or state habitat conservation plan. Therefore, the proposed project would not conflict with a Habitat Conservation Plan, Natural Conservation Community Plan, and ***no impact*** would occur.

[15] McClintock Landscape Horticultural Services. *Arborist Report, Tree Preservation Plan, Surrey Farms, Project #4185.10, Los Gatos, CA 95032*. December 15, 2024. Revised July 23, 2025.

V. CULTURAL RESOURCES. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	✖
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	✖	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	☐	✖	☐	☐

Discussion

The following is based on a Cultural Resource Study prepared for the 2017 EIR by Holman & Associates Archeological Consultants (Holman).[16] Although the Cultural Resource Study was prepared for the 2017 EIR, the project site is contained within the study area for the report and site conditions have not changed since preparation of the report. Therefore, the Cultural Resource Study prepared by Holman is still applicable to the proposed project.

The off-site sidewalk improvements would occur within the ROW of existing roadways and, thus, would occur within previously disturbed areas. As such, the proposed off-site sidewalk improvements are not anticipated to result in any impacts related to cultural resources, and the following discussion focuses on potential impacts associated with the proposed on-site development.

a. Historical resources are features that are associated with the lives of historically-important persons and/or historically-significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics.

   The Town of Los Gatos recognizes any structure or site as historic if the structure is located within a historic district, historically designated within the Landmark Historic Preservation (LHP) overlay, or is a primary structure constructed prior to 1941, unless the Town has specifically determined the structure does not have historic significance or architectural merit.[17] The project site is undeveloped and is not located within a historic district or within the LHP overlay; as such, the site does not qualify as historic pursuant to the Town of Los Gatos criteria. Furthermore, the archival research and visual inspection for the project site conducted as part of the Cultural Research Study prepared for the project site did not identify any past potential historical resources within the project site. The conclusions of the Cultural Research Study were confirmed by a recent records search of the California Historic Resources Information System (CHRIS) performed by the Northwest Information Center (NWIC).[18] Based on the Cultural Research Study and the CHRIS search results, the project site is not currently listed on the California Register of

[16] Holman & Associates Archeological Consultants. *Cultural Resource Study of the Proposed Surrey Farm Estates Project, 170 Twin Oaks Drive, Los Gatos, Santa Clara County, California.* January 25, 2013.

[17] Town of Los Gatos. *What is a Historic Resource?* Available at: https://www.losgatosca.gov/1718/Introduction-to-Historic-Preservation. Accessed April 2025.

[18] Northwest Information Center. *Record search results for the proposed Surrey Farms Estates Subdivision Project, NWIC File No.: 24-0971*. January 13, 2025.

Historic Resources (CRHR), or the National Register of Historic Places (NRHP), and the site does not include any resources potentially eligible for listing in such registers.

Therefore, the proposed project would not have the potential to cause a substantial adverse change in the significance of a historic resource pursuant to CEQA Guidelines Section 15064.5, and ***no impact*** would occur.

b,c. In order to determine whether archaeological resources are located on the project site, an archival review was conducted as part of the Cultural Resource Study prepared for the project site, as well as part of the aforementioned updated CHRIS records search. The CHRIS records search included review of archaeological resource records, historic properties records, official records and maps of archaeological sites and surveys in Santa Clara County, the NRHP, and the CRHR. According to the CHRIS records search, archaeological or historic resources have not been recorded within the project boundaries.

The site reconnaissance conducted as part of the Cultural Resource Study included walking 30-foot transects over the open hillsides and closer transects of the entire lower western edge of the project site. The site reconnaissance did not identify any traces of significant precontact or historic cultural material.

Based on the results of the archival review and site reconnaissance, the Cultural Resource Study concluded that the proposed project would not result in any impact to known cultural resources. However, the CHRIS records search showed that a moderate to high potential exists for unrecorded archaeological resources to be within the project site. As such, the potential exists for unknown archaeological resources, including human remains, to be uncovered during ground-disturbing activities for the proposed project. Therefore, if previously unknown resources are encountered during construction activities, the proposed project could cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of dedicated cemeteries, during construction.

General Plan Policy OSP-9.4 requires that if cultural resources, including archaeological resources, are discovered during grading or other on-site excavation activities, construction shall stop until appropriate mitigation is implemented. Policy OSP-9.1 requires evaluation of archaeological and/or cultural resources early in the development review process through consultation with interested parties and the use of contemporary professional techniques in archaeology, ethnography, and architectural history. Policy OSP-9.2 requires that the Town ensure the preservation, restoration, and appropriate use of archaeological and/or culturally significant structures and sites. Additionally, General Plan policy OSP-9.3 requires that any human remains discovered during implementation of public and private projects within the Town be treated with respect and dignity and fully comply with California laws that address the identification and treatment of human remains.

Compliance with 2040 General Plan Policies OSP-1 through OSP-4 would generally help ensure that work would stop if archeological resources or human remains are identified during construction. However, given their general nature, the policies do not specify the appropriate course of action if such resources are discovered. As a result, without mitigation, the proposed project could cause a substantial adverse change in the significance of a unique archeological resource pursuant to CEQA Guidelines Section

15064.5, or disturb human remains, including those interred outside of dedicated cemeteries, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

V-1 *If historic, archaeological, or paleontological resources are encountered during subsurface excavation activities, all construction activities within a 100-foot radius of the resource shall cease until a qualified archaeologist determines whether the resource requires further study. The Town shall require that the applicant include a standard inadvertent discovery clause in every construction contract to inform contractors of this requirement. Any previously undiscovered resources found during construction shall be recorded on appropriate California Department of Parks and Recreation forms and evaluated for significance in terms of California Environmental Quality Act (CEQA) criteria by a qualified archaeologist. Potentially significant cultural resources consist of, but are not limited to, stone, bone, fossils, wood, or shell artifacts or features, including hearths, structural remains, or historic dumpsites.*

If the resource is determined to be significant under CEQA, the Town and a qualified archaeologist shall determine whether preservation in place is feasible. Such preservation in place is the preferred mitigation. If such preservation is infeasible, the qualified archaeologist shall prepare and implement a research design and archaeological data recovery plan for the resource. The archaeologist shall also conduct appropriate technical analyses, prepare a comprehensive written report and file the report with the appropriate information center (California Historical Resources Information System), and provide for the permanent curation of the recovered materials.

V-2 *If human remains, or remains that are potentially human, are found during construction, all work shall be halted immediately within 100 feet, and a professional archeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance. The archaeologist shall notify the Santa Clara County Coroner (pursuant to Section 7050.5 of the State Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill (AB) 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, then the Coroner will notify the Native American Heritage Commission (NAHC), which then will designate a Native American Most Likely Descendant (MLD) for the project (Section 5097.98 of the Public Resources Code). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the applicant does not agree with the recommendations of the MLD, the NAHC can mediate (Section 5097.94 of the Public Resources Code). If an agreement is not reached, the qualified archaeologist or MLD must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will*

also include either recording the site with the NAHC or the appropriate Information Center, using an open space or conservation zoning designation or easement, or recording a reinternment document with the county in which the property is located (AB 2641). Work cannot resume within the no-work radius until the lead agency, through consultation as appropriate, determines that the treatment measures have been completed to the Town's satisfaction.

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

Discussion

a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2022 California Green Building Standards Code, the Building Energy Efficiency Standards, with which the proposed project would be required to comply, as well as discussions regarding the proposed project's potential effects related to energy demand during construction and operations, are provided below.

California Green Building Standards Code

The 2022 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the California Building Standards Code (CBSC), which became effective with the rest of the CBSC on January 1, 2023.[19] The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of electric vehicle (EV) charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills;
- Incentives for installation of electric heat pumps, which use less energy than traditional heating, ventilation, and air conditioning (HVAC) systems and water heaters;
- Required solar photovoltaic (PV) system and battery storage standards for certain buildings; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.

[19] California Building Standards Commission. *2022 California Green Building Standards Code*. 2023.

Building Energy Efficiency Standards

The 2022 Building Energy Efficiency Standards is a portion of the CBSC, which expands upon energy-efficiency measures from the 2019 Building Energy Efficiency Standards, went into effect starting January 1, 2023. The 2022 standards provide for additional efficiency improvements beyond the 2019 standards. The proposed project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and Building Energy Efficiency Standards would ensure that the future residential structures would consume energy efficiently.

Construction Energy Use

Construction of the proposed project and off-site sidewalk improvements would involve energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary lighting, welding, and for supplying energy to areas of the site where energy supply cannot be met through a hookup to the existing electricity grid. Even during the most intense period of construction, due to the different types of construction activities (e.g., site preparation, grading, building construction), only portions of the project site and off-site improvement areas would be disturbed at a time, with operation of construction equipment occurring at different locations on the project site, rather than a single location. Project construction would not involve the use of natural gas appliances or equipment.

All construction equipment and operation thereof would be regulated by the CARB's In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. In addition, as a means of reducing emissions, construction vehicles are required to become cleaner through the use of renewable energy resources. The In-Use Off-Road Diesel Vehicle Regulation would therefore help to improve fuel efficiency for equipment used in construction of the proposed project. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to further reduce demand on oil and limit emissions associated with construction.

Based on the above, the temporary increase in energy use occurring during construction of the proposed project, including off-site improvements, would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. In addition, construction activities would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand.

Operational Energy Use

Following implementation of the proposed project, PG&E would provide electricity to the project site. Energy use associated with operation of the future on-site residences would be typical of residential uses, requiring electricity for interior and exterior building lighting, HVAC, electronic equipment, refrigeration, appliances, and more. Maintenance activities

during operations, such as landscape maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, operation of the proposed residences would result in transportation energy use associated with vehicle trips generated by future residents and visitors.

All future residences on-site would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards and CARB standards, which would ensure that the future residences would be designed to be energy efficient to the maximum extent practicable. Adherence to the most recent CAL Green Code, the Building Energy Efficiency Standards, would ensure that all development on-site would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. In addition, State regulations promote the generation of renewable energy and encourage energy efficiency through requirements placed on utility providers and strict development standards. For instance, the Renewables Portfolio Standard (RPS) requires utilities, including PG&E, to procure an increasing proportion of electricity from renewable sources. Ultimately, the RPS requirements mandate that all electricity produced within the State be renewably sourced by the year 2045.

With regard to transportation energy use, California leads the nation in registered alternatively-fueled and hybrid vehicles. Under SB 500, the State has required that, starting in the year 2030, all cars sold shall be zero-emission/electric vehicles. In addition, State-specific regulations encourage fuel efficiency and the reduction of dependence on oil. Improvements in vehicle efficiency and fuel economy standards help to reduce consumption of gasoline and reduce the State's dependence on petroleum products. In addition, the CBSC requires new developments to include the necessary electrical infrastructure for EV charging stations. The proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as discussed in Section XVII, Transportation, of this IS/MND and with implementation of Mitigation Measure XVII-1, the proposed project is not anticipated to substantially increase vehicle miles traveled (VMT) within the project area.

Conclusion

Based on the above, construction and operation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Thus, a ***less-than-significant*** impact would occur.

VII. GEOLOGY AND SOILS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	✖	☐
ii. Strong seismic ground shaking?	☐	☐	✖	☐
iii. Seismic-related ground failure, including liquefaction?	☐	✖	☐	☐
iv. Landslides?	☐	✖	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	✖	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	✖	☐	☐
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	✖	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	✖
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	✖	☐

Discussion

The following discussion is based primarily on a Geotechnical and Geologic Hazard Investigation (GGHI) prepared for the proposed project by Cornerstone Earth Group (Cornerstone) (see Appendix ~~D~~E).[20] The GGHI was subject to a Geologic and Geotechnical Peer Review conducted by the Town's consulting geotechnical firm, Cotton, Shires, and Associates, Inc. (CSA),[21] and Cornerstone subsequently prepared an Interim Response to Geotechnical Peer Review to respond to the comments and resolve identified concerns.[22]

As discussed throughout this IS/MND, the off-site sidewalk improvements would occur within the ROW of existing roadways and, thus, would occur within generally flat, previously disturbed areas. As such, the proposed off-site sidewalk improvements are not anticipated to result in any significant impacts related to geology and soils, and the following discussion focuses on potential impacts associated with the proposed project.

ai-ii. According to the GGHI, the project site is not located within the boundaries of an Alquist-Priolo Earthquake Fault Zone or a Santa Clara County Fault Hazard Zone. Although the project site is located within 0.06-mile of the Monte Vista-Shannon fault, mapping for the

[20] Cornerstone Earth Group. *Geotechnical & Geologic Hazard Investigation, Twin Oaks Drive Subdivision*. October 1, 2024.
[21] Cotton, Shires, and Associates, Inc. *Geological and Geotechnical Peer Review*. January 6, 2025.
[22] Cornerstone Earth Group. *Interim Response to Geotechnical Peer Review*. March 5, 2025.

Town of Los Gatos shows that the project site is located in a zone designated as having a "low" fault rupture hazard potential and is considered to be outside recognized fault zones.

Although the project site would not be subject to fault rupture hazards, moderate to severe earthquakes could cause strong ground shaking at the site, which is the case for most sites within the Bay Area. Due to the site's proximity to active faults in the region, such as the San Andreas Fault system and the Hayward and Calaveras Fault systems, the potential exists for the proposed buildings to be subject to seismic ground shaking. However, all structures developed as part of the proposed project would be required to be built in accordance with the CBSC, which provides minimum standards to ensure that structures are designed using sound engineering practices and appropriate engineering standards for the seismic area in which the project site is located. Projects designed in accordance with the CBSC should be able to: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some structural, as well as non-structural, damage. Although conformance with the CBSC does not guarantee that substantial structural damage would not occur in the event of a maximum magnitude earthquake, conformance with the CBSC can reasonably be assumed to ensure that the proposed structure would be survivable, allowing occupants to safely evacuate in the event of a major earthquake. Based on the above, a ***less-than-significant*** impact would occur related to seismic surface rupture and strong seismic ground shaking.

aiii,aiv, c,d. The proposed project's potential effects related to liquefaction, landslides, lateral spreading, subsidence/settlement, and expansive soils are discussed in detail below. The GGHI included review of geotechnical literature and available conceptual layouts, a site visit in August 2024, the drilling of six test borings to depths between 10 and 20 feet, and the excavation of six test pits. The six borings were logged in accordance with the Unified Soil Classification System (USCS) and laboratory testing was conducted of all collected samples.

The test borings generally encountered Pleistocene-aged, alluvial soils, with some undocumented fill consisting of approximately three feet of dense clayey sand or hard sandy lean clay. The test pits generally encountered hillside soil consisting of either colluvium or stream terrace deposits overlying relatively shallow bedrock or Santa Clara Foundation.

Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, especially as a result of cyclic loadings induced by earthquakes or ground shaking. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded fine sands. Based on the GGHI prepared for the proposed project, the site is not located within County- or State-designated liquefaction hazard zones. In addition, given that the site is underlain by Pleistocene age soils where soil is relatively thick, the potential for liquefaction to impact the site is considered to be low. Furthermore, groundwater in the project area is relatively deep and Holocene age loose, clean, submerged sediment is not present at the site. Thus, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death associated with seismic-related ground failure, including liquefaction.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. According to the GGHI, the project site is located on a moderately sloping to flat parcel within a hillside setting with grades sloping generally down from the east to the west. The California Geological Survey (CGS) mapping shows that all or a portion of the site lies within a landslide hazard area, and hazard mapping by Santa Clara County indicates that the eastern half of the site is within a County landslide hazard zone; USGS mapping shows that there were "Many Landslides" in the area containing the project site.

During the excavation of test pits, evidence of either shallow or deep-seated landslide deposits were not observed, and field features indicative of slope failure and instability were not observed during the site reconnaissance. As such, the GGHI concluded that the underlying slopes of the project site are relatively stable and, thus, the landslide hazard is considered low to moderate. In addition, the peer review of the GGHI notes that the majority of the proposed residences (i.e., Lots 1, 2, 4, 5, 8, 9, 10, 11, and 12) are outside of the indicated on-site slopes (see Figure 17). While the proposed lots would exceed the maximum allowable graded cut or fill for each lot pursuant to the Hillside Development Standards and Guidelines, the proposed earthwork activities are accounted for in the analysis of the project-specific GGHI. Specifically, Section 6 of the GGHI discusses various requirements related to earthwork, including, but not limited to, temporary and permanent cut and fill slopes, subgrade preparation, wet soil stabilization, material for fill, compaction requirements, and trench backfill. Compliance with such requirements would ensure that the earthwork activities associated with the proposed project would be acceptable and would lead to instability. Without incorporating the recommendations included within the GGHI, new fill placed for the planned structures and streets on existing inclined slopes could cause a significant impact related to slope instability.

Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. An ephemeral ~~drainage with swales~~ stream bisects the site. The project includes a minimum 10-foot buffer from the vegetation associated with the ephemeral ~~drainage~~ stream; therefore, the potential for lateral spreading to impact the proposed project is relatively low.

Subsidence/Settlement

Subsidence is the settlement of soils of very low density, generally from either oxidation of organic material, desiccation and shrinkage, or both, following drainage. Subsidence takes place gradually, usually over a period of several years, and is a common consequence of liquefaction. Because on-site soils were predominantly stiff to very stiff clays and medium dense to dense sands, the GGHI concluded that the potential for significant seismic subsidence/settlement to affect the proposed project is low. However, undocumented fill was encountered in the southwestern section of the site, the presence of which could cause settlement due to the variable nature and consistency of undocumented fills. Therefore, potential adverse impacts related to subsidence/settlement could occur.

Figure 17
Least Restrictive Development Area and On-Site Slopes

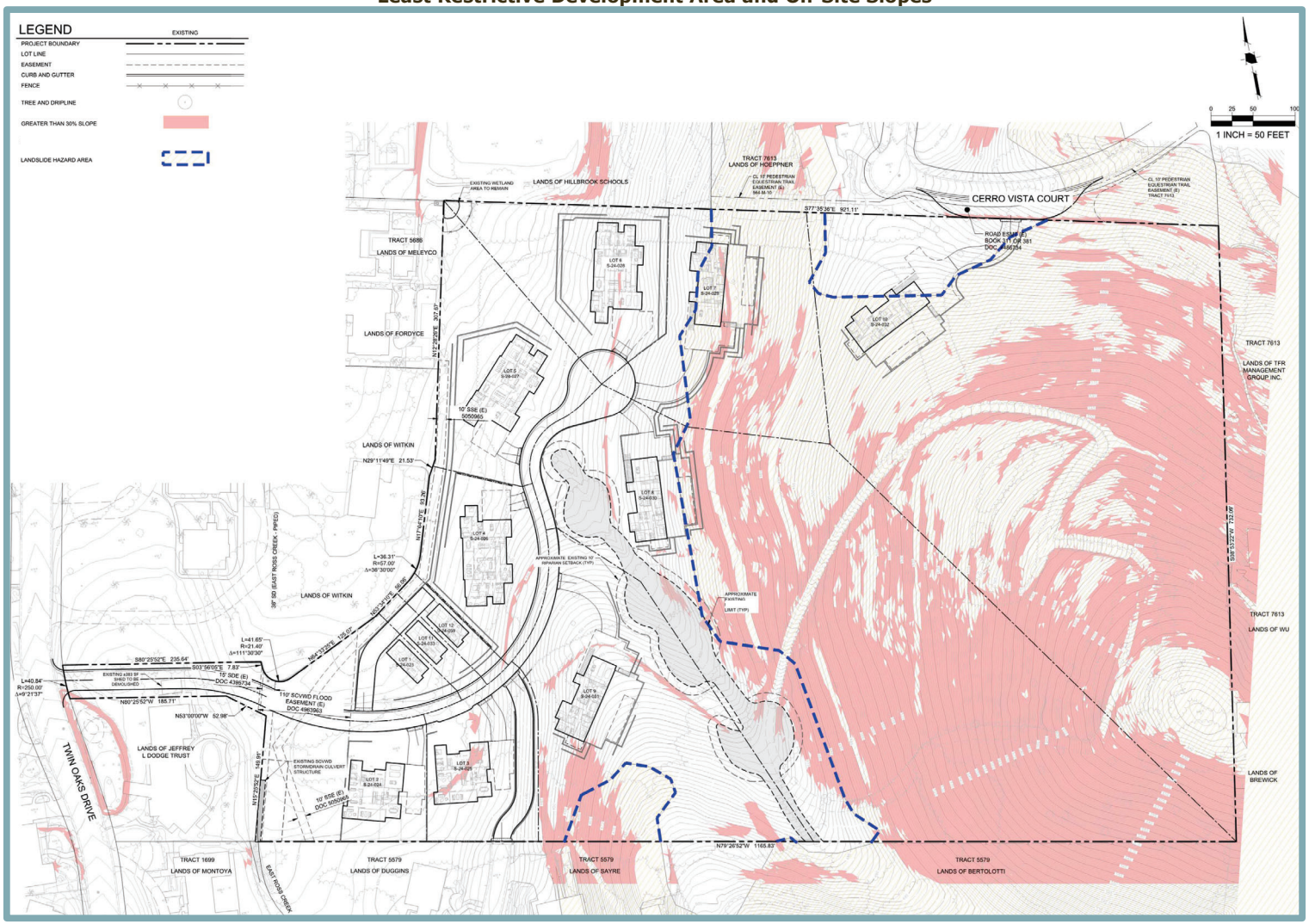


*Figure not OCR Compatible.

Expansive Soils

Expansive soils are soils which undergo significant volume change with changes in moisture content. Specifically, such soils shrink and harden when dried and expand and soften when wetted, potentially resulting in damage to building foundations.

As part of the GGHI, plasticity index tests were conducted on soil samples from the project site to determine the expansion potential of surficial soils. The results of the tests indicated plasticity indexes ranging from 16 to 21, which are considered low to moderate expansion potential. Overall, the GGHI concluded that moderately expansive soils generally blanket the project site. Therefore, the proposed project could result in potential hazards or risks related to expansive soils.

Conclusion

Based on the above discussion, although the proposed project would not result in potential adverse impacts related to liquefaction, the proposed project could result in potential hazards or risks related to landslides, lateral spreading, subsidence, and/or soil expansion, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

VII-1 *Prior to approval of any grading or improvement plans for the project, a licensed engineer shall review the plans to ensure the engineering recommendations set forth in the site-specific Geotechnical and Geologic Hazard Investigation prepared for the proposed project by Cornerstone Earth Group are adequately incorporated, including all relevant CBSC standards, to the satisfaction of the Town's Engineer. All grading and improvement plans shall be reviewed and approved by the Town of Los Gatos Community Development Department and the Town's Engineer.*

b. Issues related to erosion are discussed in Section X, Hydrology and Water Quality, of this IS/MND. As noted therein, Mitigation Measure X-1 requires the preparation and implementation of an erosion and sediment control plan. Thus, implementation of Mitigation Measure X-1 would ensure the proposed project does not result in substantial soil erosion or the loss of topsoil. In addition, the proposed retaining walls would include perforated subdrain, drainrock, and weepholes, thereby contributing to erosion prevention. Thus, a ***less-than-significant*** impact would occur.

e. As previously discussed, sewer service would be provided through new connections to existing lines within the project vicinity. Specifically, the proposed sewer lines for Lots 1 through 9, 11, and 12 would connect to an existing eight-inch sewer main within the western portion of the site, while the sewer lines for Lot 10 would connect to the existing eight-inch sewer main within Cerro Vista Court. Thus, the construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the project. Therefore, ***no impact*** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.

f. According to the Town's General Plan EIR, based on the Society of Vertebrate Paleontology's system for assessing paleontological sensitivity, the soils within the Town

have a high potential to yield paleontological resources. However, implementation of General Plan Policy ENV-12.5, which requires that construction stop until appropriate mitigation is implemented if paleontological resources are uncovered during grading or other on-site excavation activities, would help ensure the protection of uncovered paleontological resources. In addition, the proposed project would be required to implement Mitigation Measure V-1, which would further reduce any potential impacts to unknown paleontological resources that are uncovered during project construction. Therefore, the proposed project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, and a ***less-than-significant*** impact would occur.

VIII. GREENHOUSE GAS EMISSIONS. *Would the project:*	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	✖	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	✖	☐

Discussion

a,b. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr).

The proposed project is located within the jurisdictional boundaries of BAAQMD. The BAAQMD Air Quality Guidelines include qualitative GHG thresholds to related to Buildings and Transportation that address climate change legislation, including SB 32.[23]

Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Neither the Town nor BAAQMD has an adopted threshold of significance for construction-related GHG emissions and does not require quantification. Nonetheless, the proposed project's construction GHG emissions, as well as operational emissions, have been estimated using CalEEMod under the same assumptions discussed in Section III, Air Quality, of this IS/MND (see Appendix A). The emissions estimates prepared for the proposed project determined that on-site construction activities associated with the proposed project would result in total unmitigated GHG emissions of 375 $MTCO_2e$ over the entire construction period. The emissions estimates prepared for the off-site sidewalk improvements determined that the improvements would result in total unmitigated GHG emissions of 33.9 $MTCO_2e$. As discussed in Section III, Air Quality, of this IS/MND, Mitigation Measure III-1 requires that the on-site and off-site construction occur separately or that higher-tiered heavy-duty equipment be used during construction of the off-site improvements.

[23] Bay Area Air Quality Management District. *2022 California Environmental Quality Act Guidelines*. April 2023.

Operational GHG emissions are presented in Table 4. It should be noted that the off-site sidewalk improvements would not result in any operational GHG emissions. As noted previously, the BAAQMD's applicable thresholds of significance for GHG emissions are qualitative, and, thus, the information presented below is provided for disclosure purposes only. Potential impacts related to GHG emissions resulting from implementation of the proposed project are considered in comparison with BAAQMD's adopted thresholds of significance below.

Table 4
Unmitigated Operational GHG Emissions

Source	GHG Emissions ($MTCO_2e$/yr)
Mobile	122
Area	0.45
Energy	36.4
Water	1.66
Waste	2.93
Refrigerants	0.03
Total Operational GHG Emissions	**163.47**

Source: CalEEMod, February 2025 (see Appendix A).

BAAQMD Thresholds of Significance

According to the BAAQMD thresholds of significance, a project must either include specific project design elements (e.g., exclude use of natural gas, achieve a specific reduction in project-generated VMT below the regional average) or be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).[24]

In October 2012, the Town of Los Gatos adopted a Sustainability Plan to ensure the Town's compliance with statewide GHG reduction goals. The Sustainability Plan includes emissions reduction targets for the Town, as well as reduction strategies. However, given that the Sustainability Plan was adopted prior to the passing of SB 32, the following analysis focuses on the new BAAQMD GHG thresholds related to specific project design elements.

Compliance with BAAQMD Thresholds of Significance

According to the BAAQMD's new requirements, in order to find a less-than-significant GHG impact, projects must include, at a minimum, the following project design elements:

- The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development);
- The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines;
- The project will achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA; and

[24] Bay Area Air Quality Management District. *2022 California Environmental Quality Act Guidelines.* April 2023.

- The project will achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

In order to be consistent with the first criterion, the proposed project is required to include all electric appliances and plumbing.

Regarding the second criterion, as discussed in Section VI, Energy, of this Initial Study, the proposed project would comply with all applicable federal, State, and local regulations regarding energy use during both project construction and project operations. Required compliance with applicable standards and regulations ensure that the building energy use associated with the proposed project would not be wasteful, inefficient, or unnecessary.

With respect to the third criterion, as discussed in Section XVII, Transportation, of this IS/MND, the proposed project would result in a less-than-significant VMT impact with implementation of Mitigation Measure XVII-1. Therefore, the proposed project would meet the third criterion by reflecting the recommendations provided in the Technical Advisory on Evaluating Transportation Impacts in CEQA.

With respect to the fourth criterion, the future on-site residences would be subject to the single-family residential off-street EV requirements included in the most recently adopted version of CALGreen Tier 2 available at the time of construction. For example, pursuant to the 2022 CALGreen Code, which is the most recently adopted version of CALGreen Code currently available, single-family residential projects are required to install a listed raceway to accommodate a dedicated 208/240-volt branch circuit for each unit, which would be suitable for EV charging.

Conclusion

Based on the above, the proposed project would not be considered to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, a ***less-than-significant*** impact would occur.

IX. HAZARDS AND HAZARDOUS MATERIALS. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	✖	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☐	☐	✖	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	✖	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	✖
e. For a project located 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?	☐	☐	☐	✖
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	✖
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	☐	☐	✖	☐

Discussion

a. Residential uses are not typically associated with the routine transport, use, disposal, or generation of substantial amounts of hazardous materials. Maintenance and operation of the future on-site residences may use common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Due to the regulations governing use of such products and the limited amount anticipated to be used on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a ***less-than-significant*** impact would occur.

b. According to the California Department of Toxic Substances Control (DTSC) Envirostor Database, hazardous material sites do not exist at the project site or in the project vicinity.[25] According to the Cultural Resource Study prepared for the project site, the site has not been subject to past development or agricultural use. Therefore, the project site has not been subject to a past use that is associated with the presence of hazardous materials, and such materials are unlikely to be present on-site.

[25] California Department of Toxic Substances Control. *EnviroStor.* Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=178+Twin+Oaks+Drive%2C+Los+Gatos#. Accessed May 2025.

Construction activities associated with the proposed project would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with all California Health and Safety Codes regulating the handling, storage, and transportation of hazardous and toxic materials. Pursuant to California Health and Safety Code Section 25510(a), except as provided in subdivision (b), the handler or an employee, authorized representative, agent, or designee of a handler, shall, upon discovery, immediately report any release or threatened release of a hazardous material to the unified program agency (in the case of the proposed project, the Santa Clara County Department of Environmental Health) in accordance with the regulations adopted pursuant to Section 25510(a). The handler or an employee, authorized representative, agent, or designee of the handler shall provide all State, city, or county fire or public health or safety personnel and emergency response personnel with access to the handler's facilities. In the case of the proposed project, the contractors are required to notify the Santa Clara County Department of Environmental Health in the event of an accidental release of a hazardous material, who would then monitor the conditions and recommend appropriate remediation measures.

Based on the above, hazardous materials are unlikely to be present within the project site. In addition, although the construction phase of the proposed project would involve regulated use of hazardous materials, the contractor would be required to adhere to all relevant guidelines and ordinances regulating the handling, storage, and transportation of hazardous materials. Therefore, the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment, and a ***less than significant*** impact would occur.

c. The nearest school is the lower and middle school campus associated with Hillbrook School, which is located approximately 0.08-mile northwest of the site. Therefore, a school is located within one-quarter mile of the project site. However, as discussed above, operation of the proposed project would not include any activities that would involve the routine emission or handling of substantial amounts of hazardous or acutely hazardous materials. Additionally, construction activities associated with the proposed project would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete, paints, and adhesives. However, as discussed above, project contractors are required to comply with all California Health and Safety Codes regulating the handling, storage, and transportation of hazardous and toxic materials.

   Therefore, the project would have a ***less-than-significant*** impact related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

d. Government Code Section 65962.5 requires the California Environmental Protection Agency to annually develop an updated Cortese List. The components of the Cortese List include the DTSC Hazardous Waste and Substances Site List, the list of leaking underground storage tank (UST) sites from the State Water Resources Control Board’s (SWRCB) GeoTracker database, the list of solid waste disposal sites identified by the SWRCB, and the list of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO) from the SWRCB. As discussed above, the project site is not

included on the DTSC Hazardous Waste and Substances Site List,[26] or the list of solid waste disposal sites.[27] Additionally, the SWRCB's GeoTracker database does not identify the project site as containing any Leaking Underground Storage Tanks (LUSTs), which is another portion of the Cortese List.[28] Finally, the project site is not on the list of active CDO and CAO from the SWRCB. Thus, the proposed project would not create a significant hazard to the public or the environment, and ***no impact*** would occur.

e. The project site is not within an airport land use plan, within two miles of a public airport, or near a private landing strip. The nearest airport to the project site is the San Jose International Airport, located approximately 8.85 miles north of the site. Therefore, ***no impact*** related to a safety hazard for people residing or working in the project area related to such would occur.

f. The Town's Emergency Operation Plan (EOP) identifies potential threats and outlines response protocols and procedures.[29] According to the EOP, evacuations are considered most likely in response to a dam failure or wildfire. In general, during emergencies, major roads, highways, hospitals, and fire stations are important to the initial response of the Town. Additionally, schools, churches, and community centers are frequently used as assembly points for displaced people, or for distribution of emergency supplies.

   The proposed project would not result in any substantial modifications to the existing roadway system and, thus, would not physically interfere with the EOP, particularly with any emergency evacuation routes. In addition, the proposed project would include a 20-foot-wide EVA route extending south from the site to connect to Brooke Acres Drive. Furthermore, the proposed project would not include land uses or operations that could impair implementation of the plan. Therefore, the proposed project would not interfere with an emergency evacuation or response plan, and ***no impact*** would occur.

g. Issues related to wildfire hazards are discussed in Section XX, Wildfire, of this IS/MND. As noted therein, the project site is not located within a State Responsibility Area (SRA). However, the site is located within a Very High Fire Hazard Severity Zone (FHSZ).[30] Nonetheless, the proposed project would be required to comply with all applicable requirements of the California Fire Code (CFC) through the installation of fire sprinkler systems, fire hydrants, and other applicable requirements. For example, as discussed above, the proposed project would include an EVA route connected to Brooke Acres Drive. The proposed project would also be situated near existing roads, water lines, and other utilities, which would reduce risks related to wildfire. Thus, the potential for wildland fires to reach the project site would be limited. Further discussion is included in Section XX, Wildfire, of this IS/MND. Overall, the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, and a ***less-than-significant*** impact would occur.

---

[26] California Department of Toxic Substances Control. *EnviroStor*. Available at: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=178+Twin+Oaks+Drive%2C+Los+Gatos#. Accessed May 2025.

[27] CalEPA. *Cortese List Data Resources*. Available at: https://calepa.ca.gov/wp-content/uploads/2016/10/SiteCleanup-CorteseList-CurrentList.pdf. Accessed May 2025.

[28] State Water Resources Control Board. *GeoTracker Public Site*. Available at: https://geotracker.waterboards.ca.gov/map/. Accessed May 2025.

[29] Town of Los Gatos. *Emergency Operation Plan*. 2015.

[30] California Department of Forestry and Fire Protection. *Santa Clara County: State Responsibility Area Fire Hazard Severity Zones*. Effective April 1, 2024.

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

Discussion

a. The following discussion provides a summary of the proposed project's potential to violate water quality standards/waste discharge requirements or otherwise degrade water quality during construction and operation.

Construction

During the early stages of construction activities, topsoil would be exposed during ground disturbance. Prior to overlaying the ground surface with impervious surfaces and structures, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality downstream.

The off-site sidewalk improvements would only be subject to short-term construction periods and are not anticipated to result in significant impacts to erosion. With respect to the proposed project, the SWRCB regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in a land disturbance of one or more acres. The Town's National Pollutant Discharge Elimination System (NPDES) permit requires applicants to show proof of coverage under the State's General Construction Permit prior to receipt of any construction permits. The State's General Construction Permit requires a Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the site. A SWPPP describes Best Management Practices (BMPs) to control

or minimize pollutants from entering stormwater and must address both grading/erosion impacts and non-point source pollution impacts of the development project. Because the proposed project would disturb greater than one acre of land, the proposed project would be subject to the requirements of the State's General Construction Permit.

In addition, on- and off-site construction activities would be required to comply with Chapter 12, Grading, Erosion, and Sediment Control, of the Town's Municipal Code, which includes standards for managing stormwater runoff during construction and operation. Pursuant to Section 12.20.050, approval of an erosion and sediment control plan by the Town Engineer is required for new development projects within Los Gatos. According to the erosion control plans prepared for each lot, the proposed lots would include stabilized construction entrances, which would include corrugated steel panels and sediment barriers to channelize runoff to sediment trapping devices, eight-inch minimum fiber rolls along the boundaries of each lot, and standard protected stormwater drainage inlets. In addition, Lots 4 through 8 would include hydroseeding disturbed areas to stabilize on-site soils during construction and prevent erosion. Final erosion and sediment control plans would be required to comply with the recommendations of the civil engineer, geotechnical engineer, engineering geologist, or landscape architect involved in preparation of the grading plans, as well as any and all standards and specifications adopted by the Town Engineer for the control of erosion and sedimentation on grading sites. Because a final erosion and sediment control plan has not yet been prepared for the proposed project, proper compliance with the aforementioned regulations cannot be ensured at this time, and the proposed project could discharge sediment or urban pollutants through soil erosion, violate water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality during construction.

Operation

Following buildout of the proposed single-family residences and associated roadways, approximately 62,224 sf of the project site would be covered by impervious surfaces; the remaining 702,502 sf of the project site would remain unpaved. The required off-site sidewalk improvements would also represent an increase in impervious surfaces. While the proposed project would increase the amount of impervious surfaces as compared to existing conditions, the proposed project would install an on-site stormwater drainage system to collect and treat the on-site runoff. Additionally, all municipalities within Santa Clara County (and the County itself) are required to develop more restrictive surface water control standards for new development projects as part of the renewal of the Countywide NPDES permit. Thus, typical operations associated with the off-site improvements and the future on-site residences would not violate any water quality standards or waste discharge requirements, nor degrade water quality.

The Town of Los Gatos has adopted the County C.3 Stormwater Standards, which require new development and redevelopment projects that create or alter 10,000 or more sf of impervious area to contain and treat all stormwater runoff from the project site. As discussed above, the proposed project would create approximately ~~62,224~~ 97,386 sf of new impervious surface. Thus, the project would be subject to the requirements of the C.3 Stormwater Standards related to stormwater treatment, which are included in the Town's NPDES General Permit. Additionally, Town Code Section 22.30.035 requires permanent stormwater pollution prevention measures for development projects to reduce water quality impacts of stormwater runoff from the site in accordance with the Town's current NPDES water discharge permit and the Town's policy for stormwater management.

As shown in Figure 7, the majority of the proposed lots would function as individual DMAs. The three residences on Lots 1, 11, and 12 would be combined into one DMA, and the undeveloped areas and roadways would be divided into additional DMAs. Stormwater runoff from each DMA would be directed into an associated bioretention area located adjacent to each lot, which would be lined with an impermeable liner. Lots 1 to 4 and 7 through 10 would each include a bioretention area, and Lots 5 and 6 would share a bioretention area. The stormwater bioretention basins would be sized and designed to meet the Town's C.3 Stormwater Standards. A portion of the internal roadway, as well as the proposed driveways, would be lined with pervious pavement to allow for stormwater infiltration (see Figure 6). Overall, the proposed project would comply with the requirements of the SWRCB and the Regional Water Quality Control Board (RWQCB), and would meet C.3 Standards related to stormwater treatment. Therefore, during operation, the project would comply with all relevant water quality standards and waste discharge requirements, and would not degrade water quality.

Conclusion

Based on the above, because a final erosion and sediment control plan has not yet been prepared for the proposed project, the proposed project could result in the violation of water quality standards or degradation of water quality during construction, and a ***potentially significant*** impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

X-1 *Prior to any ground-disturbing activities, the project applicant shall prepare and submit a final erosion and sediment control plan for review and approval by the Town of Los Gatos Engineering Division of the Parks and Public Works Department. A Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) shall be submitted to the San Francisco Bay Regional Water Quality Control Board. A maximum of two weeks is allowed between clearing of an area and stabilizing/building on an area if grading is allowed during the rainy season. ~~Interim erosion control measures, to be carried out during construction and before installation of the final landscaping, shall be included.~~ Prior to any ground disturbance, the on-site aquatic features (i.e., the ephemeral stream and Ross Creek) shall be flagged by a qualified biologist with highly visible flagging tape, or similar, to clearly demarcate the limits of the aquatic features, and interim erosion control measures shall be installed around the aquatic features, at a minimum. The project applicant shall submit a letter to the Town prepared by the qualified biologist confirming completion of the flagging for review and approval prior to commencement of any ground disturbance. Interim erosion control method shall include, but are not limited to: silt fences, fiber rolls (with locations and details), erosion control blankets, Town standard seeding specification, filter berms, check dams, retention basins, etc. The project contractor shall provide erosion control measures as needed to protect downstream water quality during winter months. The grading, drainage, erosion control plan and SWPPP shall be prepared in compliance with applicable measures contained in the amended provisions C.3 and C.14 of most current Santa Clara County*

National Pollutant Discharge Elimination System (NPDES) Municipal Regional Permit (MRP). Monitoring for erosion and sediment control is required and shall be performed by the Qualified SWPPP Developer (QSD) or Qualified SWPPP Practitioner (QSP) as required by the Construction General Permit. Stormwater samples are required for all discharge locations and projects may not exceed limits set forth by the Construction General Permit Numeric Action Levels and/or Numeric Effluent Levels. A Rain Event Action Plan (REAP) shall be developed 48 hours prior to any likely precipitation event, defined by a 50 percent or greater probability as determined by the National Oceanic and Atmospheric Administration (NOAA), and/or whenever rain is imminent. The QSD or QSP must print and save records of the precipitation forecast for the project location area from (https://www.cpc.ncep.noaa.gov/) which shall accompany monitoring reports and sampling test data. A rain gauge is required on-site. The Town of Los Gatos Engineering Division ~~of the Parks and Public Works Department and the Building Department~~ shall conduct periodic NPDES inspections of the site throughout the recognized storm season to verify compliance with the Construction General Permit and Stormwater ordinances and regulations.

b,e. Water supplies in the Town of Los Gatos are provided by the SJW. Groundwater currently accounts for approximately 30 to 40 percent of the SJW's water supplies, while the remaining water supply is sourced from surface water of the Los Gatos Creek watershed.[31] Groundwater is drawn from the Santa Clara Subbasin, which is part of the larger Santa Clara Valley Basin. The Santa Clara Subbasin is an unadjudicated groundwater basin and is maintained by the SCVWD.

California's Groundwater (Bulletin 118) is the State's official publication on the occurrence and nature of groundwater in California. The publication defines the groundwater basin boundaries and summarizes groundwater information for each of the State's 10 hydrologic regions. Bulletin 118 – Interim Update 2016 defines 517 groundwater basins and subbasins in California. Pursuant to the Sustainable Groundwater Management Act (SGMA), the Department of Water Resources (DWR) is required to prioritize the 517 groundwater basins and subbasins as either High, Medium, Low, or Very Low. Prioritization is based on the following considerations:

- The population overlying the basin or subbasin;
- The rate of current and projected growth of the population overlying the basin or subbasin;
- The number of public supply wells that draw from the basin or subbasin;
- The total number of wells that draw from the basin or subbasin;
- The irrigated acreage overlying the basin or subbasin;
- The degree to which persons overlying the basin or subbasin rely on groundwater as their primary source of water;
- Any documented impacts on the groundwater within the basin or subbasin, including overdraft, subsidence, saline intrusion, and other water quality degradation; and

[31] San Jose Water Company. *2020 Urban Water Management Plan*. June 2021.

- Any other information determined to be relevant by the department, including adverse impacts on local habitat and local streamflows.

Each basin's priority determines which provisions of California Statewide Groundwater Elevation Monitoring (CASGEM) and SGMA apply. SGMA requires Medium and High priority basins to develop groundwater sustainability agencies (GSAs), develop groundwater sustainability plans (GSPs) and manage groundwater for long-term sustainability. The Santa Clara Subbasin is considered High Priority by the DWR due to the overlying population, projected growth, number of wells, irrigation acreage, groundwater reliance, and groundwater impacts of the area; however, the subbasin has not been identified by DWR as being critically overdrafted. [32]

Between 2016 and 2020, the volume of water pumped from the Santa Clara Subbasin increased from 10,637 acre-feet (AF) to 17,360 AF; however, the groundwater basin has an operational storage capacity of approximately 350,000 AF.[33] Because the project site is currently undeveloped, the 12 proposed single-family residences would increase water usage on-site beyond the existing water demand. However, given the relatively minor increase in water usage that would result from a net increase in 12 residences, the proposed project would not substantially increase groundwater usage as compared to current aquifer withdrawals. As such, the proposed project would not result in a substantial increase in groundwater use beyond the water supply demand accounted for in the SJW 2020 Urban Water Management Plan (UWMP). According to the 2020 UWMP, water supplies are projected to meet expected demand for normal year, single-dry year, and multiple-dry year scenarios through 2045.[34] While the SJW UWMP anticipates being able to adequately meet water demands through 2045, the proposed project is subject to Builder's Remedy and, thus, was not anticipated as part of the UWMP. However, as discussed further in Section XIX of this IS/MND, SJW partially sources water through purchases from SCWVD. According to the SCWVD UWMP, SCWVD anticipates having a surplus of at least 10,000 AF for normal year, single-dry year, and multiple-dry year scenarios through 2045.[35] Therefore, SJW would be able to continue purchasing water from SCWVD through all future scenarios, and the proposed project's minimal increase in water demand could be accommodated without substantially decreasing supplies.

Additionally, the proposed project would include the development of a new stormwater drainage system to capture and treat on-site runoff. As such, even with the development of the proposed project, groundwater recharge would still occur through the proposed pervious pavements within the internal roadways, as well as the approximately 702,502 sf of the project site that would remain unpaved. Thus, the proposed project would not interfere substantially with groundwater recharge in the area.

Therefore, the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the Santa Clara Subbasin. In addition, the project would not conflict with or obstruct implementation of a water quality control plan. Thus, a ***less-than-significant*** impact would occur.

---

32 San Jose Water Company. *2020 Urban Water Management Plan* [pg. 6-4]. June 2021.
33 *Ibid*.
34 San Jose Water Company. *2020 Urban Water Management Plan* [pg. 7-1]. June 2021.
35 Santa Clara Valley Water District. *2020 Urban Water Management Plan* [pg. 47 and 48]. June 2021.

c.i-iii. The project site is currently undeveloped. Therefore, the proposed project would result in an increase in impervious surfaces on the project site. The proposed project would include installation of a new stormwater drainage system to capture and treat on-site runoff from new impervious surfaces. As discussed above, consistent with Chapter 12 of the Town's Municipal Code, Mitigation Measure X-1 requires the preparation and implementation of an erosion and sediment control plan to demonstrate compliance with requirements related to the prevention of substantial erosion or siltation during construction activities. In addition, as shown in Figure 4, the proposed project would include the installation of retaining walls throughout the project site. Based on the proposed design of the retaining walls, which would include a maximum height of five feet, as well as perforated subdrain, drainrock, and weepholes, the retaining walls would serve to prevent erosion.

Furthermore, as discussed above, following project development, stormwater runoff from each on-site DMA would be directed into an associated bioretention area located adjacent to each lot, which would be lined with an impermeable liner. Following on-site treatment, stormwater flows would be metered out into the existing 27- and 36-inch storm drains located north and west of the site, respectively. The proposed on-site stormwater infrastructure would be sized to meet Provision C.3.g of the County's Municipal Regional Stormwater NPDES permit (MRP), which requires new development to manage stormwater flows such that post-development runoff does not exceed pre-project runoff rates and durations.

In order to calculate the project's ability to meet flow-duration frequency requirements while also meeting the required water quality treatment standards, a Bay Area Hydrology Model (BAHM) report was prepared for the proposed project by Balance Hydrologics.[36] As discussed therein, site runoff would be directed to one of nine proposed bioretention basins that provide both water quality treatment and flow-duration control. Each bioretention area has been designed in accordance with the standard design criteria outlined in the C.3 Stormwater Handbook. Specifically, each basin was modeled with six inches of surface ponding, 18 inches of biotreatment soil media, and 12 inches of drain rock. A four-inch underdrain would collect the treated water, which would then be metered through a two-inch orifice integrated into the storm drain overflow structure. The two-inch orifice is required to meet the hydromodification management criteria. The modeling conducted as part of the BAHM report showed that the basins would biofilter an approximate average of 90 percent of the mean annual runoff. Such filtration rates are well in excess of the minimum 80 percent required by the MRP. As such, the BAHM report concluded that the proposed stormwater management facilities would provide effective water-quality treatment and flow-duration controls for the full range of flows, from one-tenth of the two-year flood event up to the 10-year event.

Based on the above, the proposed project would not substantially alter the existing drainage pattern of the site or area in a manner which would result in erosion, siltation, or flooding on- or off-site, 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. Consequently, implementation of the proposed project would result in a ***less-than-significant*** impact.

civ. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 06085C0377H, the project site is within Zone X, a zone with a 0.2

[36] Balance Hydrologics. *Summary of BAHM Modeling for the Surrey Farm Project, Town of Los Gatos*. July 31, 2025.

percent annual chance to flood with an average depth of less than one foot.[37] Although not mapped by FEMA, as discussed throughout this IS/MND, SCWVD maintains an existing 100- to 110-foot flood easement within the southern portion of the project site to access an existing storm drainage culvert. As shown on Figure 4, the proposed project would not include development within the easement or modifications to the existing culvert. Therefore, development of the proposed project would not impede or redirect flood flows and a ***less-than-significant*** impact would result.

d. As discussed under question 'civ' above, the proposed project would not be subject to substantial flooding risks. The nearest reservoir is the Vasona Reservoir located approximately 1.3 miles northwest of the site. In addition, the Lexington Reservoir and Lenihan Dam are located approximately 2.3 miles southwest of the site. However, the project site is not located within a dam failure inundation area.[38] Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. Due to the project site's substantial distance from the coast, the proposed project would not be exposed to flooding risks associated with tsunamis. Seiches do not pose a risk to the proposed project, as the project site is not located adjacent to any closed body of water. Therefore, the proposed project would not pose a risk related to the release of pollutants due to project inundation due to flooding, tsunami, or seiche, and a ***less-than-significant*** impact would occur.

[37] Federal Emergency Management Agency. *Flood Insurance Rate Map 06085C0377H.* Available at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html. Accessed April 2025.

[38] Santa Clara Valley Water District. *Local Dams and Reservoirs.* Available at: https://www.valleywater.org/your-water/local-dams-and-reservoirs. Accessed May 2025.

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

Discussion

a. A project risks dividing an established community if the project would introduce infrastructure or alter land uses so as to change the land use conditions in the surrounding community, or isolate an existing land use. Existing single-family residences are located in the vicinity of the project site and the Hillbrook School is located north of the site. The project site is currently undeveloped, and the proposed project would include the construction of 12 single-family residences, as well as the associated access roadway and utilities infrastructure improvements. The proposed project, including the off-site sidewalk improvements, would be compatible with the existing surrounding land uses and would not alter the existing general development trends in the area or isolate an existing land use. Therefore, the proposed project would not physically divide an established community, and ***no impact*** would occur.

b. The project site is currently designated Agriculture by the Town's 2020 General Plan and is zoned RC. The proposed residential development is not compatible with the site's General Plan land use and zoning designation. However, the applicant team has submitted a formal SB 330 application for the project site and the project is subject to Builder's Remedy. Government Code Section 65589.5(d)(5), known as SB 35 Builder's Remedy, is a provision of California's Housing Accountability Act that prevents jurisdictions without a substantially compliant housing element from denying certain housing projects, even if such projects do not comply with the jurisdiction's zoning ordinance or general plan. Therefore, the proposed project does not require Town approval of a General Plan Amendment or Rezone to allow for approval of the proposed residential subdivision.

   As discussed throughout this IS/MND, the proposed project, including the proposed off-site improvements, would not result in any significant environmental effects that cannot be mitigated to a less-than-significant level by the mitigation measures provided herein. In addition, the proposed project would not conflict with Town policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect, including, but not limited to, the Town's noise standards, applicable SWRCB regulations related to stormwater, the Town's tree protection ordinance, and the development standards included in the Town's General Plan and zoning code, as well as some of the standards included within the 1987 Hillside Specific Plan. Therefore, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental impact. Thus, a ***less-than-significant*** impact would occur.

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

Discussion

a,b. The General Plan EIR determined that mineral resources are not significant in the Town. Several limestone quarries operated south of Los Gatos in the late 1800s and early 1900s. The nearest active quarries are the Lexington Quarry, east of Lexington Reservoir, and the Lehigh Permanente and Stevens Creek quarries west of Cupertino. However, active mining operations do not exist within the Town of Los Gatos and known mineral resources do not exist in the vicinity of the project site. Thus, the proposed project, including the proposed off-site improvements, would not result in any impacts associated with loss of locally or regionally important mineral resources, and ***no impact*** would occur.

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

Discussion

a. The discussion below presents information regarding sensitive noise receptors in proximity to the project site, applicable noise standards, and the potential for the proposed project to result in noise impacts during project construction and operation. The following terms are referenced in the sections below:

- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to dB in this report will be A-weighted unless noted otherwise.
- Day-Night Average Level (L_{dn}): The average sound level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours.
- Median Sound Level (L_{50}): The sound level exceeded 50 percent of the time over a given time-period.
- Average (Equivalent) Sound Level (L_{eq}): The steady-state dBA containing the same total energy as a time varying signal over a given time period (usually one hour).
- Community Noise Equivalent Level (CNEL): The 24-hour average noise level with noise occurring during evening (7:00 PM to 10:00 PM) hours weighted by a factor of three and nighttime hours weighted by a factor of ten prior to averaging.

Sensitive Noise Receptors

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. The nearest existing sensitive receptors to the project site are the single-family residences located in the vicinity of the site and the Hillbrook School located to the north of the site.

Town Noise Standards

Both the Town's Municipal Code and General Plan include regulations related to the generation of noise.

Section 16.20.035 of the Town's Municipal Code states the following regarding construction noise:

> Notwithstanding any other provision of this chapter, between the hours of 8:00 a.m. to 6:00 p.m. weekdays, and 9:00 a.m. to 4:00 p.m. Saturdays, construction, alteration or repair activities which are authorized by a valid Town permit or as otherwise allowed by Town permit, shall be allowed if they meet at least one of the following noise limitations:
>
> (1) No individual piece of equipment shall produce a noise level exceeding eighty-five (85) dBA at twenty-five (25) feet. If the device is located within a structure on the property, the measurement shall be made at distances as close to twenty-five (25) feet from the device as possible.
> (2) The noise level at any point outside of the property plane shall not exceed eighty-five (85) dBA.

Table NOI-2 of the Town's General Plan establishes a maximum outdoor noise limit of 55 dBA L_{dn} for residential land uses within the Town. The Noise Element of the Town's General Plan also specifies a limit of 45 dBA L_{dn} for residential interiors.

The Town of Los Gatos has not established a threshold for significant increases in traffic noise. However, the Federal Interagency Committee on Noise (FICON) has developed guidance for determining increases in traffic noise. Therefore, increases in the ambient noise environment due to the proposed project were evaluated using the criteria developed by FICON. Although the FICON guidelines were originally developed for aircraft noise impacts, the noise increase thresholds are generally considered appropriate for evaluation of noise increases at noise sensitive uses such as single-family residences. The significance criteria are provided in Table 5, below.

Table 5
FICON Noise Exposure Increases for Determining Level of Significance

Noise Exposure without Project	Potential Significant Impact
< 60 dB CNEL	5 dB or more
60-65 dB CNEL	3 dB or more
>65 dB CNEL	1.5 dB or more

Source: Federal Interagency Committee on Noise, 1992.

As shown in the table, according to the FICON, an increase in the traffic noise level of five dB or more would be significant where the pre-project noise levels are less than 60 dB L_{dn}. In areas where the pre-project noise levels range from 60 to 65 dBA, a three dBA barely perceptible noise level increase appears to be appropriate for most people. When the pre-project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact, given that the noise increase likely contributes to an existing noise exposure exceedance.

Project Construction Noise

During construction activities associated with the proposed project, including the proposed off-site sidewalk improvements, heavy equipment would be used, which would temporarily increase ambient noise levels within the project vicinity. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well

the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point. Standard construction equipment, such as backhoes, loaders, and dump trucks, would be used during construction.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. Truck traffic would involve transport of heavy materials and equipment to and from the construction site. Noise increases from truck traffic related to the movement of material would be of short duration, and would likely occur primarily during daytime hours.

Table 6 shows the predicted construction noise levels for typical construction equipment, which may be used during construction activities associated with the proposed project.

Table 6
Construction Equipment Noise

Type of Equipment	Maximum Level, dB at 25 feet
Air Compressor	86
Backhoe	86
Concrete Mixer	91
Dozer	91
Grader	91
Jack Hammer	94
Loader	86
Paver	91
Roller	91
Saw	82
Scarified	89
Scraper	91
Truck	90

Source: Town of Los Gatos, 2040 General Plan EIR [Table 4.12-5], 2022.

Based on the table, construction of the proposed project could generate maximum noise levels up to 94 dB at a distance of 25 feet. As a result, the proposed project would not meet the first noise limitation included in Section 16.20.035 of the Town's Municipal Code, which states that individual pieces of equipment shall not produce a noise level exceeding 85 dBA at 25 feet.

Section 16.20.035 of the Town's Municipal Code also states that construction activities shall be allowed if the noise level at any point outside of the property plane does not exceed 85 dBA. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources. The noise levels from a source decrease at a rate of approximately 6 dB per every doubling of distance from the noise source.[39] Because the nearest sensitive receptors are located ~~approximately~~ at least 50 feet from the project site boundaries, particularly the westernmost project site boundary where the proposed earth/concrete swale would be located, noise levels at the existing single-family residences could exceed 85 dBA during construction activities. As discussed

[39] U.S. Occupational Safety and Health Administration. *OSHA Technical Manual (OTM) Section III: Chapter 5.* Available at: https://www.osha.gov/otm/section-3-health-hazards/chapter-5#measurements. Accessed October 2023.

under Impact N-1 in the General Plan EIR, implementation of Mitigation Measure N-1 was determined to be required to reduce potential impacts related to construction noise associated with buildout of locations within the Town's General Plan area within 25 feet of noise-sensitive receptors to a less-than-significant level. Provisions required by Mitigation Measure N-1 in the General Plan EIR include staging construction equipment in areas distant from sensitive receptors, using electrically powered tools, and implementation of temporary sound barriers. Without the inclusion of similar mitigation, the proposed on- and off-site construction activities could result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local noise ordinance.

Project Operational Noise

Residences are not typically associated with the generation of substantial noise. Operation of the proposed residences would include typical residential noise, which would be compatible with the adjacent existing residential uses. The proposed project is not anticipated to contribute a measurable operational noise level increase to the existing ambient noise environment at any sensitive receptor locations. Therefore, a less-than-significant impact would occur with regard to on-site operational noise.

According to the General Plan EIR, the predominant source of noise in the Town is vehicular traffic. Roadways in the Town with the highest traffic volumes include State Route (SR) 9, SR 17 and SR 85. Additional sources include major arterial roadways, such as Blossom Hill Road, Lark Avenue, Los Gatos-Saratoga Road (SR 9), Los Gatos Boulevard, and Winchester Boulevard, none of which are located in the project vicinity.

Generally, a doubling in traffic volumes is required to increase traffic noise levels by 3.0 dB. Consistent with the CalEEMod results (see Appendix A), the proposed project would generate approximately 113 trips per day. Although traffic volume data for the roadways adjacent to the project site is not available, an average of 799 daily trips were recorded during the Spring 2024 trimester at Hillbrook School, which is located near the site's northwestern corner.[40] Conservatively assuming that the traffic volumes at Hillbrook School are representative of the traffic on the nearest roadways in the project vicinity, the proposed project would not double traffic volumes on local roadways and, thus, would not substantially increase traffic noise in the project vicinity.

Based on the above, the proposed project, including the proposed off-site improvements, would not result in operational noise increases that would result in significant effects on sensitive receptors in the project vicinity.

Conclusion

Based on the above, although operation of the proposed project would not result in the generation of a substantial increase in ambient noise levels in the vicinity of the project in excess of standards established in the Town's Municipal Code, project construction could result in the generation of a substantial temporary increase in ambient noise levels. Thus, a ***potentially significant*** impact would occur.

[40] W-Trans. *Hillbrook School 2023-2024 School Year, Spring Trimester Monitoring*. December 3, 2024.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

XIII-1 *For any construction proposed within 25 feet of a noise-sensitive receptor, the proposed project shall implement construction equipment staging areas to create distance between construction-related noise sources and noise-sensitive receptors; use electric tools; use mobile construction equipment with smart back-up alarms; and implement additional noise attenuation techniques during the clearing, earth moving, grading, and foundation/conditioning phases of construction, such as temporary sound barriers between the construction site and the sensitive receptors. The foregoing requirements shall be included in the grading plan to the satisfaction of the Town's Engineer and shall be submitted for review and approval to the Town of Los Gatos Community Development Department.*

b. Similar to noise, vibration involves a source, a transmission path, and a receiver. However, noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration is measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 7, which was developed by Caltrans, shows that the vibration levels that would normally be required to result in damage to structures range from 0.2 to 0.6 in/sec PPV.

The proposed project would only cause elevated vibration levels during construction, as the proposed project would not involve any uses or operations that would generate substantial groundborne vibration. The primary vibration-generating activities associated with the proposed project would occur during grading, placement of underground utilities, and construction of foundations. Although noise and vibration associated with the construction of the project would add to the noise and vibration environment in the immediate project vicinity, construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Table 8 shows the typical vibration levels produced by construction equipment at various distances. The most substantial source of groundborne vibrations associated with project construction would be the use of vibratory compactors. Use of vibratory compactors/rollers could be required during construction of the proposed on-site drive aisles and parking areas. However, at a distance of 26 feet or greater, vibration levels from such equipment would be below the 0.20 in/sec threshold recommended by Caltrans.

Proposed on-site construction activities would occur at ~~a distance of approximately~~ least 50 feet from the nearest single-family residence to the west of the site. Therefore, the

proposed on-site construction activities would not generate excessive groundborne vibration or groundborne noise levels at nearby residential structures.

Table 7
Effects of Vibration on People and Buildings

PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15 to 0.30	0.006 to 0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10 to 15	0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans. Transportation Related Earthborne Vibrations. TAV-02-01-R9601. February 20, 2002.

Table 8
Vibration Levels for Various Construction Equipment

Type of Equipment	PPV at 25 feet (in/sec)	PPV at 50 feet (in/sec)	PPV at 100 feet (in/sec)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210	0.074	0.026

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.

The off-site improvement areas are located within ROWs of existing roadways adjacent to existing single-family residences. Therefore, if the construction of the off-site improvements included the use of vibratory compactors, vibration levels could exceed the 0.20 in/sec PPV threshold established by Caltrans for architectural damage to buildings.

Based on the above, the proposed project could expose people to or generate excessive groundborne vibration or groundborne noise levels, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

XIII-2 *Any compaction required within 26 feet of existing structures adjacent to the off-site improvement areas shall be accomplished by using static drum rollers, rather than vibratory compactors/rollers, which use weight instead of vibrations to achieve soil compaction. As an alternative, preconstruction crack documentation and construction vibration monitoring could be conducted to ensure that construction vibrations do not cause damage to any adjacent structures. The above requirements shall be included by way of notation on any future improvement plans approved for the off-site improvements to the satisfaction of the Town of Los Gatos Community Development Department.*

c. The project site is not within an airport land use plan, within two miles of a public airport, or near a private landing strip. The nearest airport to the project site is the San Jose International Airport, located approximately 8.85 miles north of the site. Given that the project site is not located within two miles of a public airport or public use airport, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with such. Thus, ***no impact*** would occur.

XIV. POPULATION AND HOUSING. *Would the project:*	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	☐	☐	✖	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	✖

Discussion

a. The proposed project would include the development of 12 single-family residences within the project site. According to the 2040 General Plan EIR, buildout of the General Plan would facilitate new residential development in the Town of Los Gatos, which would accommodate an increase in the population to an estimated 42,021 by the year 2040, which would be 27.1 percent above the ABAG's Plan Bay Area 2040 population forecast of 33,050. In addition, the average household size in Los Gatos estimated by the 2040 General Plan was 2.4 persons per household, as of 2021. Using this average household size, the proposed project would result in a maximum increase of 29 residents within the Town. According to the 2040 General Plan, the entire Town has an estimated total population of 30,832. The estimated increase in 29 residents would equate to approximately 0.09 percent of the entire Town's population.

The project site is currently designated Agriculture by the Town's 2020 General Plan and is zoned RC. As previously discussed, because the applicant team has submitted a formal SB 330 application for the project site and the project is subject to Builder's Remedy, the proposed project does not require approval of a General Plan Amendment or Rezone. Nonetheless, given the relatively small increase in population that could result from project buildout, the proposed project would not result in substantial unplanned population growth within the Town. In addition, as discussed in Section XIX, Utilities and Services Systems, of this IS/MND, adequate utility infrastructure and services exist to meet the additional demand that would be created by the project. Similarly, as discussed in Section XV, Public Services, public service providers, such as local police and fire departments, would be capable of accommodating the demands of the proposed project. Therefore, the proposed project, including the proposed off-site improvements, would not induce substantial unplanned population growth either directly or indirectly, and a ***less-than-significant*** impact would occur.

b. The project site is currently undeveloped, and does not contain any existing residential structures. Furthermore, the proposed project would result in the development of 12 new single-family residences, thus increasing the housing stock of the Town. Therefore, the proposed project, including the proposed off-site improvements, would not displace a substantial amount of existing housing or people and would not necessitate the construction of replacement housing elsewhere, and ***no impact*** would occur.

XV. PUBLIC SERVICES.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	✖	☐
b. Police protection?	☐	☐	✖	☐
c. Schools?	☐	☐	✖	☐
d. Parks?	☐	☐	✖	☐
e. Other Public Facilities?	☐	☐	✖	☐

Discussion

a,b. Fire protection services are currently provided to the site by the Santa Clara County Fire Department (SCCFD). The SCCFD maintains 17 fire stations and is staffed by approximately 300 fire prevention, suppression, investigation, administration, and maintenance personnel. The nearest fire station to the project site is the Shannon Fire Station, located at 16565 Shannon Road, approximately 0.9-mile northwest of the project site. The SCCFD has the following service standards:

- First unit shall arrive on scene in less than seven minutes from dispatch of alarm, at least 90 percent of the time.
- Second unit shall arrive on scene in less than nine minutes from dispatch of alarm, at least 90 percent of the time.
- Remaining units shall arrive on scene in less than 15 minutes from dispatch of alarm, at least 90 percent of the time.
- A fire company with at least one paramedic shall arrive on scene in less than seven minutes from dispatch of alarm, at least 90 percent of the time.

The Los Gatos-Monte Sereno Police Department provides police protection services to the project site. The Police Department has a total of 64 staff members, consisting of 42 sworn personnel, including one chief and two captains, 22 non-sworn personnel, and a large number of volunteers and interns. Officers provide police assistance seven days per week, 24 hours per day. The Town's Police Department headquarters is located at 110 East Main Street, approximately 2.6 miles southwest of the project site. The Police Department does not have quantified service standards. However, the Police Department does have the performance objective of "providing a safe environment through timely response and police assistance." The department categorizes all calls as Priority One, Priority Two, or Priority Three. Priority One calls involve either a serious emergency or public safety hazard. Priority Two calls are those that require immediate response, but are not an emergency. Priority Three calls are all non-emergency calls.

Given the proximity of the nearest fire station to the project site, the aforementioned response times goals would be met at the site. In addition, as discussed in Section XIV, Population and Housing, above, the proposed project would result in an estimated population of 29 residents, which would equate to approximately 0.09 percent of the entire Town's population. Therefore, due to the relatively small increase in population, the

increase in demand for fire and police services at the project site would not be considered substantial and could be met by current service providers, without the need for expanding existing fire or police protection facilities or constructing new facilities, the construction of which could cause significant environmental effects. The project would comply with all applicable State and local requirements related to fire safety and security, including installation of fire sprinklers. Compliance with such standards would minimize fire and police protection demands associated with the project. Potential impacts related to wildfire hazards are discussed in Section XX, Wildfire, of this IS/MND.

Therefore, the proposed project, including the proposed off-site improvements, would have a ***less-than-significant*** impact related to the need for new or physically altered fire or police protection facilities, the construction of which could cause significant environmental impacts.

c. The Town of Los Gatos is currently served by six different school districts: the Los Gatos Union School District, the Los Gatos-Saratoga Joint Union High School District, the Campbell Union School District, the Campbell Union High School District, the Cambrian Union Elementary District, and Union Elementary School District.

As discussed throughout this IS/MND, the proposed project would result in the development of the site with 12 single-family residences. According to the Town's General Plan EIR, single-family residences are anticipated to generate an increase of 0.7 students per residence. Therefore, the proposed project could increase the amount of school age children in the Town by approximately eight students. Given the relatively small increase in student population that could occur as a reasonably foreseeable consequence of the proposed project, the increase in demand for school facilities would not be considered substantial and could be met by current district facilities, without the need for expanding existing schools or constructing new facilities, the construction of which could cause significant environmental effects.

In addition, the project would be subject to payment of School Impact Mitigation Development Fees to fund local school services. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[…] legislative or adjudicative act…involving …the planning, use, or development of real property" (Government Code 65996(b)). Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation."

Therefore, the proposed project would have a ***less-than-significant*** impact related to the need for new or physically altered schools, the construction of which could cause significant environmental impacts.

d,e. Further discussion on parks and recreation facilities within the Town is provided in Section XVI, Recreation, below. As discussed therein, the Town currently provides 8.4 acres of parkland per 1,000 residents. The nearest park or recreational facility to the project site is Blossom Hill Park, located approximately 0.4-mile northwest of the site. The Town of Los Gatos also includes one public library located within the Town's Civic Center complex approximately 1.4 miles from the site, as well as a Health Library and Resource Center within the El Camino Hospital, located approximately 2.7 miles from the site. The Town library was upgraded in 2012 and resulted in an increase of approximately 16,000 sf.

The development of the site with 12 single-family residences would result in an increase of approximately 29 residents. Given the relatively small increase in population that could occur as a reasonably foreseeable consequence of the proposed project, the increase in demand for parks and recreational facilities, or other public facilities such as libraries would not be considered substantial and could be met by current Town facilities, without the need for the expansion or construction of such new facilities, the construction of which could cause significant environmental effects.

In addition, as discussed below, in compliance with the Quimby Act, because the proposed project does not currently provide any dedicated parkland, the proposed project would be required to pay in-lieu fees to be used for the provision of parks and recreational services within the Town.

Therefore, the on- and off-site components of the proposed project would have a ***less-than-significant*** impact related to the need for new or physically altered parks or other public facilities, the construction of which could cause significant environmental impacts.

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

Discussion

a,b. The Town contains approximately 254 acres of parkland, nearly seven miles of multi-use trails, and over 65 acres of lawn area. Of 37 total public and private parks and recreation facilities in the Town of Los Gatos, 18 are publicly owned and operated parks. In addition, 15 recreational facilities with one or more sports fields exist within the Town of Los Gatos; 11 contain baseball fields, and 10 contain multi-use field areas for organized scheduled events. Such facilities provide a total of approximately 507,700 sf of multi-use field space within Los Gatos. Overall, the Town currently provides 8.4 acres of parkland per 1,000 residents. The nearest park or recreational facility to the project site is Blossom Hill Park, located approximately 0.4-mile northwest of the site.

Pursuant to the Town's General Plan Policy OSPR-6.7, the Town has a goal to provide parkland at a rate of five acres per 1,000 residents. The Town currently has approximately 7.5 acres of parkland per 1,000 residents and, thus, is already meeting the goal.

Although the proposed project does not currently include the dedication of any parkland on-site, because the Town already exceeds the park standard and the anticipated increase in population generated by the project is fairly small, the proposed project (including the proposed off-site improvements) would not result in population growth that could result in increased demand on existing recreational facilities or cause the construction or expansion of recreational facilities. Thus, a ***less-than-significant*** impact would occur.

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

Discussion

a. The law has changed with respect to how transportation-related impacts may be addressed under CEQA. Traditionally, lead agencies used level of service (LOS) to assess the significance of such impacts. LOS represents a qualitative description of the traffic operations experienced by the driver at an intersection or along a roadway segment and ranges from LOS A, which represents the absence of congestion and little delay, to LOS F, which signifies excessive congestion and delays. Greater levels of congestion are considered to be more significant than lesser levels. Mitigation measures typically took the form of capacity-increasing improvements, which often had their own environmental impacts (e.g., to biological resources). Depending on circumstances, and an agency's tolerance for congestion (e.g., as reflected in its general plan), LOS D, E, or F often represented significant environmental effects. In 2013, however, the State Legislature passed legislation with the intention of ultimately doing away with LOS in most instances as a basis for environmental analysis under CEQA. Enacted as part of SB 743 (2013), PRC Section 21099, subdivision (b)(1), directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

Subdivision (b)(2) of Section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any." (Italics added.)

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018, which became effective in early 2019. Subdivision (a) of that section provides that "[g]enerally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers

to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact."[41]

Please refer to question 'b' for a discussion of VMT.

Pedestrian, Bicycle, and Transit Facilities

The following provides a discussion of the proposed project's potential impacts to pedestrian, bicycle, and transit facilities.

Pedestrian and Bicycle Facilities

Pedestrian facilities are comprised of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access the destinations such as institutions, businesses, public transportation, and recreation facilities.

Bicycle paths, lanes and routes are typical examples of bicycle transportation facilities, which are defined as being in one of the following four classes:

1. **Class I Multiuse Trail –** a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
2. **Class II Bike Lane –** a designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.
3. **Class III Bike Route –** a route designated by signs or pavement markings and shared with pedestrians and motorists.
4. **Class IV Separated Bikeway –** an on-street facility reserved for use by bicyclists, with physical separation between the bikeway and travel lanes. Physical separation consists of vertical elements that may include curbs, landscaping, bollards, or parking lanes.

Sidewalks, bicycle paths, or other pedestrian and bicycle facilities are not currently present nor planned on the roadways within the project vicinity (e.g., Brooke Acres Road, Twin Oaks Drive, and Cerro Vista Court). Given the rural and hillside nature of roadways in the vicinity of the project site, bike lanes and sidewalks are not desirable. As discussed further under question 'b' below, the proposed project would include the construction of off-site pedestrian facilities at two intersections within the Town, which would improve pedestrian access in the area. In addition, the required sidewalk construction would occur within existing ROWs and would not conflict with any existing plans. Thus, the proposed project would not result in substantial modification or the removal of any existing or planned bicycle or pedestrian facilities or preclude the implementation of such facilities in the project vicinity, and a less-than-significant impact would occur.

[41] Subdivision (b)(2) of Section 15064.3 ("transportation projects") provides that "[t]ransportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

Transit Facilities

Existing transit service to the Town is provided by VTA. VTA provides bus, light rail, and paratransit service throughout Santa Clara County, including Los Gatos. Buses are generally equipped with front-loading racks that can hold up to two bicycles. VTA transit routes are not located in the immediate vicinity of the proposed project. The nearest bus route is Route #27, which provides connection to the nearest light rail station. The nearest bus stops to the project site are located at the Los Gatos Boulevard/Nino Avenue intersection, approximately 0.7-mile west of the site.

A project is considered to have a significant impact on transit if the project conflicts with existing transit facilities, is expected to generate additional transit trips beyond the capacity of the existing transit system, or would conflict with a program or plan addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The transit service within the Town operates within capacity, and the relatively minor increase in additional trips that could occur as a result of the proposed project could be accommodated by existing bus services. In addition, the proposed project would not include any off-site roadway improvements that would affect existing transit or bicycle facilities.

Conclusion

Based on the above, the proposed project would not conflict with an applicable plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and a ***less-than-significant*** impact would occur.

b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Pursuant to Section 15064.3, analysis of VMT attributable to a project is the most appropriate measure of transportation impacts. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Pursuant to Section 15064.3(b)(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. While changes to driving conditions that increase intersection delay are an important consideration for traffic operations and management, the most appropriate method of analysis does not fully describe environmental effects associated with fuel consumption, emissions, and public health. Rather, Section 15064.3(3) changes the focus of CEQA transportation impact analysis from measuring impact to drivers to measuring the physical impact of driving.

A VMT Technical Memorandum was prepared for the proposed project by TJKM to evaluate the potential VMT impacts associated with the development of the project site with 12 single-family residences (see Appendix ~~E~~F).[42] According to the Technical Memorandum, the baseline VMT per capita for the Town of Los Gatos is 33.27. Pursuant to a November 2020 Town Council Resolution,[43] an 11.3 percent reduction target sets the applicable VMT threshold for the proposed project at 29.51. Based on the project-specific VMT calculations conducted as part of the Technical Memorandum, the proposed project

[42] TJKM. *Vehicle Miles Traveled (VMT) Analysis for 178 Twin Oaks Drive Project in Town of Los Gatos, CA*. April 23, 2025.

[43] Town of Los Gatos Town Council. *Resolution of the Town Council of The Town Of Los Gatos Adopting Vehicle Miles Traveled Thresholds Of Significance for Purposes of Analyzing Transportation Impacts Under the California Environmental Quality Act*. November 17, 2020.

is expected to result in a VMT per capita of 32.34, which is above the 29.51 VMT per capita threshold.

Because the proposed project is anticipated to exceed the applicable VMT threshold, the proposed project could conflict or be inconsistent with CEQA Guidelines Section 15064.3(b). Therefore, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

The proposed project would need to reduce project VMT levels by 2.83 percent to ensure the project VMT falls below the applicable threshold. VMT reduction measures can be incorporated as a part of project design features that encourage a mode shift from automobiles to transit or non-motorized modes of travel. The efficacy of such project-level strategies varies, with individual project-level measures often achieving reductions between zero and six percent.

In coordination with the Town, the VMT Technical Memorandum identifies three potential off-site improvement locations where feasible pedestrian network improvements could occur as part of the proposed project, including the following: Option 1, along the north side of Blossom Hill Road between Regent Drive and Union Avenue; Option 2, along Kennedy Road from east of Longmeadow Drive to Olde Drive; and Option 3, along the north side of Fisher Avenue between Mitchell Avenue and Roberts Road. The foregoing sidewalk connection improvements would be consistent with the planned improvements identified within the Town's 2020 Bicycle and Pedestrian Master Plan.

In order to assess the VMT reduction potential associated with each option, the VMT Technical Memorandum included a quantitative analysis using the California Air Pollution Control Officers Association (CAPCOA) Handbook (Measure T-17: Provide Pedestrian Network Improvements). According to the VMT Technical Memorandum, Options 1 and 3 would be sufficient to reduce the project VMT by more than the necessary 2.83 percent reduction, with a 1.38 percent and 2.68 percent reduction, respectively. According to the VMT Technical Memorandum, Option 2 was considered infeasible due to a lack of currently existing sidewalks along Kennedy Road, thereby preventing the application of CAPCOA quantification methodologies.

Therefore, implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

XVII-1 *Concurrent with submittal of final project improvement plans, the project applicant shall also submit to the Town of Los Gatos Community Development Department for review and approval off-site improvement plans showing the construction of new sidewalks at the following intersections:*

- *Along the north side of Blossom Hill Road between Regent Drive and Union Avenue; and*
- *Along the north side of Fisher Avenue between Mitchell Avenue and Roberts Road.*

The improvement plans shall demonstrate, to the satisfaction of the Town Engineer, that the off-site sidewalk improvements would comply with all

applicable design parameters and requirements set forth by the Town of Los Gatos. The off-site improvements shall be constructed prior to the issuance of any certificate of occupancy for the project.

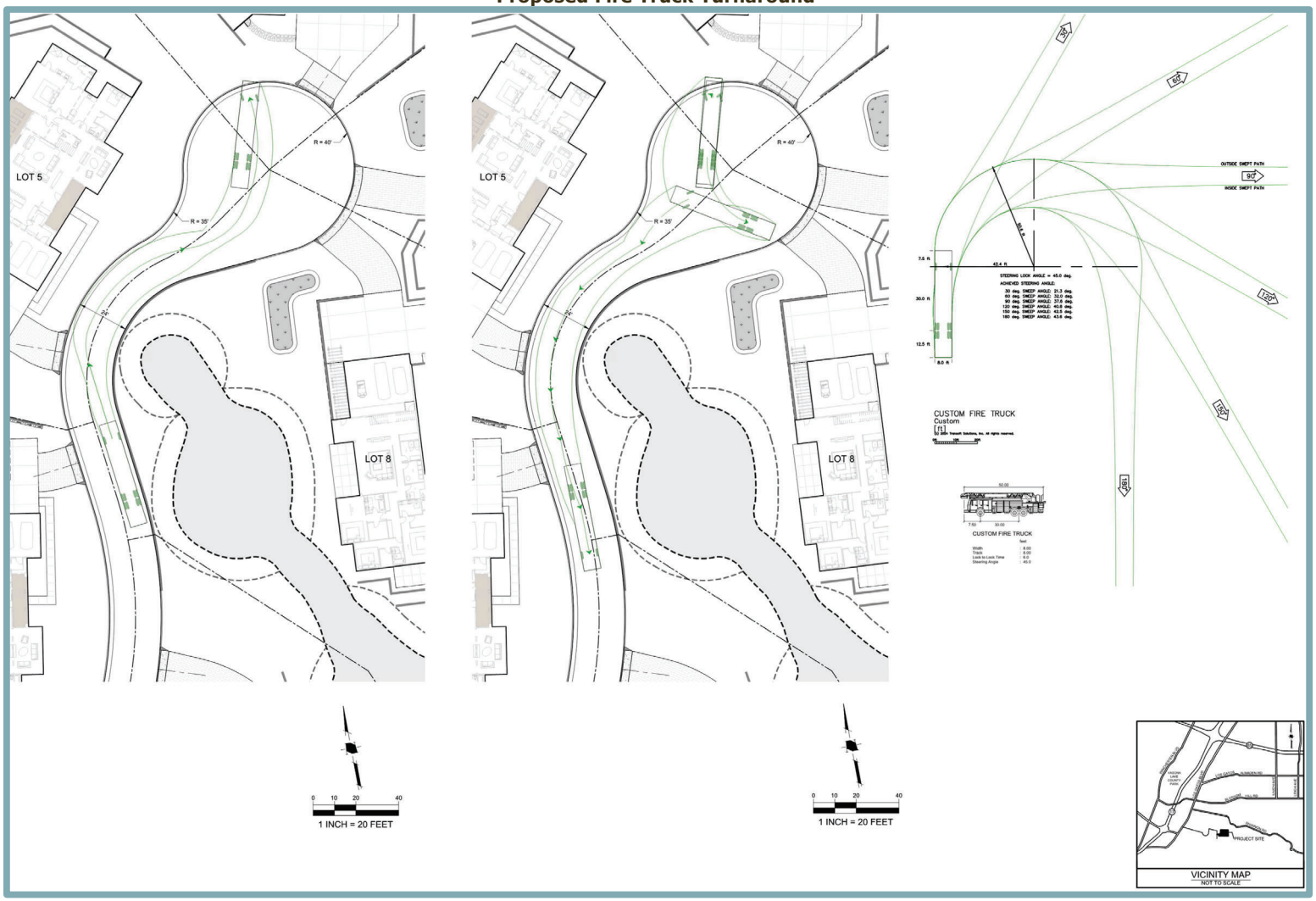
c,d. Several factors generally determine whether a project has sufficient access for emergency vehicles, including the number of access points (both public and emergency access only) and width of access points and internal roadways. Access to the project site would be provided primarily through a connection to Twin Oaks Drive known as Surrey Farms Hill. Access to Lots 1 through 9, as well as 11 and 12, would be provided by new private driveways connected to the proposed internal roadway. Site access to Lot 10 would be provided by a new private driveway extending from Cerro Vista Court. In addition, the proposed EVA route connection would extend south from the site to connect to Brooke Acres Drive. As shown in Figure 18, the new internal roadway would be 24 feet wide and would provide sufficient turnaround space for emergency vehicles. Emergency access to Lot 10 would be provided by the new connection to Cerro Vista Court, subject to review and approval by the SCCFD. Whether emergency access is available from Cerro Vista Court would not affect emergency access to Lots 1 through 9, 11 and 12, or any off-site areas. Therefore, the proposed project would not cause or result in inadequate emergency access to any areas within the Town.

In addition, the proposed project would not include any new sharp curves or dangerous intersections, and would not be located in the vicinity of any such roadway features. The design of the internal circulation system would not involve any features that could increase traffic hazards at the site. The proposed connections to Twin Oaks Drive and Cerro Vista Court would be free and clear of any obstructions to provide adequate sight distance, thereby ensuring that exiting vehicles can see pedestrians and vehicles traveling on the roadways. Any landscaping and signage would be located in such a way to ensure an unobstructed view for drivers exiting the site.

Construction traffic associated with the proposed project would include heavy-duty vehicles which would share the area roadways with normal vehicle traffic, as well as transport of construction materials, and daily construction employee trips to and from the site. However, such heavy-duty truck traffic would only occur throughout the duration of construction activities and would cease upon buildout of the proposed project.

Based on the above, the proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), and would not result in inadequate emergency access. Therefore, a ***less-than-significant*** impact would occur.

Figure 18
Proposed Fire Truck Turnaround



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

Discussion

a,b. In compliance with AB 52, the Town of Los Gatos sent project notification letters to the Costanoan, Northern Valley, Yokut, Bay Miwok, Ohlone, Patwin, Plains Miwok, Bay Miwok, and the Delta Yokut tribes on February 24, 2025. Requests for consultation were not received during the required consultation period.

As discussed in Section V, Cultural Resources, based on a Cultural Resource Evaluation prepared for the proposed project by Holman,[44] known archaeological resources, including Tribal Cultural Resources (TCRs) or human remains, have not been previously documented at the project site.

In addition, compliance with General Plan policies OSP-1 through OSP-4 would generally help ensure that work would stop if archaeological resources (including TCRs) or human remains are identified during construction, but do not specify the appropriate course of action if such resources are discovered. While it is reasonable to anticipate that project development, including the proposed off-site improvements, would not impact TCRs, the potential cannot be dismissed for unknown TCRs to be uncovered during ground-disturbing activities for the proposed project. Therefore, if previously unknown resources are encountered during construction activities, the proposed project could cause a substantial adverse change in the significance of a TCR, defined in PRC section 21074, during construction. As a result, without mitigation, a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

XVIII-1 Implement Mitigation Measures V-1 and V-2.

[44] Holman & Associates Archeological Consultants. *Cultural Resource Study of the Proposed Surrey Farm Estates Project, 170 Twin Oaks Drive, Los Gatos, Santa Clara County, California.* January 25, 2013.

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

Discussion

a-c. Water, sanitary sewer, stormwater, electricity, and telecommunications, services would be provided by way of new connections to existing infrastructure in the project area. Brief discussions of each are included below. It should be noted that the required off-site sidewalk improvements would not include utility infrastructure improvements and, thus, are not discussed further in the following analysis.

Water

Water utilities would be provided through new connections to existing utility lines within the project vicinity, including an eight-inch water main located within Twin Oaks Drive. A new eight-inch water main would be extended east within the proposed internal roadway. Water service laterals would be extended from the water main to each lot. In addition, Lot 10 would connect to the existing six-inch water main within Cerro Vista Court.

Water supplies in the Town of Los Gatos are provided by SJW. Water supply is currently provided to SJW through a number of sources, including purchased water from SCWVD, groundwater from the Santa Clara Subbasin, surface water, and recycled water. However, the majority of water supplied to SJW is through a treated water contract with SCWVD. Thus, SJW used information received from SCWVD to inform SJW's Water Supply Reliability Analysis. Based on the SCWVD 2020 UWMP, SCWVD will have sufficient supplies to meet SJW's and other retailers' demands through 2045 under average year, single-dry year, and five consecutive dry year conditions, and under a Drought Risk Assessment (DRA) condition for a drought that lasts five consecutive years.[45] In addition, according to the SCWVD UWMP, water supplies are projected to exceed expected

[45] San Jose Water Company. *2020 Urban Water Management Plan*. June 2021.

demand for normal year, single-dry year, and multiple-dry year scenarios through 2045.[46] Therefore, SJW would be able to continue purchasing water from SCWVD through all future scenarios.

As discussed in Section X, Hydrology and Water Quality, of this IS/MND, while the on-site development of 12 proposed single-family residences would increase water usage beyond the current on-site water demand, the relatively minor increase in water usage would not be considered substantial, as the Santa Clara Subbasin has an operational storage capacity of approximately 350,000 AF per year, and both SCWVD and SJW have sufficient water supplies through 2045. The project would also comply with Chapter 26.40 of the Town's Municipal Code, which contains the Town's Water Efficient Landscape Ordinance.

Based on the above, SJW would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Sewer Service

Sewer service would be provided through new connections to existing utility lines within the project vicinity, including an eight-inch sewer main located within Twin Oaks Drive and a six-inch line in Cerro Vista Court. With the exception of Lot 10, the proposed residential lots would connect to the new six-inch sanitary sewer line within the internal roadway. Lot 10 would connect to the Cerro Vista Court line by way of a new four-inch sewer line.

Within the Town of Los Gatos, sewer service is provided by the West Valley Sanitation District. Wastewater treatment for the project site would occur at the San Jose/Santa Clara Water Pollution Control Plant (WPCP) located in Alviso. The WPCP has a licensed capacity of 167 million gallons per day (MGD) and treats an average of 110 MGD.[47]

While the 12 proposed single-family residences would increase wastewater generation associated with the site, the relatively minor increase in wastewater would not be considered substantial, as the WPCP has a remaining capacity of 57 MGD. In addition, 2040 General Plan Policy PFS-2.1 ensures that the Town supports the West Valley Sanitation District's efforts to maintain wastewater conveyance, treatment, and disposal infrastructure in good working condition in order to supply municipal sewer service to the Town's residents and businesses. Thus, the West Valley Sanitation District would have adequate capacity to serve the wastewater demand projected for the proposed project in addition to the Town's existing commitments.

Stormwater Systems

Because the project site is currently undeveloped, development of the proposed project would result in an increase in on-site impervious surfaces such as roofs, sidewalks, and driveways, which would increase the flow of stormwater runoff. However, the proposed project would include installation of new storm drain inlets to capture on-site storm runoff and convey flows through a network of storm drain lines ranging between 15 and 27 inches in diameter to on-site bioretention areas for treatment. Lots 1 to 4 and 7 through 10 would each include an individual bioretention area, and Lots 5 and 6 would share a bioretention

[46] Santa Clara Valley Water District. *2020 Urban Water Management Plan* [pg. 47 and 48]. June 2021.
[47] City of San Jose. *San Jose-Santa Clara Regional Wastewater Facility.* Available at: https://www.sanjoseca.gov/your-government/departments-offices/environmental-services/water-utilities/regional-wastewater-facility. Accessed October 2023.

area. The stormwater bioretention basins would be sized and designed to meet the Town's C3 design criteria, and would filter and remove contaminants from runoff. Following on-site treatment, stormwater flows would be directed to the existing 27- and 36-inch storm drains located north and west of the site, respectively. As discussed under Section X, Hydrology and Water Quality, of this IS/MND, the proposed on-site stormwater infrastructure would be sized to meet Provision C.3.g of the County's MRP, which requires new development to manage stormwater flows such that post-development runoff does not exceed pre-project runoff rates and durations. As such, the proposed project would not require major relocation or expansion of any stormwater infrastructure, as adequate stormwater facilities would be provided to serve the project.

Other Utilities

Electric and telecommunications utilities would be provided by way of connections to existing infrastructure located within the immediate project vicinity. The proposed project would not require major upgrades to, or extension of, existing infrastructure. Thus, impacts to electricity and telecommunications infrastructure would be less than significant.

Conclusion

Based on the above, the utility infrastructure within the project vicinity has been designed with adequate capacity to accommodate demand from the proposed project. Therefore, the project would result in a ***less-than-significant*** impact related to the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

d,e. Solid waste, recyclable materials, and compostable material collection within the Town of Los Gatos is provided through West Valley Collection and Recycling. Solid waste from the Town is ultimately disposed of at the Guadalupe Sanitary Landfill, located at 15999 Guadalupe Mines Road in San Jose. As of 2011, the landfill had approximately 11,055,000 cubic yards (CY) of remaining capacity, or 38.7 percent of the total permitted capacity of the landfill (28,600,000 CY).[48]

During operation, the residents would produce solid waste that would be collected by West Valley Collection and Recycling and transferred to the Guadalupe Sanitary Landfill. Operational solid waste generation from the 12 proposed single-family residences has been estimated based on an average waste generation rate for single-family residential development of 10.2 pounds per unit per day.[49] As such, approximately 122.4 pounds of solid waste per day would be generated by the proposed residential development on-site. Such an increase would be a small contribution to the facility's total permitted capacity and would not be considered a substantial amount of waste, as the facility has adequate capacity to accept such waste.

In addition, the project would be required to comply with all federal, State, and local statutes and regulations related to solid waste and recycling. Pursuant to the CALGreen Code, at least 65 percent diversion of construction waste is required.

---

[48] Department of Resources Recycling and Recovery. *SWIS Facility/Site Activity Details – Guadalupe Sanitary Landfill (43-AN-0015).* Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1376?siteID=3399. Accessed October 2023.

[49] California Department of Resources Recycling and Recovery. *Estimated Solid Waste Generation Rates*. Available at: https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates. Accessed October 2023.

Based on the above, the proposed project would not 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 and would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Thus, a ***less-than-significant*** impact related to solid waste would occur as a result of the proposed project.

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

Discussion

a-d. According to maps prepared as part of the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the project site is not located within an SRA; however, the site is located within a Very High FHSZ.[50]

The project site is currently undeveloped and contains scattered oak woodlands throughout. Development of the proposed residential uses would include the clearing of on-site fuel sources and, thus, is not anticipated to increase wildfire risks at the site relative to the existing conditions within the project site. Additionally, the proposed project would be required to comply with all applicable requirements of the CFC through the installation of fire sprinkler systems, fire hydrants, and other applicable requirements. In addition, the proposed project would be subject to the requirements of Chapter 7A of the CBC which include, but are not limited to, use of ignition-resistant materials, fire-intrusion design of roofing and vents, and use of glazed exterior windows and doors. The proposed project would also be situated near existing roads, water lines, and other utilities, which would reduce risks related to wildfire due to the existing development generally acting as a fuel break because of a lack of natural debris (e.g., vegetation) within developed sites.

Wildfire risks are not anticipated to be exacerbated during project operation, as the anticipated residential uses typically do not involve operational components that would increase the risk of wildfire. Development of the site for residential uses would help to reduce the risk of wildland fire in the area due to site improvements, such as roadways, driveways, and irrigated landscaping, which would reduce readily combustible vegetation. Additionally, pursuant to Mitigation Measure VII-1, the project design would be required to show that final grading or improvement plans incorporate all recommendations included within the site-specific GGHI prepared for the proposed project to ensure slope stability at the project site. Furthermore, as shown in Figure 16 of the IS/MND, the proposed project locates the residences outside of the areas of the site with the steepest slopes. Although some slopes occur within the project site, the on-site slopes are limited in size and are not

[50] California Department of Forestry and Fire Protection. *Santa Clara County: State Responsibility Area Fire Hazard Severity Zones*. Effective April 1, 2024.

sufficient to facilitate rapid spread of wildfire, as compared to mountainous areas with slopes sufficiently large enough to accommodate rapid spread of wildfire. As a result, the proposed project would not exacerbate wildfire risks due to slope. The off-site improvement areas do not include significant slopes.

As discussed in Section IX, Hazards and Hazardous Materials, of this IS/MND implementation of the proposed project would not result in any substantial modifications to the existing roadway system and, thus, would not physically interfere with the Town's EOP, particularly with any emergency evacuation routes. Furthermore, the proposed project would not include land uses or operations that could impair implementation of the plan. While the long-term maintenance of the proposed roadways, water and wastewater infrastructure, and other utilities would not exacerbate fire risks, the activities associated with the initial construction and placement of the utilities and infrastructure could cause a temporary increase in fire risks due to the use of heavy equipment, which would contain combustible materials such as fuels, oils, and ignition sources. However, the project contractor would be required to comply with all applicable health and safety standards, including the California Health and Safety Codes and local Town ordinances regulating the handling, storage, and transportation of hazardous materials. Compliance with such standards would help to minimize the potential for accidental conditions, including fire.

~~Additionally, the Santa Clara County Fire Department~~ SCCFD has also adopted Genasys Protect (formerly known as Zonehaven) to provide specific, timely and accurate information regarding evacuations within the County. Genasys Protect divides geographic regions into smaller zones to help simplify evacuations. In the event of a wildfire or public safety emergency, fire department and law enforcement agencies will issue evacuation orders and other protective actions for impacted areas. Genasys Protect is a web-based platform that provides real-time evacuation updates. The project site is located within Zone LGA-008, which includes the area north of Kennedy Road, south of Blossom Hill Road, east of Los Gatos Boulevard, and west of Short Road and Brooke Acres Drive.[51]

Therefore, the proposed project would not be expected to be subject to or result in substantial adverse effects related to wildfires, and a ***less-than-significant*** impact would occur.

[51] Protect Genasys. *Genasys Protect*. Available at: https://protect.genasys.com/zones/US-CA-XSC-LGA-008. Accessed May 2025.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less-Than-Significant 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?	☐	☐	✖	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	✖	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	✖	☐

Discussion

a. As discussed in Section IV, Biological Resources, of this IS/MND, while the potential exists for several special-status species to occur on-site, Mitigation Measures IV-1 through IV-8 would ensure that impacts to such species would be less than significant. The project site does not contain any known historic or precontact resources. Thus, implementation of the proposed project is not anticipated to have the potential to result in impacts related to historic or precontact resources. Nevertheless, Mitigation Measures V-1 and V-2 would ensure that in the event that archaeological and paleontological resources are discovered within the project site during construction activities, such resources are protected in compliance with the requirements of CEQA.

Considering the above, the proposed project would not: 1) degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. Therefore, a ***less-than-significant*** impact would occur.

b. The proposed project in conjunction with other reasonably foreseeable development within the Town of Los Gatos could incrementally contribute to cumulative impacts in the area. The 2040 General Plan EIR evaluated the potential growth of up to 3,738 residential units, and the 6th Cycle Housing Element Update included 2,371 units. In addition, 16 proposed projects within the Town are subject to SB 330 and/or Builder's Remedy. As of June 2025, three of the foregoing projects have been approved by the Town, and 10 are currently under review. It is important to note that several of these SB 330 projects are identified Housing Element sites in the 6th Cycle Housing Element Update. These include North40 Phase II (450 units), Los Gatos Lodge (155 units), N40 "The Luxe" (120 units), ACE Property "The Arya" (175 units), Genuine Automotive (55 units), Walnut Orchard (138 units), 76 Gas Station (23 units), and Happy Cleaners (10 units).

Impacts related to many of the resource areas addressed in this IS/MND are localized, site-specific, and/or project-specific and not cumulative in nature. For example, the creation of glare or shadows at one location is not worsened by glare or shadows created at another location. Projects that block a view or affect the visual quality of a site also typically have localized aesthetic impacts. Impacts to a subsurface archaeological find at one project site would not generally be made worse by impacts to a cultural or tribal cultural resource at another site due to development of another project. Rather, the resources and the effects upon them are generally independent. Similarly, impacts related to soil conditions at one project site are not worsened by impacts from development on another site with unstable soil conditions at another project site. Rather, the soil conditions, and the implications of such conditions for each project, are independent. Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific as well and would not be significantly affected by other development within the project area.

Furthermore, it is important to understand that CEQA allows for a project's incremental contribution to a significant cumulative impact to be found less than cumulatively considerable. For a cumulative impact analysis pursuant to CEQA Guidelines Section 15130, the lead agency should generally undertake a two-step analysis. The first question is whether the *combined* effects from *both* the proposed project *and* other projects would be cumulatively significant. If the agency answers this inquiry in the affirmative, the second question is whether "the proposed project's *incremental* effects are cumulatively considerable." (*Communities for a Better Environment*, *supra*, 103 Cal.App.4th at p. 120 [emphasis added]) In other words, it is possible that the "cumulative impact" of multiple projects would be significant, but that the incremental contribution to that impact from a particular project may not itself be "cumulatively considerable." Thus, CEQA Guidelines Section 15064, subdivision (h)(5), states that "[t]he mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." In conclusion, it is not necessarily true that, even where cumulative impacts are significant, *any* level of incremental contribution must be deemed cumulatively considerable. (*Communities for a Better Environment*, *supra*, 103 Cal.App.4th at p. 120.)

Based on the results of the preceding analysis, and the foregoing additional cumulative discussion, this 12-unit residential project is not anticipated to have a cumulatively considerable incremental contribution to significant cumulative impacts that may otherwise be caused by pending and approved projects.

With respect to cumulative transportation impacts, public concerns have been raised about increased congestion, particularly along Los Gatos Boulevard, where several of the SB 330 projects are located. Pursuant to the CEQA Guidelines Section 15064.3, environmental analysis documents must use VMT rather than LOS as the metric to analyze transportation impacts. Section 21099(b)(2) of the California PRC states that "automobile delay, as described solely by level of service or similar measures of vehicle capacity or traffic congestion, shall not be considered a significant impact on the environment." The State's requirement to transition from LOS to VMT is instead aimed at promoting infill development, public health through active transportation, and a reduction in GHG emissions. Overall, the transition from LOS alters the focus of CEQA analysis from congestion to more physical impacts on the environment related to vehicle trips. Accordingly, impacts related to traffic congestion are not required to be evaluated pursuant to CEQA, and thus, are appropriately not addressed herein.

With respect to cumulative noise impacts, the primary concern related to cumulative noise levels is increased traffic noise. As previously discussed, a doubling in traffic volumes is generally required to noticeably increase traffic noise levels. The project site is located in an area that is already developed; any proposed or anticipated projects located near the project site only involve the redevelopment of already-developed parcels rather than any development of vacant sites. For example, a parcel to the east of the project site at 15995 Cerro Vista Drive has applied for site improvements requiring a grading permit, and a project located at 16005 Shannon Road north of the project site has requested approval for the demolition of an existing single-family residence and construction of a new single-family residence with reduced setbacks. As such, undeveloped parcels in the project vicinity that could be developed to double traffic volumes on surrounding roadways do not exist. Thus, the project's increase in vehicle trips in addition to cumulative development within the Town would not combine to cause a significant impact not already identified in the Town's General Plan.

With respect to water supply, the 12 proposed single-family residences would increase water usage on-site beyond the existing water demand. However, given the relatively minor increase in water usage that would result from a net increase in 12 residences, the proposed project would not substantially increase groundwater usage beyond the water supply demand accounted for in the SJW 2020 UWMP. According to the 2020 UWMP, water supplies are projected to meet expected demand for normal year, single-dry year, and multiple-dry year scenarios through 2045.[52] As SJW's wholesale water supplier, Valley Water provides or manages the majority of SJW's water supplies. Thus, in its UWMP, SJW used information received from Valley Water to inform SJW's Water Supply Reliability Analysis. According to Valley Water's 2020 UWMP, after accounting for projected demand from existing and foreseeable development, the District estimates having a surplus of at least 116,000 AF for normal years, at least 25,000 AF for single-dry years, and at least 10,000 AF for multiple-dry year scenarios through 2045.[53] Therefore, it is reasonable to conclude that sufficient water supply exists to accommodate the project's water supply in combination with other pending and approved projects within the Town of Los Gatos.

As demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of project development would be reduced to a less-than-significant level through compliance with the mitigation measures included in this IS/MND, as well as applicable General Plan policies, Municipal Code standards, and other applicable local and State regulations, and would not result in adverse health or safety effects to existing or future residents in the area. Overall, due to the relatively minor increase of 12 residential units in an area surrounded by existing development, and with implementation of the mitigation measures included in this IS/MND and compliance with all applicable regulations, the project's incremental contribution towards any identified cumulative impacts would be less than cumulatively considerable.

Therefore, when viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, development of the proposed project would not result in a cumulatively considerable contribution to cumulative impacts in the Town of Los Gatos, and the project's incremental contribution to cumulative impacts would be ***less than significant***.

---

52 San Jose Water Company. *2020 Urban Water Management Plan* [pg. 7-1]. June 2021.
53 Santa Clara Valley Water District. *2020 Urban Water Management Plan* [see Tables 7-2, 7-3, and 7-4]. June 2021.

c. As described in this IS/MND, although the project is subject to SB 330 Builder's Remedy, the proposed project has been designed to comply with a variety of applicable General Plan policies, Municipal Code standards, and other applicable local and State regulations, and would be required to implement the mitigation measures included herein. In addition, as discussed in the Air Quality, Geology and Soils, Hazards and Hazardous Materials, Greenhouse Gas Emissions, and Noise sections of this IS/MND, the proposed project would not cause substantial adverse effects to human beings, which cannot be mitigated to less-than-significant levels, including effects related to exposure to air pollutants, geologic hazards, GHG emissions, hazardous materials, and excessive noise. As such, the proposed project would not result in direct or indirect impacts to human beings and, thus, the project's impact would be ***less-than-significant***.

APPENDIX A

AIR QUALITY AND GREENHOUSE GAS MODELING RESULTS

Twin Oaks Lots 1-12 (Surrey Farms) v2 Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

3.3. Grading (2025) - Unmitigated

3.5. Grading (2026) - Unmitigated

3.7. Building Construction (2026) - Unmitigated

3.9. Building Construction (2027) - Unmitigated

3.11. Paving (2026) - Unmitigated

3.13. Architectural Coating (2026) - Unmitigated

3.15. Architectural Coating (2027) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Twin Oaks Lots 1-12 (Surrey Farms) v2
Construction Start Date	9/1/2025
Operational Year	2027
Lead Agency	Town of Los Gatos
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	12.8
Location	37.225321111983384, -121.95178138638185
County	Santa Clara
City	Los Gatos
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1946
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Single Family Housing	12.0	Dwelling Unit	5.38	23,400	134,000	—	36.0	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.00	3.37	31.7	30.9	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,445	5,445	0.22	0.05	0.59	5,466
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.00	3.37	31.7	30.8	0.06	1.37	19.8	21.2	1.26	10.1	11.4	—	7,849	7,849	0.52	0.78	0.28	8,096
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.58	1.38	8.30	10.5	0.02	0.31	3.88	4.17	0.28	1.95	2.21	—	2,237	2,237	0.11	0.08	0.45	2,265
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.29	0.25	1.52	1.91	< 0.005	0.06	0.71	0.76	0.05	0.36	0.40	—	370	370	0.02	0.01	0.07	375

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.00	3.37	31.7	30.9	0.05	1.37	19.8	21.2	1.26	10.1	11.4	—	5,445	5,445	0.22	0.05	0.59	5,466

2026	2.36	2.12	10.8	14.3	0.03	0.40	0.05	0.45	0.37	0.01	0.38	—	2,608	2,608	0.11	0.03	0.24	2,619
2027	2.30	2.07	10.3	14.3	0.03	0.36	0.05	0.41	0.33	0.01	0.34	—	2,607	2,607	0.11	0.03	0.22	2,618
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	4.00	3.37	31.7	30.8	0.06	1.37	19.8	21.2	1.26	10.1	11.4	—	7,849	7,849	0.52	0.78	0.28	8,096
2026	2.48	2.12	21.1	20.8	0.06	0.70	8.48	9.18	0.65	3.80	4.45	—	7,752	7,752	0.49	0.78	0.27	7,997
2027	2.30	2.07	10.3	14.2	0.03	0.36	0.05	0.41	0.33	0.01	0.34	—	2,604	2,604	0.11	0.03	0.01	2,614
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.85	0.69	6.88	6.65	0.01	0.28	3.88	4.17	0.26	1.95	2.21	—	1,477	1,477	0.07	0.07	0.39	1,499
2026	1.58	1.38	8.30	10.5	0.02	0.31	0.76	1.07	0.28	0.34	0.62	—	2,237	2,237	0.11	0.08	0.45	2,265
2027	0.98	0.88	4.27	5.91	0.01	0.15	0.02	0.17	0.14	0.01	0.14	—	1,079	1,079	0.04	0.01	0.04	1,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.16	0.13	1.26	1.21	< 0.005	0.05	0.71	0.76	0.05	0.36	0.40	—	245	245	0.01	0.01	0.06	248
2026	0.29	0.25	1.52	1.91	< 0.005	0.06	0.14	0.20	0.05	0.06	0.11	—	370	370	0.02	0.01	0.07	375
2027	0.18	0.16	0.78	1.08	< 0.005	0.03	< 0.005	0.03	0.02	< 0.005	0.03	—	179	179	0.01	< 0.005	0.01	179

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.06	1.02	0.41	3.79	0.01	0.02	0.74	0.75	0.02	0.19	0.20	5.90	1,082	1,088	0.66	0.03	2.69	1,117
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.98	0.94	0.45	2.89	0.01	0.02	0.74	0.75	0.02	0.19	0.20	5.90	1,033	1,039	0.66	0.04	0.23	1,067

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.00	0.96	0.43	3.09	0.01	0.02	0.71	0.73	0.02	0.18	0.20	5.90	952	958	0.65	0.03	1.23	985
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.18	0.18	0.08	0.56	< 0.005	< 0.005	0.13	0.13	< 0.005	0.03	0.04	0.98	158	159	0.11	0.01	0.20	163

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.39	0.36	0.26	3.05	0.01	< 0.005	0.74	0.74	< 0.005	0.19	0.19	—	781	781	0.03	0.03	2.53	793
Area	0.65	0.65	0.01	0.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	75.5	75.5	0.01	< 0.005	—	76.2
Energy	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	219	219	0.02	< 0.005	—	220
Water	—	—	—	—	—	—	—	—	—	—	—	0.83	6.40	7.24	0.09	< 0.005	—	10.0
Waste	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	1.06	1.02	0.41	3.79	0.01	0.02	0.74	0.75	0.02	0.19	0.20	5.90	1,082	1,088	0.66	0.03	2.69	1,117
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.37	0.34	0.31	2.83	0.01	< 0.005	0.74	0.74	< 0.005	0.19	0.19	—	734	734	0.03	0.03	0.07	744
Area	0.59	0.59	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	73.7	73.7	0.01	< 0.005	—	74.4
Energy	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	219	219	0.02	< 0.005	—	220
Water	—	—	—	—	—	—	—	—	—	—	—	0.83	6.40	7.24	0.09	< 0.005	—	10.0
Waste	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	0.98	0.94	0.45	2.89	0.01	0.02	0.74	0.75	0.02	0.19	0.20	5.90	1,033	1,039	0.66	0.04	0.23	1,067

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.36	0.33	0.28	2.70	0.01	< 0.005	0.71	0.72	< 0.005	0.18	0.19	—	724	724	0.03	0.03	1.07	735
Area	0.62	0.62	< 0.005	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	2.71	2.71	< 0.005	< 0.005	—	2.74
Energy	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	219	219	0.02	< 0.005	—	220
Water	—	—	—	—	—	—	—	—	—	—	—	0.83	6.40	7.24	0.09	< 0.005	—	10.0
Waste	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	1.00	0.96	0.43	3.09	0.01	0.02	0.71	0.73	0.02	0.18	0.20	5.90	952	958	0.65	0.03	1.23	985
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	0.06	0.05	0.49	< 0.005	< 0.005	0.13	0.13	< 0.005	0.03	0.03	—	120	120	0.01	0.01	0.18	122
Area	0.11	0.11	< 0.005	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.45	0.45	< 0.005	< 0.005	—	0.45
Energy	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.3	36.3	< 0.005	< 0.005	—	36.4
Water	—	—	—	—	—	—	—	—	—	—	—	0.14	1.06	1.20	0.01	< 0.005	—	1.66
Waste	—	—	—	—	—	—	—	—	—	—	—	0.84	0.00	0.84	0.08	0.00	—	2.93
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	0.18	0.18	0.08	0.56	< 0.005	< 0.005	0.13	0.13	< 0.005	0.03	0.04	0.98	158	159	0.11	0.01	0.20	163

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.94	3.31	31.6	30.2	0.05	1.37	—	1.37	1.26	—	1.26	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.65	0.54	5.20	4.96	0.01	0.22	—	0.22	0.21	—	0.21	—	870	870	0.04	0.01	—	873
Dust From Material Movement	—	—	—	—	—	—	3.23	3.23	—	1.66	1.66	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.12	0.10	0.95	0.91	< 0.005	0.04	—	0.04	0.04	—	0.04	—	144	144	0.01	< 0.005	—	145
Dust From Material Movement	—	—	—	—	—	—	0.59	0.59	—	0.30	0.30	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.72	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	150	150	< 0.005	0.01	0.59	152
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.61	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	139	139	< 0.005	0.01	0.02	141
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.1	23.1	< 0.005	< 0.005	0.04	23.4
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.82	3.82	< 0.005	< 0.005	0.01	3.88
Vendor	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	0.00
Hauling	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	0.00

3.3. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.07	1.74	16.3	17.9	0.03	0.72	—	0.72	0.66	—	0.66	—	2,959	2,959	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	7.12	7.12	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.13	1.21	1.33	< 0.005	0.05	—	0.05	0.05	—	0.05	—	220	220	0.01	< 0.005	—	221
Dust From Material Movement	—	—	—	—	—	—	0.53	0.53	—	0.26	0.26	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.02	0.22	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	36.4	36.4	< 0.005	< 0.005	—	36.6
Dust From Material Movement	—	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.53	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	119	119	< 0.005	0.01	0.01	121
Vendor	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	0.00
Hauling	0.50	0.10	6.27	2.94	0.03	0.09	1.23	1.32	0.06	0.34	0.40	—	4,771	4,771	0.40	0.75	0.27	5,005
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.95	8.95	< 0.005	< 0.005	0.02	9.08
Vendor	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	0.00
Hauling	0.04	0.01	0.46	0.22	< 0.005	0.01	0.09	0.10	< 0.005	0.02	0.03	—	355	355	0.03	0.06	0.33	372
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.48	1.48	< 0.005	< 0.005	< 0.005	1.50
Vendor	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	0.00
Hauling	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	58.7	58.7	< 0.005	0.01	0.06	61.7

3.5. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.96	1.65	15.0	17.4	0.03	0.65	—	0.65	0.59	—	0.59	—	2,960	2,960	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	7.12	7.12	—	3.43	3.43	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.29	1.50	< 0.005	0.06	—	0.06	0.05	—	0.05	—	255	255	0.01	< 0.005	—	256
Dust From Material Movement	—	—	—	—	—	—	0.61	0.61	—	0.30	0.30	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.24	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	42.2	42.2	< 0.005	< 0.005	—	42.3

Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.49	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	117	117	< 0.005	0.01	0.01	118
Vendor	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	0.00
Hauling	0.47	0.10	6.06	2.85	0.03	0.06	1.23	1.29	0.06	0.34	0.40	—	4,676	4,676	0.37	0.75	0.25	4,909
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.2	10.2	< 0.005	< 0.005	0.02	10.3
Vendor	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	0.00
Hauling	0.04	0.01	0.51	0.24	< 0.005	0.01	0.11	0.11	0.01	0.03	0.03	—	402	402	0.03	0.06	0.36	423
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.68	1.68	< 0.005	< 0.005	< 0.005	1.71
Vendor	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	0.00
Hauling	0.01	< 0.005	0.09	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	66.6	66.6	0.01	0.01	0.06	70.0

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.85	13.0	0.02	0.38	—	0.38	0.35	—	0.35	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73	0.61	5.61	7.38	0.01	0.22	—	0.22	0.20	—	0.20	—	1,365	1,365	0.06	0.01	—	1,370
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.11	1.02	1.35	< 0.005	0.04	—	0.04	0.04	—	0.04	—	226	226	0.01	< 0.005	—	227
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	36.3	36.3	< 0.005	< 0.005	0.13	36.9
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.0	34.0	< 0.005	< 0.005	0.08	35.6
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.7	33.7	< 0.005	< 0.005	< 0.005	34.1
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.0	34.0	< 0.005	< 0.005	< 0.005	35.6
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.4	19.4	< 0.005	< 0.005	0.03	19.7
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.4	19.4	< 0.005	< 0.005	0.02	20.3
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.21	3.21	< 0.005	< 0.005	0.01	3.25
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.21	3.21	< 0.005	< 0.005	< 0.005	3.35
Hauling	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	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34	—	0.34	0.31	—	0.31	—	2,397	2,397	0.10	0.02	—	2,405
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	0.43	3.88	5.34	0.01	0.14	—	0.14	0.13	—	0.13	—	990	990	0.04	0.01	—	993
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.08	0.71	0.97	< 0.005	0.03	—	0.03	0.02	—	0.02	—	164	164	0.01	< 0.005	—	164
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.7	35.7	< 0.005	< 0.005	0.12	36.2
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.3	33.3	< 0.005	< 0.005	0.07	34.9
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	33.0	33.0	< 0.005	< 0.005	< 0.005	33.5
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	33.3	33.3	< 0.005	< 0.005	< 0.005	34.9
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.02	14.0
Vendor	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	13.8	13.8	< 0.005	< 0.005	0.01	14.4
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.32
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.28	2.28	< 0.005	< 0.005	< 0.005	2.39
Hauling	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	0.00

3.11. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.12	9.94	0.01	0.32	—	0.32	0.29	—	0.29	—	1,511	1,511	0.06	0.01	—	1,516
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Roa Equipment	0.05	0.04	0.39	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Roa d Equipm ent	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.04	0.49	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	117	117	< 0.005	0.01	0.01	118
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.47	6.47	< 0.005	< 0.005	0.01	6.57
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.07	1.07	< 0.005	< 0.005	< 0.005	1.09
Vendor	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	0.00
Hauling	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	0.00

3.13. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.92	0.92	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	0.12	0.86	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.92	0.92	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.46	0.61	< 0.005	0.01	—	0.01	0.01	—	0.01	—	72.4	72.4	< 0.005	< 0.005	—	72.6

Architect Coatings	0.50	0.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.0	12.0	< 0.005	< 0.005	—	12.0
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.26	7.26	< 0.005	< 0.005	0.03	7.38
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.73	6.73	< 0.005	< 0.005	< 0.005	6.82
Vendor	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	0.00
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.69	3.69	< 0.005	< 0.005	0.01	3.74
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.62
Vendor	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	0.00
Hauling	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	0.00

3.15. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.92	0.92	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.11	0.83	1.13	< 0.005	0.02	—	0.02	0.02	—	0.02	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.92	0.92	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.37	0.50	< 0.005	0.01	—	0.01	0.01	—	0.01	—	58.8	58.8	< 0.005	< 0.005	—	59.0
Architectural Coatings	0.40	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.73	9.73	< 0.005	< 0.005	—	9.77
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.13	7.13	< 0.005	< 0.005	0.02	7.24
Vendor	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	0.00
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.61	6.61	< 0.005	< 0.005	< 0.005	6.70
Vendor	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	0.00

Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.94	2.94	< 0.005	< 0.005	< 0.005	2.98
Vendor	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	0.00
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.49	0.49	< 0.005	< 0.005	< 0.005	0.49
Vendor	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	0.00
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.39	0.36	0.26	3.05	0.01	< 0.005	0.74	0.74	< 0.005	0.19	0.19	—	781	781	0.03	0.03	2.53	793
Total	0.39	0.36	0.26	3.05	0.01	< 0.005	0.74	0.74	< 0.005	0.19	0.19	—	781	781	0.03	0.03	2.53	793
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.37	0.34	0.31	2.83	0.01	< 0.005	0.74	0.74	< 0.005	0.19	0.19	—	734	734	0.03	0.03	0.07	744

Total	0.37	0.34	0.31	2.83	0.01	< 0.005	0.74	0.74	< 0.005	0.19	0.19	—	734	734	0.03	0.03	0.07	744
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.07	0.06	0.05	0.49	< 0.005	< 0.005	0.13	0.13	< 0.005	0.03	0.03	—	120	120	0.01	0.01	0.18	122
Total	0.07	0.06	0.05	0.49	< 0.005	< 0.005	0.13	0.13	< 0.005	0.03	0.03	—	120	120	0.01	0.01	0.18	122

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	41.5	41.5	0.01	< 0.005	—	41.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	41.5	41.5	0.01	< 0.005	—	41.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	41.5	41.5	0.01	< 0.005	—	41.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	41.5	41.5	0.01	< 0.005	—	41.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	6.87	6.87	< 0.005	< 0.005	—	6.93
Total	—	—	—	—	—	—	—	—	—	—	—	—	6.87	6.87	< 0.005	< 0.005	—	6.93

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	178	178	0.02	< 0.005	—	178
Total	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	178	178	0.02	< 0.005	—	178
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	178	178	0.02	< 0.005	—	178
Total	0.02	0.01	0.14	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	178	178	0.02	< 0.005	—	178
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	29.4	29.4	< 0.005	< 0.005	—	29.5
Total	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	29.4	29.4	< 0.005	< 0.005	—	29.5

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	73.7	73.7	0.01	< 0.005	—	74.4

Consum Products	0.50	0.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	0.01	0.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.82	1.82	< 0.005	< 0.005	—	1.83
Total	0.65	0.65	0.01	0.68	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	75.5	75.5	0.01	< 0.005	—	76.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	73.7	73.7	0.01	< 0.005	—	74.4
Consumer Products	0.50	0.50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.59	0.59	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	73.7	73.7	0.01	< 0.005	—	74.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.30	0.30	< 0.005	< 0.005	—	0.30
Consumer Products	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.01	0.01	< 0.005	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.15	0.15	< 0.005	< 0.005	—	0.15
Total	0.11	0.11	< 0.005	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	0.45	0.45	< 0.005	< 0.005	—	0.45

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.83	6.40	7.24	0.09	< 0.005	—	10.0
Total	—	—	—	—	—	—	—	—	—	—	—	0.83	6.40	7.24	0.09	< 0.005	—	10.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.83	6.40	7.24	0.09	< 0.005	—	10.0
Total	—	—	—	—	—	—	—	—	—	—	—	0.83	6.40	7.24	0.09	< 0.005	—	10.0
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.14	1.06	1.20	0.01	< 0.005	—	1.66
Total	—	—	—	—	—	—	—	—	—	—	—	0.14	1.06	1.20	0.01	< 0.005	—	1.66

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Total	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Total	—	—	—	—	—	—	—	—	—	—	—	5.07	0.00	5.07	0.51	0.00	—	17.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	0.84	0.00	0.84	0.08	0.00	—	2.93
Total	—	—	—	—	—	—	—	—	—	—	—	0.84	0.00	0.84	0.08	0.00	—	2.93

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Single Family Housing	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03	0.03

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	9/1/2025	11/21/2025	5.00	60.0	—
Grading	Grading	11/24/2025	2/13/2026	5.00	60.0	—
Building Construction	Building Construction	3/16/2026	7/30/2027	5.00	360	—
Paving	Paving	2/16/2026	3/13/2026	5.00	20.0	—
Architectural Coating	Architectural Coating	3/30/2026	8/13/2027	5.00	360	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41

Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	66.6	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—

Building Construction	Worker	4.32	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	1.28	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.86	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	47,385	15,795	0.00	0.00	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	90.0	0.00	—
Grading	21,082	10,878	60.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.13

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Single Family Housing	0.13	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Single Family Housing	113	114	103	40,853	1,033	1,044	936	372,679

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Single Family Housing	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	12
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
47385	15,795	0.00	0.00	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Single Family Housing	74,218	204	0.0330	0.0040	554,663

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Single Family Housing	435,197	1,750,855

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Single Family Housing	9.40	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Single Family Housing	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Single Family Housing	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

8. User Changes to Default Data

Screen	Justification
Land Use	Lot acreage adjusted to represent overall disturbance area associated with the proposed project.
Construction: Construction Phases	Based on typical construction practices, architectural coating assumed to start two weeks after the start of building construction and last for the same number of days. Demolition not required for the proposed project. Phase timing adjusted based on project-specific information provided by the project applicant.
Operations: Hearths	Based on applicant provided information, all 12 units would include electric fireplaces.
Construction: Dust From Material Movement	—

APPENDIX B

BIOLOGICAL EVALUATION REPORT

LIVE OAK
ASSOCIATES, INC.

178 TWIN OAKS DRIVE PROJECT
BIOLOGICAL EVALUATION
LOS GATOS, SANTA CLARA COUNTY, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.

Rick Hopkins, Principal and Senior Conservation Biologist/Ecologist
Katrina Krakow, M.S., Sr. Project Manager and Staff Ecologist
Robert Shields, Field Manager
Amy Patten, Project Manager/Staff Ecologist

Prepared for

Nancy Pham
Raney Management
1501 Sports Drive, Suite A
Sacramento, CA 95834

May 23, 2025 PN 2931-01

OAKHURST
P.O. Box 2697 | 39930 Sierra Way #B
Oakhurst, CA 93644
P: (559) 642-4880 | F: (559) 642-4883

SAN JOSE
6840 Via Del Oro, Suite 220
San Jose, CA 95119
(408) 224-8300

SOUTH LAKE TAHOE
P.O. Box 7314
South Lake Tahoe, CA 96158
(408) 281-5885

WWW.LOAINC.COM

THIS PAGE INTENTIONALLY LEFT BLANK.

TABLE OF CONTENTS

1 INTRODUCTION 1
1.1 PROJECT DESCRIPTION 1
1.2 REPORT OBJECTIVES 3
1.3 STUDY METHODOLOGY 3

2 EXISTING CONDITIONS 5
2.1 PROJECT SITE 5
2.2 BIOTIC HABITATS/LAND USES 5
2.2.1 California Annual Grassland 5
2.2.2 Ruderal 7
2.2.3 Mixed Oak Woodland 7
2.2.4 Ornamental Woodland 8
2.2.5 Creek (Ross Creek) 8
2.2.6 Drainage with Swales 8
2.2.7 Drainage (Seasonal Wetland) 8
2.2.8 Riparian Woodland 9
2.3 WILDLIFE MOVEMENT CORRIDORS 9
2.4 SPECIAL STATUS PLANTS AND ANIMALS 9
2.5 JURISDICTIONAL WATERS 20

3 REGULATORY FRAMEWORK 21
3.1 SIGNIFICANCE CRITERIA 21
3.2 RELEVANT GOALS, POLICIES, AND LAWS 22
3.2.1 Threatened and Endangered Species 22
3.2.2 Migratory Birds 22
3.2.3 Birds of Prey 23
3.2.4 Jurisdictional Waters and Wetlands 23
3.2.5 Local Policies or Habitat Conservation Plans 25
3.3 POTENTIALLY SIGNIFICANT PROJECT IMPACTS/MITIGATION 29
3.3.1 Loss of Habitat for Special Status Plants 29
3.3.2 Loss of Habitat for Special Status Animals 30
3.3.3 Disturbance to Active Raptor and Migratory Birds 30
3.3.4 California Red-legged Frog 31
3.3.5 Impacts to Burrowing Owls 32
3.3.6 Impacts to Roosting Bats 32
3.3.7 Impacts to San Francisco Dusky-Footed Woodrats 33
3.3.8 Impacts to American Badgers 34
3.3.9 Impacts to Wildlife Movement Corridors 35
3.3.10 Disturbance to Native Wildlife Nursery Sites 35
3.3.11 Direct Impacts to Jurisdictional Waters and Sensitive Aquatic Habitats 36
3.3.12 Indirect Impacts to Jurisdictional Waters and Sensitive Aquatic Habitats 36
3.3.13 Local Policies: Town of Los Gatos Tree Ordinance 36
3.3.14 Local Policies: Habitat Conservation Plans 36

4 LITERATURE CITED.....37

1 INTRODUCTION

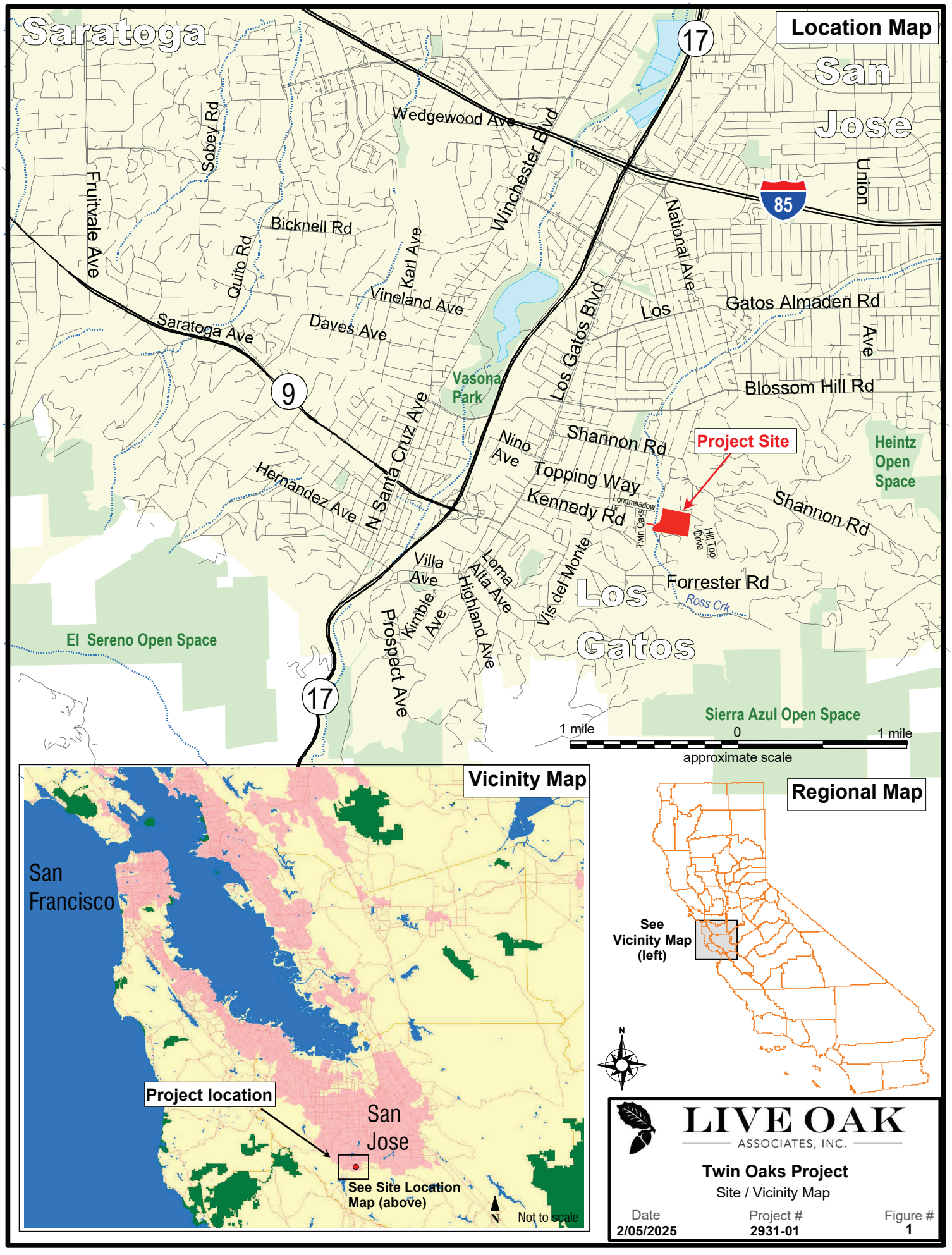
Live Oak Associates, Inc. (LOA) has prepared the following report which describes the biotic resources of the proposed approximately 17.55-acre parcel accessed at 178 Twin Oaks Drive (APN 532-16-006; "Project Site"; "site") and evaluates likely impacts to biological resources resulting from the construction of this project. This report provides an updated assessment of biological resources, as this site was previously evaluated by Wood Biological Consulting, Inc. with data from 2012-2017.

The Project Site is located in the Town of Los Gatos in Santa Clara County, California on an undeveloped hillside bordered by residential development to the west, north, and east and an undeveloped parcel to the south (Figure 1) Hillbrook School, a private elementary school, is adjacent to the northern boundary of the Project Site. A riparian corridor occurs on the west side of the Project Site and scattered trees are located throughout the Site. The Project Site is located within the Los Gatos U.S. Geological Survey (USGS) 7.5-minute quadrangle and is found within Section 22, Township 8 south, Range 1 west.

The Project Site is at the foot of the north slope of the Santa Cruz Mountains and features rolling hills which peak on the southeast side of the parcel. There is an off-site drainage running alongside and to the west of the site. The site is undeveloped with no structures present.

1.1 PROJECT DESCRIPTION

According to the project plans dated May 31, 2024, the project proposes to subdivide the site into 12 lots which would be developed with 12 single-family residences and access roads connected to Twin Oaks Drive and Cerro Vista Court mainly in the eastern portion of the project site. Th western portion of the site is not currently planned for development. Additionally, Ross Creek and the seasonal wetland will be fully avoided and buffered. Ross Creek will be separated from development by a 100-foot flood easement and the seasonal wetland will also be protected by use of an exclusion fence. The project would impact biological resources within the woodland and annual grassland habitats present on the site.


Location Map
Saratoga
San Jose
Los Gatos
Wedgewood Ave
Sobey Rd
Fruitvale Ave
Bicknell Rd
Quito Rd
Karl Ave
Vineland Ave
Daves Ave
Saratoga Ave
Winchester Blvd
Los Gatos Blvd
National Ave
Union
Los Gatos Almaden Rd
Blossom Hill Rd
Vasona Park
Heintz Open Space
Project Site
Shannon Rd
Nino Ave
Topping Way
Kennedy Rd
Longmeadow
Twin Oaks
Hill Top Drive
Hernández Ave
N Santa Cruz Ave
Villa Ave
Loma Alta Ave
Highland Ave
Vis del Monte
Forrester Rd
Ross Crk
Kimble Ave
Prospect Ave
El Sereno Open Space
Sierra Azul Open Space
17
85
9
1 mile
0
1 mile
approximate scale
Vicinity Map
San Francisco
Project location
San Jose
See Site Location Map (above)
N
Not to scale
Regional Map
See Vicinity Map (left)
N
LIVE OAK
ASSOCIATES, INC.
Twin Oaks Project
Site / Vicinity Map
Date
2/05/2025
Project #
2931-01
Figure #
1

1.2 REPORT OBJECTIVES

The development of land can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA), and/or covered by policies and ordinances of Santa Clara County. This report addresses issues related to: 1) sensitive biotic resources occurring within the Project Site, 2) the federal, state, and local laws regulating such resources, and 3) mitigation measures which may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies, and the requirements of the California Environmental Quality Act (CEQA). As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources, based on a review of the literature, a search of species databases, and field surveys conducted by LOA over the entire Project Site;
- In addition to species observed to be present within the Project Site, make reasonable inferences about the other biological resources that could occur onsite based on habitat suitability and the proximity of the Project Site to a species' known range;
- Summarize all state and federal natural resource protection laws that may be relevant to development of project within the Project Site;
- Identify and discuss project impacts to biological resources likely to occur within the Project Site within the context of CEQA or any state or federal laws; and
- Identify avoidance and mitigation measures that would reduce impacts to a less-than-significant impact (as identified by CEQA) and are generally consistent with recommendations of the resource agencies for affected biological resources.

1.3 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the Project Site discussed in Section 2.0. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFW

2025), (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2025), and (3) manuals, reports, and references related to plants and animals of the Santa Clara County region. A field survey of the Project Site was conducted on December 19, 2024, by LOA ecologists Robert Shields and Amy Patten. During this site visit, the principal land uses of the site were identified, and the constituent plants and animals were noted. Detailed surveys for sensitive biological resources were not conducted during the site visit.

Biological resources were previously evaluated by Wood Biological Consulting, Inc. In 2012 and 2013, Wood Biological Consulting, Inc. conducted three floristic surveys at the Project Site. These surveys were conducted using USFWS survey protocols at times when special-status plants were most likely to be identifiable. These survey results were also considered during LOA's evaluation of the potential for special-status plants to occur onsite. Other Project documents such as a preliminary wetland delineation prepared by Wood Biological Consulting, Inc. (2012), a jurisdictional determination letter from the U.S. Army Corps of Engineers (2016), and the Partial Recirculated Draft Environmental Impact Report (Kimley-Horn and Associates, 2017) were also considered in assessing aquatic features present within the Project Site.

2 EXISTING CONDITIONS

2.1 PROJECT SITE

The Project Site is located in the Town of Los Gatos in Santa Clara County on an undeveloped hillside which is bordered by residential development to the west, north, and east and an undeveloped parcel to the south. An off-site drainage occurs on the west side of the Project Site and scattered trees are located throughout the Site.

Three soil types occur onsite:

1. Urban land-Stevenscreek complex, 0 to 2 percent slopes (Well drained; low runoff; moderately slow permeability).
2. Urban land-Botella complex, 9 to 15 percent slopes (Well drained; low to high runoff; moderately slow permeability).
3. Zeppelin-Alumrock complex, 30 to 50 percent slopes (Well drained; slow permeability; Well drained; moderate permeability above the sandstone) (NRCS Web Soil Survey 2024).

None of the soil types are considered hydric. Hydric soils are defined as saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions such that under sufficiently wet conditions they support hydrophytic vegetation. Additionally, none of the soils support edaphic conditions such as alkaline or serpentine.

2.2 BIOTIC HABITATS/LAND USES

The Project Site consists of eight habitat types: California annual grassland, ruderal, mixed oak woodland, ornamental woodland, creek (Ross Creek), drainage with swales, drainage (seasonal wetland), and riparian woodland. The site is primarily California annual grasslands with stands of mixed oak woodland occurring on the edges of the site and isolated clusters of oaks throughout the parcel (Figure 2). Horticultural trees and shrubs have also been planted throughout the site.

2.2.1 California Annual Grassland

A majority of the site consists of grassland dominated by non-native and invasive species, including canary grass (*Phalaris minor*), slender oat (*Avena barbata*), and filaree (*Erodium* sp.). This open grassland provides potential foraging habitat for raptors and other birds. Coyote (*Canis latrans*)

LEGEND

- Approximate Project site
- Mixed Oak Woodland
- Ornamental Woodland
- Riparian Woodland
- California Annual Grassland
- Ruderal
- *Creek (Ross Creek)*
- *Drainage*
- *Drainage Swale*

200' 0 100' 200 feet
approximate scale

SOURCES:
U.S.D.A. National Agriculture Imagery Program (NAIP)
Aerial Photo Field Office 8/24/2020
County of Santa Clara Planning Department
Santa Clara Valley Water District

LIVE OAK ASSOCIATES, INC.

Twin Oaks Project
Habitats / Land Cover

Date	Project #	Figure #
5/22/2025	**2931-01**	**2**

and gray fox (*Urocyon cinereoargenteus*) scat were observed. Botta's pocket gopher (*Thomomys bottae*) burrows were present, which may provide refugia for amphibians and reptiles.

2.2.2 Ruderal

Ruderal habitat was observed in the vicinity of the proposed access roads and an old corral structure on the northwest side of the property. This area has been previously graded and cleared and is dominated by non-native weeds such as sourgrass (*Oxalis pes-caprae*) and Bermuda grass (*Cynodon dactylon*).

2.2.3 Mixed Oak Woodland

The edges of the property support mixed oak woodland, primarily coast live oak (*Quercus agrifolia*) and valley oak (*Q. lobata*). A stand of blue oak (*Q. douglasii*) occurs at the top of the hill on the southeast side of the project site. Some oak hybridization may be present. Isolated trees and small stands of oaks are scattered throughout the center of the parcel as well.

Wildlife species observed include the California slender salamander (*Batrachoseps attenuatus*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Dryobates nuttallii*), Northern flicker (*Colaptes auratus*), California scrub-jay (*Aphelocoma californica*), chestnut-backed chickadee (*Poecile rufescens*), oak titmouse (*Baeolophus inornatus*), ruby-crowned kinglet (*Corthylio calendula*), white-breasted nuthatch (*Sitta carolinensis),* Bewick's wren (*Thryomanes bewickii*), Western bluebird (*Sialia mexicana*), hermit thrush (*Catharus guttatus*), American robin (*Turdus migratorius*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinu psaltria*), white-crowned sparrow (*Zonotrichia leucophrys*), California towhee (*Melozone crissalis*), and yellow-rumped warbler (*Setophaga coronata*). This habitat supports suitable nesting habitat for these species.

Three active San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) nests were observed within the Project Site under the mixed oak woodland canopy.

An upland ephemeral swale is present within this habitat, which may flow seasonally downslope from the southern boundary of the Project Site towards the center of the parcel. During the Woods' 2016 wetland verification, the USACE determined the ephemeral swale did not qualify as a wetland

feature. At the time of the LOA site visit, no running or standing water or wetland vegetation was present in the swale.

2.2.4 Ornamental Woodland

An isolated stand of horticultural trees is present on the northeast slopes of the project area. This includes incense cedar (*Calocedrus decurrens*) and Monterey pine (*Pinus radiata*). The size and density of the stand provide marginal habitat for nesting birds.

2.2.5 Creek (Ross Creek)

Ross Creek flows through a drainage and crosses the project boundary in the lower southwest corner of the parcel. A short length of the creek supports the surface flow on the Project Site, then flows into an underground culvert (Figure 2). The stream channel is approximately six feet wide and was extremely shallow with low flows at the time of the survey.

2.2.6 Drainage with Swales

An intermittent ephemeral drainage with swales traverses the southwestern portion of the project site. Vegetation within this drainage and swales is consistent with the vegetation in the adjacent California annual grassland habitat. Much of this area likely only holds water during and just after rain events.

Wildlife occurring in adjacent habitats are likely to occur in this habitat.

2.2.7 Drainage (Seasonal Wetland)

In the northwest corner of the Project Site adjacent to the Project Site boundary with Hillbrook School, a drainage leading to a storm drain inlet and culvert are present. This feature was verified as a jurisdictional wetland feature by the Army Corps of Engineers in 2016 (Kimley-Horn and Associates, 2017), and we expect it is still a jurisdictional wetland feature. At the time of the survey, wetland vegetation or standing water was absent.

Wildlife occurring in adjacent habitats are likely to occur in this habitat.

2.2.8 Riparian Woodland

Although no distinctive riparian vegetation is present, the presence of Ross Creek qualifies its surrounding vegetation as a riparian corridor. Overstory vegetation with canopies overlapping the reach of Ross Creek supporting surface flow within the Project Site are defined as riparian woodland. Typical wetland and riparian understory vegetation is absent from the stream channel. The overstory is consistent with the surrounding mixed oak woodland, aside from a few sycamores (*Platanus racemosa*) and elderberries (*Sambucus nigra*) located on the bank approximately 30 feet from the creek channel. Planted horticultural trees such as fan palm (*Hedera helix*), redwood (*Sequoia sempervirens*), and privet (*Ligustrum* sp.) are present on the upper banks. South of the Project Site's boundaries, the creek flows through a narrow channel heavily modified and lined by rock and wood abutments surrounded by residential developments.

2.3 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are areas where regional wildlife populations regularly and predictably move during dispersal or migration. Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines. Regional movement is also facilitated along existing linear features such as ditches, canals, farm roads, and creeks.

The Project Site is not within a local linkage or known wildlife corridor. However, local urban species currently crossing the site for regular and dispersal movements would still be expected to cross the site post-build-out.

2.4 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally

designated as “threatened” or “endangered” under state and federal endangered species legislation. Others have been designated as candidates for such a listing. Still others have been designated as “species of special concern” by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2025). Collectively, these plants and animals are referred to as “special status species”.

A number of special status plants and animals could occur in the vicinity of the Project Site. These species, and their potential to occur in the Project Site, are listed in Table 1 in the following pages. Sources of information for this table include *California Amphibian and Reptile Species of Special Concern* (Thomson et.al. 2016), *California Bird Species of Special Concern* (Shuford and Gardalli 2008), *California Natural Diversity Data Base* (CDFW 2025), *Endangered and Threatened Wildlife and Plants* (USFWS 2025), *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFW 2025), and *The California Native Plant Society’s Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2025). This information was used to evaluate the potential for special status plant and animal species to occur within the Project Site. It is important to note that the California Natural Diversity Data Base (CNDDB) is a volunteer database.

A search of published accounts for all of the relevant special status plant and animal species was conducted for the Los Gatos USGS 7.5-minute quadrangles within which the Project Site is located, and for the eight surrounding quadrangles (Cupertino, San Jose West, San Jose East, Castle Rock Ridge, Santa Teresa Hills, Felton, Laurel, Loma Prieta) using the California Natural Diversity Data Base (Rarefind 5, 2025).

Edaphic soil conditions including serpentine soils, sandy soils, derived from the Zayante formation, mesic, and alkaline soils are absent from the site, therefore, special-status plant species requiring these edaphic soils will not occur on the project site (e.g. Ben Lomond buckwheat (*Eriogonum nudum* var. *decurrens*), Loma Prieta Hoita (*Hoita strobalina*), and smooth lessingia (*Lessingia micradenia* var. *glabrata*). Special status plant species with ranges outside of the project site or well above or below the site’s elevation of approximately 413-639 feet have also omitted from the tables below, as they would be expected to be absent from the site. These species include Dudley’s

lousewort (*Pedicularis dudleyi*), Scotts Valley polygonum (*Polygonum hickmanii*), and Santa Cruz Mountains beardtongue (*Penstemon rattanii* var. *kleei*).

TABLE 1A: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2025 and CNPS 2025)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Robust spineflower *Chorizanthe robusta var. robusta*	FE, CRPR 1B	Habitat: Occurs in sandy or gravelly soils within cismontane woodland, coastal dunes, and coastal scrub. Elevation: 3-300 m. Blooms: Annual herb; April-September.	**Absent.** Suitable habitat is absent from the site for this species. There are no observations of this species within three miles of the site (CDFW 2025, CNPS 2025).
Contra Costa Goldfields *Lasthenia conjugens*	FE, CRPR 1B	Habitat: Vernal pools and mesic areas within cismontane woodland, alkaline playas, and valley and foothill grasslands. Elevation: 0-470 m. Blooms: Annual herb; March-June.	**Absent.** Suitable habitat is absent from the site for this species, as there are no mesic areas (CDFW 2025, CNPS 2025).
San Francisco popcornflower *Plagiobothrys diffusus*	CE, CRPR 1B	Habitat: Coastal prairie and valley and foothill grasslands. Elevation: 60-360 m. Blooms: Annual herb; March-June.	**Absent.** Suitable habitat is absent from the site for this species. Additionally, there are no recorded observations of this species within three miles of the site (CDFW 2025, CNPS 2025).

TABLE 1B: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2025 and CNPS 2025)

Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Bent-flowered fiddleneck *Amsinckia lunaris*	CRPR 1B	Habitat: Coastal bluff scrub, cismontane woodland, valley, and foothill grassland. Elevation: 3-500 m. Blooms: Annual herb; March-June.	**Unlikely.** Woodlands of the site are not likely to support this species. However, a marginally suitable habitat in the form of foothill grassland slopes is present.
Anderson's manzanita *Arctostaphylos andersonii*	CRPR 1B	Habitat: Occurs in openings and at edges of broadleaved upland forest, chaparral, and North Coast coniferous forest. Elevation: 60-730 meters. Blooms: Evergreen shrub; November–May.	**Absent.** Manzanita species are absent from the project site. Additionally, there are no recorded observations of this species within three miles of the site (CDFW 2025, CNPS 2025).
Big-scale balsamroot *Balsamorhiza macrolepis var. macrolepis*	CRPR 1B	Habitat: Chaparral, cismontane woodlands, valley and foothill grasslands (sometimes on serpentine) Elevation: 90-1400 m. Blooms: Perennial herb; March-June	**Absent.** Suitable habitat is absent from the site for this species.
Santa Cruz Mountains pussypaws *Calyptridium parryi var. hesseae*	CRPR 1B	Habitat: Chaparral and cismontane woodland in sandy or gravelly, openings. Elevation: 305-1105 m. Blooms: Annual herb; May-July	**Absent.** Suitable habitat in the form of sandy soil habitat is absent from the site for this species. Additionally, there are no recorded observations of this species within three miles of the site (CDFW 2025, CNPS 2025).
Santa Clara red ribbons *Clarkia concinna ssp. automixa*	CRPR 4	Habitat: Chaparral and cismontane woodland, on slopes and near drainages. Elevation: 90-1500 m. Blooms: Annual herb; April-July.	**Unlikely.** Woodlands of the site are not likely to support this species, as rock outcrops, slopes, road cuts, or edge habitats are absent.
Tear drop moss *Dacryophyllum falcifolium*	CRPR 1B	Habitat: Carbonate soils in North Coast coniferous forest. Elevation: 50-275 Blooms: Moss.	**Absent.** Suitable habitat is absent from the site for this species.
Western leatherwood *Dirca occidentalis*	CRPR 1B	Habitat: Broadleaved upland forest, coniferous forest, riparian habitats, and chaparrals. Elevation: 50-395 m. Blooms: Deciduous shrub; January-April	**Absent.** Woodlands of the site are not of sufficient structure or moisture regime to support this species. Western leatherwood would have been identifiable at the time of the survey and was not detected.
Minute pocket moss *Fissidens pauperculus*	CRPR 1B	Habitat: Damp soils within the North Coast coniferous forest. Elevation: 10-100 m. Blooms: Moss	**Absent.** Suitable habitat is absent from the site for this species.
Fragrant fritillary *Fritillaria liliacea*	CRPR 1B	Habitat: Occurs on clay soils within coastal prairie, scrub, and valley and foothill grasslands, often on serpentine.	**Absent.** Suitable clay soils and moisture regimes are absent from the site for this species.

TABLE 1B: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2025 and CNPS 2025)

Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
		Elevation: 3-410 m. Blooms: Bulbiferous; February-April	
Arcuate bush mallow *Malacothamnus arcuatus*	CRPR 1B	Habitat: Occurs on gravelly soils within chaparral. Elevation: 15-355 meters. Blooms: Evergreen shrub; April-September.	**Absent.** This species would have been identifiable at the time of the survey and no bushmallows were detected during surveys. Additionally, suitable soils and chaparral habitat is absent from the site for this species.
Hall's bush mallow *Malacothamnus hallii*	CRPR 1B	Habitat: Occurs within chaparral and coastal scrub. Elevation: 10-760 meters. Blooms: Evergreen shrub; May-October.	**Absent.** This species would have been identifiable at the time of the survey and no bushmallows were detected during surveys.
Northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	CRPR 1B	Habitat: Sandy soils within ponderosa pine sandhills, coastal scrub, dunes, and chaparral. Elevation: 0-300 m. Blooms: Annual herb; April-September.	**Absent.** Suitable sandy soils are absent from the site for this species.
White-flowered rein orchid *Piperia candida*	CRPR 1B	Habitat: Broadleaved upland forest and coniferous forests, sometimes on serpentine. Elevation: 30-1,310 m. Blooms: Perennial herb; May-September.	**Absent.** Suitable habitat is absent from the site for this species. Additionally, there are no recorded observations of this species within three miles of the site (CDFW 2025, CNPS 2025).
Choris' popcorn-flower *Plagiobothrys chorisianus var. chorisianus*	CRPR 1B	Habitat: Mesic soils in chaparral, coastal prairie, and coastal scrub. Elevation: 15-100 m. Blooms: March-June.	**Absent.** Suitable habitat in the form of mesic soils is absent from the site.

TABLE 2A: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2025 and USFWS 2025)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Crotch bumble bee *Bombus crotchii*	CCE	In California, inhabits open grassland and scrub habitats of the southern 2/3 of California. Historically in but largely extirpated from the Central Valley. Flight period for queens is late February to late October peaking in April and July; flight period for males and workers is March through September peaking in early July. Constructs nests underground in animal burrows. Overwintering sites are likely in soft soils or in debris or leaf litter	**Absent.** Suitable habitat and nectar plants for this species are absent from the site. The nearest recorded observation of this species is more than three miles from the site (CDFW 2025).
Western bumble bee *Bombus occidentali*	CCE	In California, it mainly occurs within the coastal and Sierra Nevada ranges, within meadows and grasslands and some natural areas within urban environments. Indication of recent population potentially being restricted to high elevation and coastal areas. Historically occurred from the Channel Islands to the northern California border. The flight period is February to late November, peaking in late June and late September. Tends to construct nests underground in animal burrows on west and south-west facing slopes. Overwintering sites are likely in friable soils or in debris or leaf litter.	**Absent.** Suitable habitat and nectar plants for this species are absent from the site. The nearest recorded observation of this species is more than three miles from the site (CDFW 2025).
California tiger salamander *Ambystoma californiense*	FT, CT	Breeds in stagnant pools with continuous inundation for a minimum of three months, which may include vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites.	**Absent.** Suitable breeding pools and upland habitat are absent from the site for this species. The closest recorded location is more than three miles from the site (CDFW 2025).
Foothill yellow-legged frog (FYLF) *Rana boylii*	FPT, CE	Occurs in swiftly flowing streams and rivers with rocky substrate with open, sunny banks in forest, chaparral, and woodland habitats, and	**Absent.** Ross Creek does not support sufficient depth, flows, or egg attachment sites to support FYLF breeding. The closest presumed extant record is from 2000 approximately three and a

TABLE 2A: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2025 and USFWS 2025)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
		can sometimes be found in isolated pools and ponds.	half miles southeast in the Guadalupe Creek watershed (CDFW 2025).
California red-legged frog (CRLF) *Rana draytonii*	FT, CSC	Dense, shrubby riparian vegetation such as arroyo willow, cattails, and bulrushes with still or slow-moving water. Perennial streams or ponds are preferred, and a salinity of no more than 4.5%	**Possible.** Although Ross Creek does not support sufficient water depth or vegetation structure to provide breeding habitat, the creek channel may be suitable for dispersal or foraging. The closest recorded observation is generally mapped as the vicinity of Los Gatos Creek, which is approximately one mile to the west of the site with dense urban development between the creek and the site. Additional records occur at Lexington Reservoir more than two miles to the southwest of the site. (CDFW 2025).
Swainson's hawk *Buteo swainsonii*	CT	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Unlikely.** Poor habitat for nesting is present onsite, however, the only known pair breeding in Santa Clara County breeds annually near the intersection of Bailey Avenue and Highway 101, which is more than 15 miles to the southeast of the site (CDFW 2025). However, Swainson's hawk has been documented crossing over the Santa Cruz Mountains and potential foraging habitat is present in the open grassland.
Burrowing owl *Athene cunicularia*	CC	Frequently open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Unlikely.** The site lacks suitable burrows for nesting and refugia during migration, however open grassland habitat for foraging is present. While limited occurrences have been reported in the vicinity of Los Gatos, they mainly occur in the region along the southern edge of the San Francisco Bay and to the southeast in Coyote Valley. Although unlikely to breed on the site, this species may overwinter onsite. Out of an abundance of caution, although unlikely to occur onsite, we recommend preconstruction surveys for this species.
Tricolored blackbird *Agelaius tricolor*	CT, CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	**Absent.** Suitable breeding and roosting habitat is absent from the site for this species.

TABLE 2B: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2025 and USFWS 2025)

California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Santa Cruz black salamander *Aneides niger*	CSC	Occurs in deciduous woodland, coniferous forests, and coastal grasslands around the Santa Cruz Mountains and foothills. This species is also known to occur on the developed flats in pockets within older developments. They can be found under rocks near streams, in talus, under damp logs, rotting wood, and other objects.	**Absent.** Open oak woodlands of the site are not likely to support this species, and suitable rocky substrates are absent. The closest recorded observation is generally mapped to Los Gatos and was likely observed elsewhere in the Los Gatos Creek watershed or its tributaries (CDFW 2025).
California giant salamander *Dicamptodon ensatus*	CSC	Wet coastal forests near streams and lakes. Larvae occur in cold, clear streams or occasionally in ponds and lakes. Adults are found under rocks and logs in wet forests near streams and lakes.	**Absent.** Suitable habitat for this species is absent from the site and its immediate vicinity. Additionally, the closest recorded location of this species is more than three miles to the south of the site (CDFW 2025).
Northern California legless lizard *Aniela pulchra*	CSC	The NCLL (previously called silvery legless lizard) occurs mostly underground in warm moist areas with loose soil and substrate. The NCLL occurs in habitats including sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks.	**Absent.** The site is not within the range of the northern California legless lizard and soils of the site are not suitable for this species.
Northwestern pond turtle *Actinemys marmorata*	FC, CSC	Intermittent and permanent waterways include streams, marshes, rivers, ponds, and lakes. Open slow-moving water of rivers and creeks of central California with rocks and logs for basking.	**Absent.** Ross Creek does not support sufficient basking or foraging sites to support northwestern pond turtle, and the highly developed residential areas surrounding the creek do not provide suitable nesting habitat. Additionally, the site is not hydrologically connected to the closest documented record at Vasona Lake, more than a mile from the site, which is separated from the site by dense urban development (CDFW 2025).

TABLE 2B: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2025 and USFWS 2025)

California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
White-tailed kite *Elanus leucurus*	CP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Possible.** Suitable foraging habitat in the form of grassy, open hillsides are present throughout the site and suitable trees for nesting occur on the margins of the site.
Golden eagle *Aquila chrysaetos*	CP	Rolling foothills, mountain areas, sage-juniper flats, and deserts. Prefers cliff-walled canyons or large trees for providing nesting and forages in open areas.	**Possible.** Open areas for foraging are present in the middle of the site, however, the site supports marginally suitable breeding habitat. A suitable breeding habitat with large trees is near to the south of the site in the Santa Cruz Mountains, nesting on the site is unlikely.
Purple martin *Progne subis*	CSC	Inhabits woodlands, low elevation coniferous forest of Douglas fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities, also in human-made structures and nests widely in human-made birdhouses. Nests are often located in tall, isolated trees or snags.	**Possible.** Tree cavities and appropriate bird houses suitable for this species are absent from the site, however grassy edges near woodland may be suitable for foraging. Purple martin occurs in the vicinity of Los Gatos in small numbers with higher—suitable habitat to the south in the Santa Cruz Mountains.
Pallid bat *Antrozous pallidus*	CSC	Occurs in grasslands, chaparral, woodlands, and forests; most common in dry rocky open areas providing roosting opportunities. Roost sites include caves, mines, rock crevices, and large cavities of trees.	**Possible.** Suitable foraging habitat is present in grassland edge habitat, and trees within the mixed oak woodland t contain potential roosting cavities. The closest recorded location of this species was observed roosting in a barn in oak savannah and rural residential habitat approximately two and a half miles to the east of the site (CDFW 2025).
Townsend's big-eared bat *Corynorhinus townsendii*	CSC	Primarily a cave-dwelling bat that may also roost in buildings, bridges, rock crevices, and hollow trees. Occurs in a variety of habitats.	**Possible.** Suitable foraging habitat is present in grassland edge habitat, and trees within the mixed oak woodland contain potential roosting cavities. The closest recorded location of this species is approximately four miles southwest of the site below Lexington Reservoir, where it was observed using an abandoned building prior to its demolition (CDFW 2025).
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	CSC	Found in hardwood forests, oak riparian and shrub habitats.	**Present.** Woodrat nests were recorded in the oak woodland understory on the north side of the site. They are likely to occur in woodland or riparian understory onsite.

TABLE 2B: SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2025 and USFWS 2025)

California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
American badger *Taxidea taxus*	CSC	Found in drier open stages of most shrubs, forest and herbaceous habitats with friable soils, specifically grassland environments. Natal dens occur on slopes.	**Possible.** Suitable grassland habitat is present throughout the site. Although urban development exists to the west of the site and rural residential exists to the north of the site, this species may occur onsite. The nearest recorded occurrence is at least two and a half miles to the southwest of the site on Alma Bridge Road off Highway 17 (CDFW 2025).

*Explanation of Occurrence Designations and Status Codes

Present: Species observed within the Project Site at time of field surveys or during recent past.
Likely: Species not observed within the Project Site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed within the Project Site, but it could occur there from time to time.
Unlikely: Species not observed within the Project Site, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed within the Project Site and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Fully Protected
CSC	California Species of Special Concern		
CC	California Candidate		

CNPS	California Native Plant Society Listing		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

2.5 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.4 of this report for additional discussion of these agencies' roles and responsibilities.

Background: In the time since the Draft EIR was released for public review in August 2015, the project applicant received correspondence from the United States Army Corps of Engineers (USACE) confirming the jurisdictional Waters of the U.S. Waters of the U.S. regulated by the USACE. The Draft EIR assumed the ephemeral swale that traverses the western portion of the site would be jurisdictional waters. Following a site visit by USACE personnel in June 2016, the Army Corps of Engineers prepared a letter stating the extent of the jurisdictional Waters of the U.S. consisted of a 342-square foot (0.008-acre) concrete-lined drainage area in the northwestern corner of the site. The ephemeral swale was determined not be jurisdictional Waters of the U.S (Kimley-Horn and Associates, 2017).

Current. The current conditions of these aquatic features are consistent with descriptions within the previous Draft EIR and wetland delineation with some small changes to the intermittent ephemeral drainage.

3 REGULATORY FRAMEWORK

3.1 SIGNIFICANCE CRITERIA

General plans, area plans, and specific projects are subject to the provisions of the California Environmental Quality Act. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are constructed. For example, site development may require the removal of some or all of its existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on a site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant. According to 2024 CEQA Status and Guidelines (2024), "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered "significant" if they will:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

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

3.2.2 Migratory Birds

State and federal laws also protect most bird species. The State of California signed Assembly Bill 454 into law in 2019, which clarifies native bird protection and increases protections where California law previously deferred to Federal law. The Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., scc. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.2.3 Birds of Prey

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

Additionally, the Bald and Golden Eagle Protection Act (16 U.S.C., sec. 668-668c) prohibits anyone from taking bald or golden eagles, including their parts, nests, or eggs, unless authorized under a federal permit. The act prohibits any disturbance that directly affects an eagle or an active eagle nest as well as any disturbance caused by humans around a previously used nest site during a time when eagles are not present such that it agitates or bothers an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

3.2.4 Jurisdictional Waters and Wetlands

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule), with certain interpretive modifications imposed by the U.S. Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency*. These waters include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.
- The territorial seas.
- Interstate waters, including interstate wetlands.
- Impoundments of waters otherwise defined as waters of the United States under the definition.
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water.
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters.

The 2023 WOTUS Rule also defines a number of exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems.
- Prior converted cropland.
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water.
- Certain artificial features, e.g., irrigation basins, swimming pools, borrow pits, and artificially irrigated areas.
- Swales and erosional features characterized by low volume, infrequent, or short duration flow.

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board has regulatory authority to protect the water quality of all surface water and groundwater

in the State of California ("waters of the State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a Section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a water of the U.S. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

3.2.5 Local Policies or Habitat Conservation Plans

Town of Los Gatos Tree Protection Ordinance. The Town has updated the Tree Protection ordinance (Chapter 29, Article I, Division 2 of the municipal code).

The Tree Protection ordinance defines Heritage Trees as:

"Heritage tree" means a tree or grouping of trees specifically designated by action of the Town Council, upon the recommendation of the Historic Preservation Commission, that possess

exceptional aesthetic, biological, cultural, or historic value and is expected to have a continuing contribution to the community".

The Tree Protection ordinance identifies protected trees as:

"(1) All trees which have a twelve-inch or greater diameter (thirty-seven and one-half-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eighteen inches or greater diameter (fifty-six and one-half-inch circumference) of the sum of all trunks, where such trees are located on developed residential property.

(2) All trees which have an eight-inch or greater diameter (twenty-five-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eight inches or greater diameter (twenty-five-inch circumference) of the sum of all trunks, where such trees are located on developed Hillside residential property.

(3) All trees of the following species which have an eight-inch or greater diameter (twenty-five-inch circumference) located on developed residential property:

Blue Oak (*Quercus douglasii*);

Black Oak (*Quercus kellogii*);

California Buckeye (*Aesculus californica*);

Pacific Madrone (*Arbutus menziesii*).

(4) All trees which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk, when removal relates to any review for which zoning approval or subdivision approval is required.

(5) Any tree that existed at the time of a zoning approval or subdivision approval and was a specific subject of such approval or otherwise covered by subsection (6) of this section (e.g., landscape or site plans).

(6) Any tree that was required by the Town to be planted or retained by the terms and conditions of a development application, building permit or subdivision approval in all zoning districts, tree removal permit or code enforcement action.

(7) All trees, which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk and are located on property other than developed residential property.

(8) All publicly owned trees growing on Town lands, public places or in a public right-of-way easement, which have a four-inch or greater diameter (twelve and one-half-inch circumference) of any trunk.

(9) protected trees shall also include a stand of trees, the nature of which makes each dependent upon the other for the survival of the stand.

(10) The following trees shall also be considered protected trees and shall be subject to the pruning permit requirements set forth in section 29.10.0982 and the public noticing procedures set forth in section 20.10.0994:

- Heritage trees;
- Large, protected trees."

This definition includes exceptions:

The following trees are excepted from the provisions of this division and may be removed or severely pruned without Town approval or issuance of a tree removal permit:

(1) A fruit or nut tree that is less than eighteen (18) inches in diameter (fifty-seven-inch circumference).

(2) Any of the following trees that are less than twenty-four (24) inches in diameter (seventy-five (75) inches in circumference):

- Black Acacia (*Acacia melanoxylon*)
- Tulip Tree (*Liriodendron tulipifera)*
- Tree of Heaven (*Ailanthus altissima)*
- Blue Gum Eucalyptus (*E. globulus*)
- Red Gum Eucalyptus (*E. camaldulensis*)
- Other Eucalyptus (*E. spp*.)-Hillsides only

- Palm (except *Phoenix canariensis*)
- Privet (*Ligustrum lucidum*)

(3) Any removal or maintenance of a tree to conform with the implementation and maintenance of Defensible Space per Chapter 9 - Fire Prevention and Protection with the exception of any tree listed in subcategories (3) and (10) of Section 29.10.0960 - Scope of Protected Trees.

The Town requires a permit with a fee for any protected tree to be removed. Replacement standards are in Table 2 below.

TABLE 3. TOWN OF LOS GATOS TREE REPLACEMENT STANDARDS

Canopy Size of Removed Tree1	Replacement Requirement2, 4	Single Family Residential Replacement Option3, 4
10 feet or less	Two 24-inch box trees	Two 15-gallon trees
More than 10 feet to 25 feet	Three 24-inch box trees	Three 15-gallon trees
More than 25 feet to 40 feet	Four 24-inch box trees; or Two 36-inch box trees	Four 15-gallon trees
More than 40 feet to 55 feet	Six 24-inch box trees; or Three 36-inch box trees	Not Available
Greater than 55 feet	Ten 24-inch box trees; or Five 36-inch box trees	Not Available

See the Town's Tree Protection Ordinance for the full text.

Town of Los Gatos Guidelines and Standards for Land Use Near Streams.

The Town of Los Gatos has adopted a set of Standards and Guidelines for Land Use Near Streams developed by Valley Water (Santa Clara Valley Water Resources Protection Collaborative 2005). The Standards and Guidelines indicate that the development of single residences should provide a minimum Slope Stability Protection Area based on the type of stream (i.e., ephemeral, or perennial) and based on the steepness of the stream banks. However, the guidelines also indicate that an exception to the minimum setbacks may be granted if the applicant is able to provide a site-specific technical report that confirms that a lesser setback will not result in either compromised slope stability or in potential damage to the structure. According to the Guidelines, "improvements are to be located outside a slope stability protection area which is: (i) 20 feet inward from the top of bank for lots 10,000 square feet or less and 25 feet for lots greater than 10,000 (for creeks 10 feet deep or less)".

According to the Standards and Guidelines for Land Use Near Streams, native riparian vegetation is not allowed to be removed unless there is a threat to public health and safety including an imminent danger of induced flooding and/or a biologist/arborist confirms that it will improve the stream ecology or habitat. If vegetation is proposed for removal in conjunction with a development project, mitigation will be provided as defined through the CEQA process and as agreed to by the local agencies and appropriate regulatory agencies. Additionally, non-native vegetation should not be planted within the riparian corridor.

Appropriate setbacks of 20-25 feet should be implemented around the open-channel segment of Ross Creek depending on the size of adjacent lots, and appropriate vegetation removal and planting guidelines should be followed. See the Town's Guidelines and Standards for Land Use Near Streams for the full text.

Habitat Conservation Plans. The Santa Clara Valley HCP/NCCP Study Area does not cover the Town of Los Gatos, and there are no other HCPs or NCCPs known to cover the area.

3.3 POTENTIALLY SIGNIFICANT PROJECT IMPACTS/MITIGATION

The project involves the conversion of California annual grassland and mixed oak woodland habitat land into 12 townhomes.

Potentially significant project impacts to biological resources and mitigations are discussed below.

3.3.1 Loss of Habitat for Special Status Plants

Potential Impacts. Of the 17 special-status plant species with potential to occur on the project site, 15 are considered to be absent. The remaining two species, Santa Clara red-ribbons and bent-flowered fiddleneck, are unlikely to occur onsite as the site supports only marginally suitable habitat for these species. Three-season floristic surveys were previously conducted in 2012-2013 and no special-status plant species were observed (Wood Biological Consulting, Inc., 2013). As these species were not observed in past rare plant surveys and all species assessed are either considered to be absent or unlikely to occur onsite, the project will result in a less-than-significant impact on special status plant species.

Mitigation. None warranted.

3.3.2 Loss of Habitat for Special Status Animals

Potential Impacts. Of the 19 special-status animal species potentially occurring in the region, 11 species would be absent or unlikely to occur within the Project Site due to unsuitable habitat conditions. These include Crotch's bumble bee, western bumble bee, California tiger salamander, Foothill yellow-legged frog, Swainson's hawk, tricolored blackbird, Santa Cruz black salamander, California giant salamander, northern California legless lizard, northwestern pond turtle, and burrowing owl. Construction of the project would have no effect on loss of habitat for these species because there is little or no likelihood that they are present.

An additional eight species may regularly or occasionally utilize the Project Site for foraging, including the California red-legged frog, white-tailed kite, golden eagle, purple martin, pallid bat, Townsend's big-eared bat, San Francisco dusky-footed woodrat, and American badger, . However, the Project Site does not provide regionally important foraging habitat for these species. Therefore, development of the project would result in a less-than-significant impact on these species.

Although impacts to habitat for these species are not significant, impacts to individuals of these species would be potentially significant.

Mitigation. For species that are subject to potentially significant impacts to individuals due to construction of the project, mitigation measures are identified below for each as follows: raptors and migratory birds (Section 3.3.3); California red-legged frogs (Section 3.3.4), burrowing owls (Section 3.3.5), roosting bats (Section 3.3.6); San Francisco dusky-footed woodrat (Section 3.3.7); and American badger (Section 3.3.8).

3.3.3 Disturbance to Active Raptor and Migratory Birds

Potential Impacts. In addition to the white-tailed kite, golden eagle, and purple martin, several other raptor species, specifically, great-horned owls may nest in oak or other mixed woodland trees onsite or adjacent to the site. Additionally, the Project Site could provide overwintering habitat for burrowing owl (discussed further in Section 3.3.5) and nesting habitat for a number of migratory bird species. Nearly all native bird species are protected by the federal Migratory Bird Treaty Act. Construction activities that adversely affect the nesting success of raptors or result in mortality of

individual birds constitute a violation of state and federal laws (see Section 3.2.2 and 3.2.3) and would be considered a significant impact under CEQA.

Mitigation. To minimize construction disturbance to active raptors and other birds, the following measure(s) will be followed:

***Mitigation 3.3.3a* (*Pre-construction surveys*).** If tree removal, vegetation removal, site preparation, grading, or construction is planned to occur within the nesting season (i.e., between February 1 and August 31), a qualified biologist will conduct pre-construction surveys for active nests of migratory birds (including burrowing owl) within seven days prior to onset of these activities. If construction activity is planned to commence outside the nesting season, no pre-construction surveys are required for nesting birds and raptors.

***Mitigation 3.3.3b* (*Establish Buffers*).** Should any active nests be discovered in or near proposed construction zones, the biologist will establish a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing and will be maintained until the biologist has determined that the young have fledged. The buffer distance will be determined by the biologist onsite based on the species, level of disturbance activity, location of the nest, and topography between the nest and the construction activity with a minimum starting distance of 250 feet for raptors and 25 feet for other birds.

3.3.4 California Red-legged Frog

Potential Impacts. Ross Creek contains aquatic habitat which is a potential movement corridor for the California red-legged frog. Project activities could result in direct or indirect harm or mortality or degrade aquatic habitat by causing erosion, spills, or removing vegetation surrounding Ross Creek.

Mitigation: Implementation of the following measures prior to the construction of the project will reduce impacts to California red-legged frog from direct mortality to a less-than-significant level.

Mitigation Measure 3.3.4a A qualified biologist will survey the project site within 50 feet of Ross Creek within 48 hours prior to start of construction activities, including any initial ground disturbance or vegetation clearing or other periods during construction, as necessary.

Mitigation Measure 3.3.4b If a CRLF is encountered during construction work, activities will cease until the animal moves out of the work area on its own or relocated by a permitted qualified biologist to a suitable location onsite.

Mitigation Measure 3.3.4c Fiber netting such as silt fence or similar material shall be used for erosion control where appropriate throughout the project site and within 50 feet of Ross Creek to ensure that California red-legged frogs do not get trapped.

3.3.5 Impacts to Burrowing Owls

Potential Impacts. Although this species is unlikely to occur on the project site, moderate-poor habitat exists in the ruderal area of the site, and as this species is a sensitive species, to be prudent, to reduce the potential to result in a significant impact to burrowing owls, the below surveys should be conducted.

Mitigations. Implementation of the following measures prior to the construction of the project will reduce impacts to burrowing owls from direct mortality to a less-than-significant level.

Mitigation Measure 3.3.5a (Pre-construction Surveys). A qualified biologist would conduct a preconstruction survey for burrowing owls following the 2012 CDFW Guidelines, or most recent guidelines, which includes two surveys, one within 14 days prior to the start of construction and the second within 24 hours prior to the start of construction.

Mitigation Measure 3.3.5b (Avoidance and Monitoring). Identified burrowing owls should be avoided and active burrowing owl burrows should be avoided with a 250-foot no-disturbance buffer until the burrow has been abandoned. The project biologist will conduct a weekly check-in to confirm the buffer is still intact and confirm the current activity of that burrow.

3.3.6 Impacts to Roosting Bats

Potential Impacts. The mixed oak woodland around the edges of the Project Site features suitable roosting cavities. Bats may forage throughout the site. Loss of roosting sites for bats or direct mortality may occur due to tree removal and construction activities, therefore, the below mitigation should be implemented to reduce impacts to roosting bats to a less-than-significant impact.

Mitigation. The following measures shall be implemented.

Mitigation Measure 3.3.6a (Habitat Assessment). A habitat assessment should be conducted to identify trees which support potentially suitable roosting habitat for bats. This can be conducted at any time of year and we recommend it is completed well in advance of the construction start date.

Mitigation Measure 3.3.6b (Pre-construction surveys).

a. A preconstruction survey should be conducted within seven days prior to start of construction. This may occur in daylight any time of year if all cavities can be visually surveyed, however, if all cavities cannot be visually surveyed, a night-time emergence survey should be conducted prior to removal of any trees and shrubs onsite.
b. Night-time emergence surveys can only be reliably conducted on fair-weather nights from March 1-October 15.
c. If a non-breeding bat colony is discovered, the individuals should be humanely evicted via two-step removal under the direction of a qualified biologist to ensure that no harm or "take" would occur to any bats as a result of tree removal or structure demolition activities. Two-step removal can only occur during March 1-April 15 and September 1-October 15 to avoid harm to maternity and overwintering colonies.
d. If a maternity colony is detected, then a construction-free buffer should be established around the tree and remain in place until it has been that the nursery is no longer active. Tree removal should preferably be done between March 1 and April 15 or August 15 and October 15 to avoid interfering with an active nursery. Mitigation would not be required for the loss of roosting or foraging habitat for bats, as such habitat is abundantly available regionally.

3.3.7 Impacts to San Francisco Dusky-Footed Woodrats

Potential Impacts. San Francisco dusky-footed woodrat nests have been documented in the mixed oak woodland on the Project Site. Therefore, the project has the potential to result in direct mortality or a significant impact to their nesting and foraging habitat if vegetation is removed.

Mitigations. Implementation of the following measures prior to the construction of the project will reduce impacts to San Francisco dusky-footed woodrats from direct mortality to a less-than-significant level.

Mitigation Measure 3.3.7a (Pre-construction Surveys). A qualified biologist should conduct a preconstruction survey for San Francisco dusky-footed woodrat nests between 30 and 14 days prior to start of construction to allow enough time for any action should a woodrat be observed during the survey. The survey would be limited to within the wooded area of the site if work is occurring within the wooded area. If work is not occurring within the wooded area, the survey would only need to extend 25 feet into the wooded area from the impact area.

Mitigation Measure 3.3.7b (Avoidance and Monitoring). Woodrat nests should be avoided, where possible and buffered by a minimum of 20 feet. If avoidance is not possible, the nest(s) should be manually deconstructed and rebuilt when helpless young are not present, typically during the non-breeding season (October through January). If it is determined that young may be present during the nest deconstruction, a suitable buffer of a minimum of 20 feet should be established around the nest until the young are independent enough to successfully move on their own from the nest to be deconstructed. Approximate age of the juveniles would be recorded when observed and appropriate time extrapolated out to when they would be independent from their parents, then the deconstruction can continue after the biologist first confirms that the young are not present in the nest at the time.

3.3.8 Impacts to American Badgers

Potential Impacts. American badgers have the potential to move onto the site. Therefore, the project construction has the potential to result in direct mortality or a significant impact to individuals.

Mitigations. Implementation of the following measures prior to the construction of the project will reduce impacts to the American badger from direct mortality to a less-than-significant level.

Mitigation Measure 3.3.8a (Pre-construction Surveys). During the preconstruction surveys for other species, a qualified biologist shall also determine the presence or absence of badgers prior

to the start of construction. If badgers are found to be absent, no other mitigations for the protection of badgers shall be warranted.

Mitigation Measure 3.3.8b (Avoidance and Monitoring). If an active badger den is identified during preconstruction surveys within or immediately adjacent to an area subject to construction, a construction-free buffer of up to 300 feet shall be established around the den. Once the biologist has determined the badger has vacated the burrow, the burrow can be collapsed or excavated and ground disturbance can proceed. Should the burrow be determined to be a natal or reproductive den, and because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present onsite during construction activities in the vicinity of the burrows to ensure the buffer is adequate to avoid direct impact to individuals or natal/reproductive den abandonment. The monitor will be required to be present until it is determined that young are of an independent age and construction activities would not harm individual badgers.

3.3.9 Impacts to Wildlife Movement Corridors

Potential Impacts. Local urban species currently traversing the site for regular and dispersal movements would still be expected to cross the site post-build-out and the project is not within a known regional landscape linkage or other wildlife corridor.

Therefore, wildlife currently using the Project Site for movement is expected to continue to use the Project Site post build-out and impacts to movement corridors for local wildlife are less-than-significant.

Mitigations. Mitigation for impacts to wildlife movements is not warranted.

3.3.10 Disturbance to Native Wildlife Nursery Sites

Potential Impacts. There is no aquatic habitat associated with the Project Site which could provide nursery sites for native wildlife. Measures are already listed above for potential impacts to nesting birds, roosting bats, San Francisco dusky-footed woodrat nests, and American badgers. Therefore, potential impacts to wildlife nursery sites would be less-than-significant.

Mitigation. No mitigation is warranted.

3.3.11 Direct Impacts to Jurisdictional Waters and Sensitive Aquatic Habitats

Potential Impacts. According to project plans dated May 31, 2024, the proposed project will not directly impact Ross Creek, the intermittent ephemeral drainage, or the seasonal wetland drainage feature. Therefore, the project will not result in impacts to waters or sensitive habitat under the jurisdiction of the USACE, CDFW, or RWQCB.

Mitigation. None warranted.

3.3.12 Indirect Impacts to Jurisdictional Waters and Sensitive Aquatic Habitats

Potential Impacts. Properties within 50 feet of the top of bank of Creeks are subject to review by the Town of Los Gatos under Valley Water's *Guidelines and Standards for Land Use Near Streams*. The Town requires a 25-foot riparian setback from the top of bank from creeks. While, according to the project plans dated May 31, 2024, the proposed project will not directly impact Ross Creek or the seasonal wetland drainage feature, these features will be buffered as well, therefore, indirect impacts will also be avoided. Ross Creek will be separated from development by a 100-foot flood easement and the seasonal wetland will also be protected by use of an exclusion fence.

Mitigation. None warranted.

3.3.13 Local Policies: Town of Los Gatos Tree Ordinance

Potential Impacts. Ordinance-sized trees likely occur on the site. An arborist inventory should be conducted to appropriately identify the number, species, and size of protected trees which need to be mitigated for. The project would obtain and adhere to tree removal permits as well as replacement requirements from the Town of Los Gatos.

Mitigation. No mitigations are warranted other than complying with the Town's Tree Ordinance.

3.3.14 Local Policies: Habitat Conservation Plans

Potential Impacts. The site is not within the Plan Area of the Santa Clara Valley Habitat Plan nor is it within the plan area of any other HCP/NCCP.

Mitigation. No mitigations are warranted.

4 LITERATURE CITED

California Department of Fish and Game. 2002. California Fish and Game Code. Gould Publications. Binghamton, NY.

California Department of Fish and Wildlife. 2025. Annual report on the status of California state listed threatened and endangered animals and plants. The Resources Agency, Sacramento, CA.

California Natural Diversity Database. 2025. The Resources Agency, Sacramento, CA.

California Native Plant Society. 2025. Inventory of Rare and Endangered Vascular Plants of California (online).

eBird. 2021. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org. (Accessed: January 2025)Grinnell, J., J.S. Dixon and J.M. Linsdale. 1937. Fur-bearing mammals of California. Vol. 2. Univ. California Press, Berkeley.

H.T. Harvey and Associates, 2017. Surrey Farm Estates (170 Twin Oaks Drive) Project: Wetland Impact Assessment. January 31.

Jennings, M. R., and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova.

Kimley-Horn and Associates. 2017. Partial Recirculated Draft Environmental Impact Report, SURREY FARM ESTATES, 170 TWIN OAKS DRIVE, LOS GATOS, CALIFORNIA (PD-10-006).

Natural Resource Conservation Service. 2025. Web Soil Survey.

Shuford, W. David and Thomas Gardall eds. 2008. California Bird Species of Special Concern. Western Field Orinthologists and California Department of Fish and Game.

Thomson, Robert C., Amber N. Wright, and H. Bradley Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. California Department of Wildlife. University of California Press.

Town of Los Gatos Municipal Code. 2025.

U.S. Corps of Engineers. 1987. Corps of Engineers wetlands delineation manual. Department of the Army.

U. S. Fish and Wildlife Service. 2025. Endangered and threatened wildlife and plants.

Wetland Training Insitute, Inc. 1991. Federal Wetland Regulation Reference Manual. B.N. Goode and R.J. Pierce (eds.) WTI 90-1. 281pp

Wood Biological Consulting, Inc., 2012. Request for Jurisdictional Determination, Surrey Farm Estates,

Los Gatos. Letter to U.S. Army Corps of Engineers.

Wood Biological Consulting, Inc., 2013. Floristic Analysis for the Proposed Surrey Farm Estates

Residential Subdivision, Town of Los Gatos, Santa Clara County, California. Unpublished technical

report prepared for the Town of Los Gatos.

APPENDIX C

~~ARBORIST REPORT~~ BAY AREA HYDROLOGY MODEL REPORT

Balance Hydrologics

800 Bancroft Way • Suite 101 • Berkeley, CA 94710 • (510) 704-1000
931 Mission Street • Santa Cruz, CA 95060 • (831) 457-9900
12020 Donner Pass Road • Unit B1 • Truckee, CA 96161 • (530) 550-9776
www.balancehydro.com • email: office@balancehydro.com

July 31, 2025

Rafael Hernandez, P.E.
HMH Engineers
1570 Oakland Road
San Jose, California 95131

via email to: rhernandez@HMHca.com

RE: **Summary of BAHM Modeling for the Surrey Farm Project, Town of Los Gatos**

Dear Rafael Hernandez:

I would like to begin by again thanking you for providing Balance Hydrologics the opportunity to assist with the modeling of water-quality and hydromodification control measures for the proposed Surrey Farm Project (Project) in the Town of Los Gatos, California. Coordinating with your office, Balance has proceeded with completing modeling of the proposed stormwater treatment measures, demonstrating that the project can meet flow-duration frequency requirements while meeting the required water quality treatment standards. This letter reviews our technical approach and methodology, summarizes the modeling input parameters and assumptions, and discusses the results of the work.

Regulatory and Project Setting

Compliance with runoff water quality and hydromodification management criteria was assessed using the Bay Area Hydrology Model (BAHM, version 2023). Per the latest version of Municipal Regional Stormwater Permit (MRP3) issued by the San Francisco Bay Regional Water Quality Control Board, treatment controls must be provided and must be capable of treating 80 percent of the mean annual runoff from the post-project site. Additionally, changes in runoff flow and duration must be mitigated to avoid hydromodification impacts. The pertinent range for flow-duration control is from one-tenth of the 2-year pre-project flow rate to the 10-year pre-project flow rate.

The proposed project will construct a clustered group of residential structures on a previously undeveloped property totaling approximately 1765 acres in the south-central part of the Town. The site is located roughly a quarter mile south of Shannon Drive between Twin Oaks Drive to the west and Cerro Vista Drive to the east. The existing site is characterized by relatively steep terrain with land cover consisting largely of non-native grassland with some scattered trees.

The site is underlaid by three soil types per soil mapping information prepared by the Natural Resources Conservation Service (see **Appendix A**). The dominant soil type covering 86% of the site is Zeppelin-Alumrock Complex, which is classified as a Hydrologic Soil Group C soil, indicative of low infiltration soils that are prone to high rates of runoff.

BAHM Modeling

Input parameters for the BAHM model were compiled from project plans provided by HMH. The BAHM model used data from the San Jose rain gauge with a factor of 1.724 to account for the difference in mean annual precipitation between the project site and the reference gauge location.

The pre- and post-project drainage areas were analyzed as follows and pertinent parameters are summarized in **Table 1**:

- *Pre-project*. The overall site was divided into three drainage management areas (DMAs) to characterize runoff in the pre-project condition, and these are identified as DMA A, DMA B, and DMA C (see **Figure 1** below). The first two DMAs represent distinct connection points to an existing storm drain system that crosses the western portion of the site and runs north to the end of Longmeadow Drive. Given the close proximity of these two connections, they were considered to represent a single point of compliance identified as POC1. DMA C represents runoff from the northeastern portion of the site that runs north as sheet flow toward Cerro Vista Court. Flow is picked up there by a separate trunk storm drain line, and, though part of the same overall watershed, was assigned a separate point of compliance, POC2. There is no appreciable impervious cover on the site in the pre-project condition, and all three DMAs were parameterized in BAHM as C/D grass cover on moderate slopes (DMA A) or steep slopes (DMAs B and C).

- *Post-project*. For the post-project conditions, the overall analysis framework of three DMAs and two points of compliance is maintained. Minor DMA boundary shifts occur within two of the lots and along the principal access road to the site (see the plan sheet included as **Appendix B**). The residential lots will all drain to treatment measures located within DMA B. The only land cover changes in DMA A will be the initial, roughly 400 feet of the access road, which will be constructed with permeable concrete and/or pavers over a course of aggregate base rock. A similar situation will exist in DMA B and DMA C where some access driveways will be constructed of permeable material. Since all runoff in DMA A will be routed to the pavers, that DMA is separated into two parts in the post-project case, one representing the preserved open space portion (permeable) and another for the small impervious cover area, both of which are then connected to a permeable paver element in BAHM. The permeable paver area in DMA B1 is modeled analogously to that in DMA but receives runoff from a larger impervious area. The other permeable roadway areas are modeled as pervious self-treating areas.

*Figure not OCR Compatible.

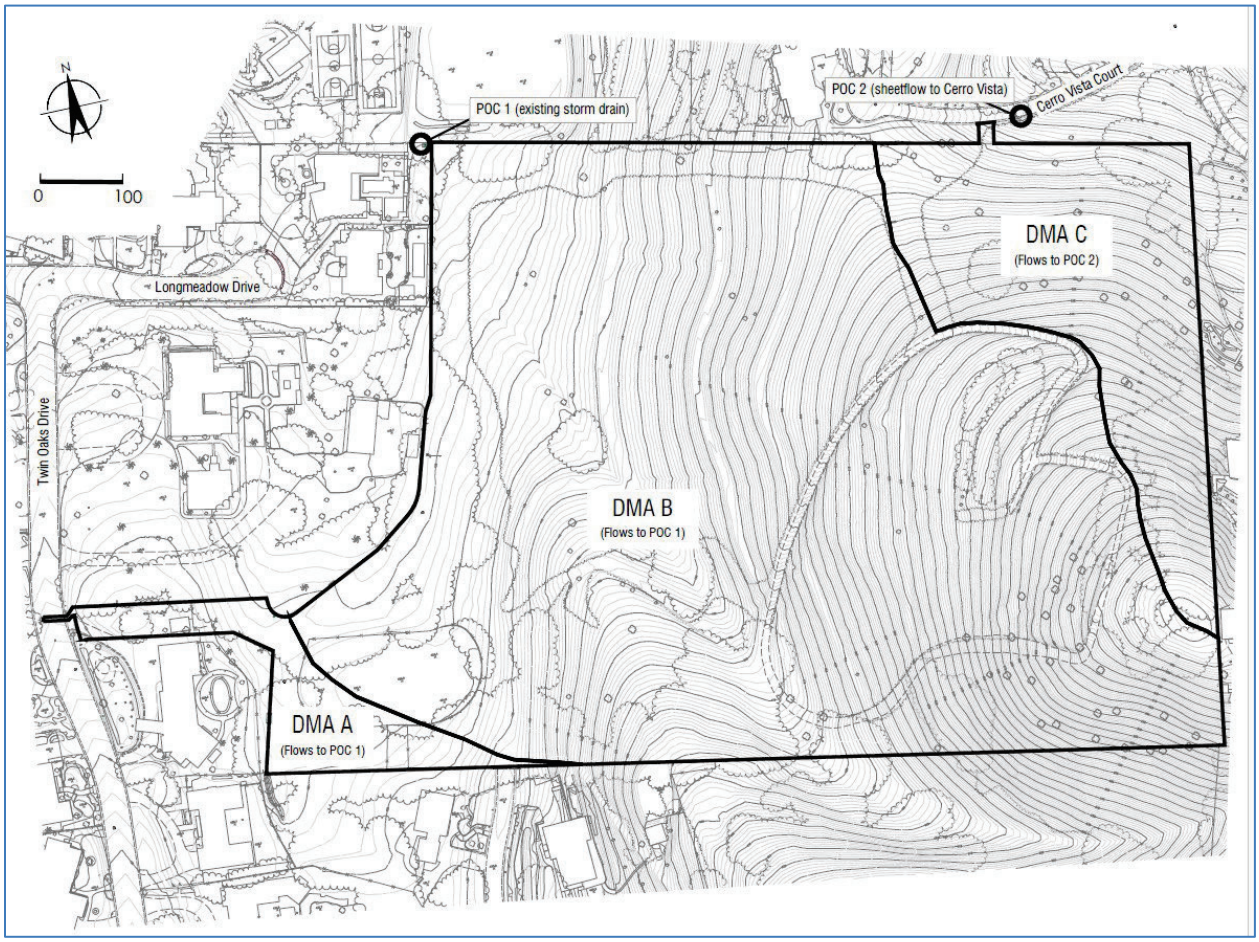


Figure 1. Pre-project DMA boundaries and points of compliance

As noted above, all the developed portions of the residential lots and the remainder of the access road will be located in DMA B. That said, the site plan uses compact structure configurations to limit impervious cover and preserve pervious area as practical. In fact, overall impervious cover is projected to be approximately 16% of the 14.2-acre DMA B. Runoff from all impervious areas will be collected in field inlets and/or catch basins and routed to one of nine bioretention basins that will provide water-quality treatment and flow-duration control. The bioretention basins are identified using numbering based on the respective lot draining to each. In all but three cases, each bioretention basin (BR) will handle the runoff from only the impervious area for one residential lot. The exceptions include the following: DMA B1 will drain to an area of permeable pavers sized to infiltrate the required treatment volume as described previously, BR 5+6 which will serve two lots (DMA 5+6), and BR 11 which will handle runoff from the eastern part of the main site roadway (DMA 11).

Table 1. Summary of Pre- and Post-Project Land Cover

DMA	Total Area (sq ft)	Total Area (acres)	Road/Sidewalk (sq ft)	Road/Sidewalk (acres)	Roof (sq ft)	Roof (acres)	Pervious (sq ft)	Pervious (acres)
Pre-project								
DMA A	34,860	0.8003	0	0.0000	0	0.0000	34,658	0.7956
DMA B	613,302	14.0795	0	0.0000	0	0.0000	613,302	14.0795
DMA C	116,866	2.6829	0	0.0000	0	0.0000	116,866	2.6829
Total	***765,028***	***17.5626***	***0***	***0.0000***	***0***	***0.0000***	***764,826***	***17.5580***
Post-project								
DMA A+AA OS	23,853	0.5476	1,435	0.0329	0	0.0000	22,418	0.5146
DMA A+AA PP	9,084	0.2085	0	0.0000	0	0.0000	9,084	0.2085
DMA B OS	485,022	11.1346	0	0.0000	0	0.0000	485,022	11.1346
B1	6,720	0.1543	770	0.0177	3,082	0.0707	2,868	0.0658
B1 PP	3,280	0.0753	0	0.0000	0	0.0000	3,280	0.0753
B2	7,853	0.1803	1,038	0.0238	4,153	0.0953	2,662	0.0611
B3	7,446	0.1709	1,064	0.0244	4,256	0.0977	2,126	0.0488
B4	13,404	0.3077	1,362	0.0313	5,447	0.1251	6,595	0.1514
B5-6	42,370	0.9727	18,965	0.4354	12,643	0.2902	10,762	0.2471
B7	12,030	0.2762	1,789	0.0411	7,157	0.1643	3,084	0.0708
B8	9,661	0.2218	1,788	0.0410	7,150	0.1642	723	0.0166
B9	11,603	0.2664	1,787	0.0410	7,149	0.1641	2,667	0.0612
B10	13,150	0.3019	2,031	0.0466	8,124	0.1865	2,995	0.0688
B11	7,476	0.1716	1,141	0.0262	4,563	0.1048	1,772	0.0407
DMA C OS	112,076	2.5729	0	0.0000	0	0.0000	112,076	2.5729
Total	***765,028***	***17.5626***	***33,170***	***0.7615***	***63,724***	***1.4629***	***668,134***	***15.3382***

The proposed bioretention basins will follow standard design elements as summarized in the C.3 Stormwater Handbook published by the Santa Clara Valley Urban Runoff Pollution Prevention Program (June 2016). Each facility is modeled with a total surface ponding depth of 6 inches, an 18-inch-thick biosoil layer, and a bottom 12-inch-thick rock layer. The model was parameterized using a 4-inch diameter underdrain, and model results show that 2-inch diameter underdrain orifices will be needed to meet hydromodification management criteria. The basins were assumed to have 3:1 side slopes.

Figure 2 shows the post-project schematic of the BAHM model.

*Figure not OCR Compatible.

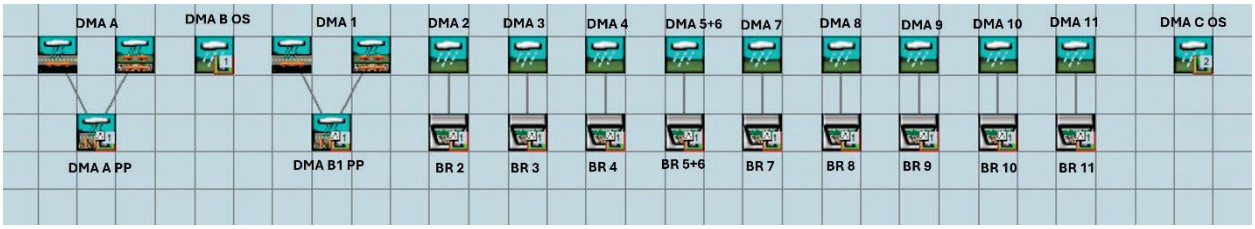


Figure 2. Post-Project BAHM Model Schematic

Model Results

Iterative BAHM model runs were completed to optimize the size and configuration of the stormwater infrastructure components. The full BAHM model output is included in **Appendix C.** The bioretention top of biosoil area and runoff treatment performance for each basin are summarized in **Table 2**.
The modeling indicates that very high treatment rates can be anticipated from the proposed treatment measures. In fact, the BAHM output shows that the basins will biofilter approximately 90% of the mean annual runoff on average, well in excess of the minimum 80% required per MRP3, with no single basin failing to meet 80% treatment.

Table 2. Treatment Areas and Resulting Runoff Treatment

Facility	Eff Impervious *(sq ft)*	Surface Area *(sq ft)*	Area/Eff Imp *(%)*	Treated *(%)*
DMA B1 Pavers	4139	3,280	79%	99.0
BR 2	5,431	259	4.8%	92.6
BR 3	5,507	259	4.7%	93.0
BR 4	7,438	306	4.1%	87.7
BR 5+6	32,516	1,682	5.2%	88.9
BR 7	9,224	305	3.3%	87.4
BR 8	8,973	371	4.1%	92.9
BR 9	9,168	346	3.8%	90.2
BR 10	10,418	363	3.5%	88.8
BR 11	5,857	238	4.1%	91.3

Figure 3 illustrates the flow-duration plots for POC2 for the pre- and post-project (mitigated) cases.

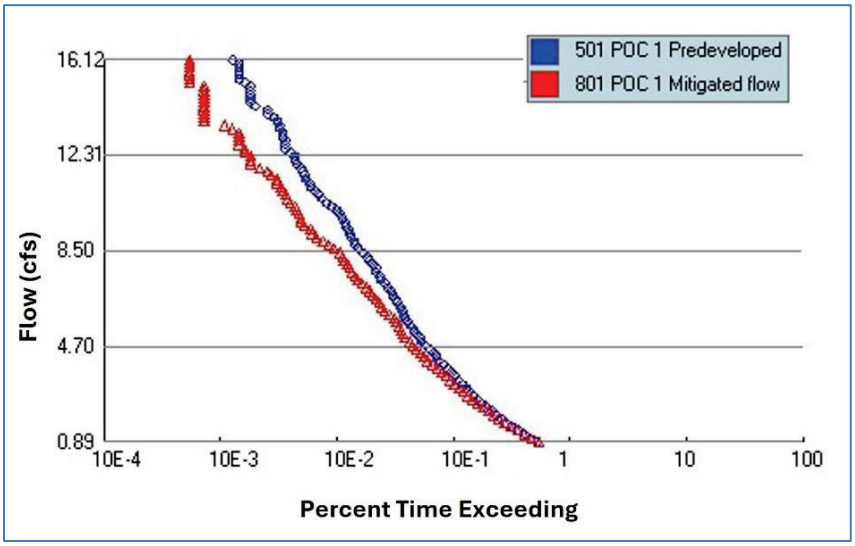


Figure 3. Flow-Duration Compliance Plot for POC 1 from the BAHM Model Output

Flow-duration compliance for POC2 is shown in **Figure 4** below.

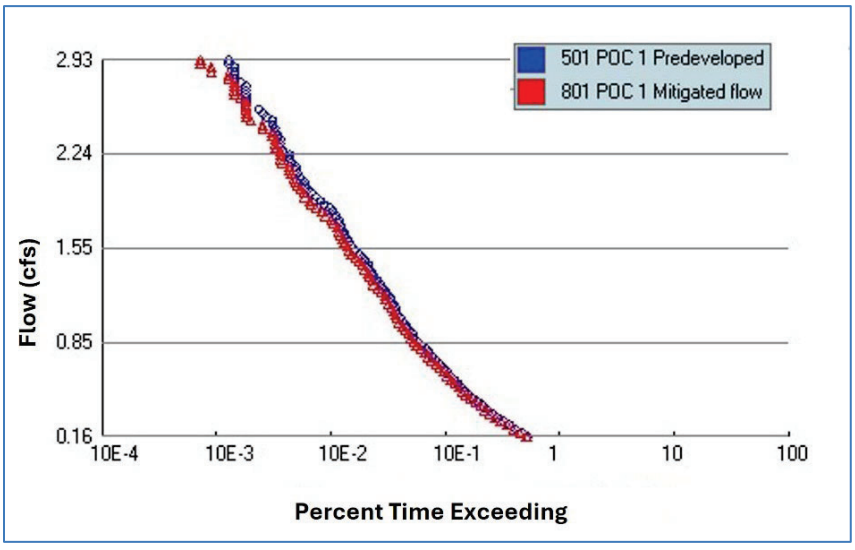


Figure 4. Flow-Duration Compliance Plot for POC 2 from the BAHM Model Output

Closing

Thank you again for the opportunity to assist with these stormwater management analyses. The modeling of the proposed stormwater management facilities shows that effective water-quality treatment and flow-duration controls can be provided for the full range of flows from one-tenth of the 2-year event up to the 10-year event.

Please do not hesitate to contact us if you have questions related to the modeling work, results, or conclusions presented herein.

Sincerely,

BALANCE HYDROLOGICS, Inc.

Edward D. Ballman, PE
Principal Engineer

Jiovanna Garcia-Diaz
Engineer/ Hydrologist

Enclosures:
Appendix A: Web Soil Survey Report
Appendix B: Post-project Stormwater Control Plan
Appendix C: Bay Area Hydrology Model Output
BAHM July 2025 Zip File

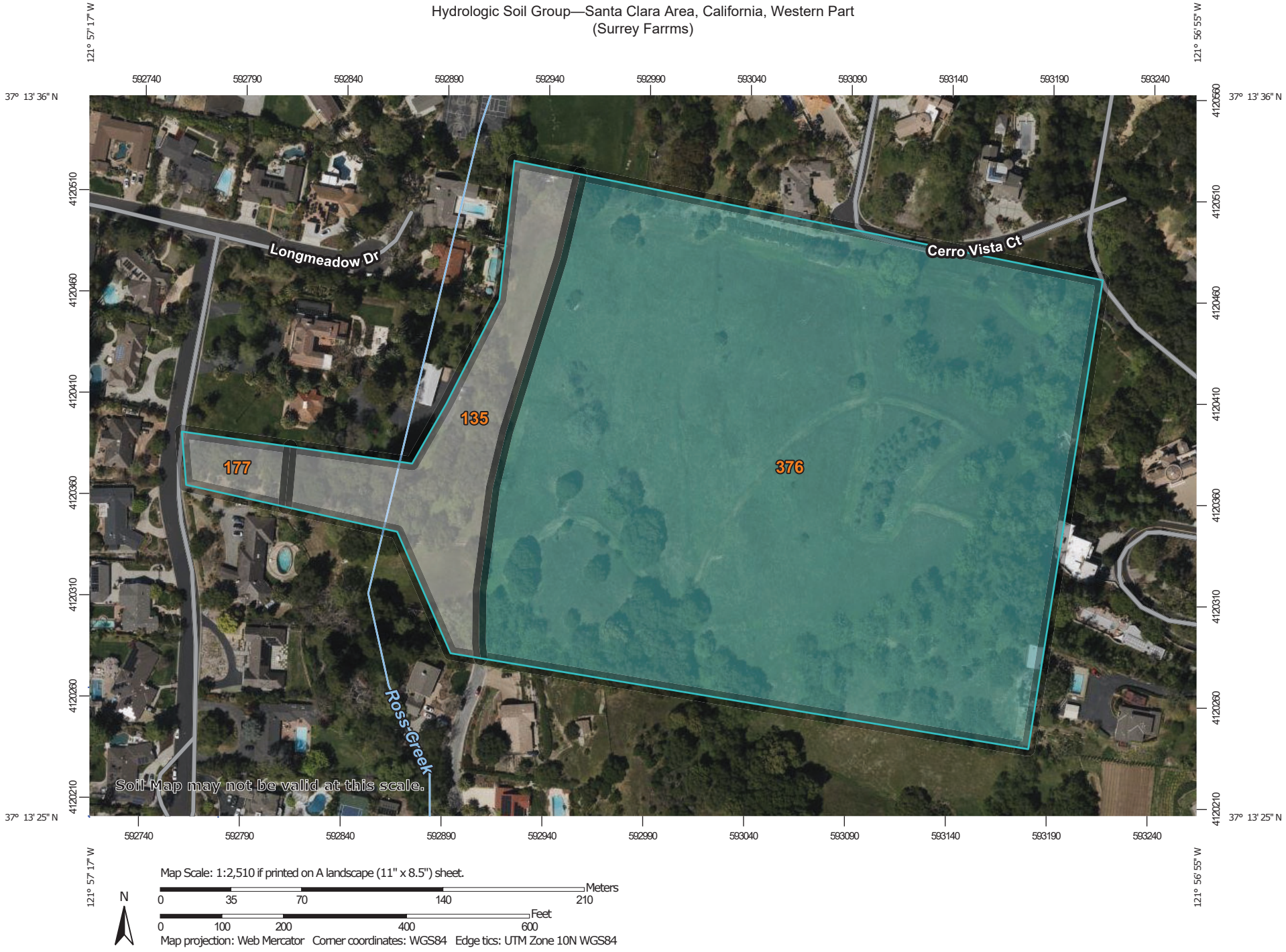
APPENDICES

APPENDIX A

Web Soil Survey Report

*Figure not OCR Compatible.

Hydrologic Soil Group—Santa Clara Area, California, Western Part
(Surrey Farrms)



Map Scale: 1:2,510 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 12, Sep 11, 2023

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
135	Urban land-Stevenscreek complex, 0 to 2 percent slopes		2.4	12.5%
177	Urban land-Botella complex, 9 to 15 percent slopes		0.4	1.9%
376	Zeppelin-Alumrock complex, 30 to 50 percent slopes	C	16.4	85.6%
Totals for Area of Interest			**19.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX B

Post-project Stormwater Control Plan

LEGEND

PROJECT BOUNDARY
LOT LINE
EASEMENT
STORM DRAIN PIPE — SD —
STORM DRAIN PIPE (EXISTING) — SD(E) —
STORM DRAIN MANHOLE
STORM DRAIN MANHOLE (EXISTING)
CURB INLET
STORM DRAIN INLET
STORM DRAIN INLET (EXISTING)
STORM DRAIN CLEANOUT AT DOWNSPOUT
BUBBLER BOX
DIRECTION OF SURFACE DRAINAGE
DRAINAGE MANAGEMENT AREA — DMA#
BIORETENTION AREA
PERVIOUS PAVERS
RIPARIAN

HYDROMODIFICATION NOTE:

1. REFER TO THE "SUMMARY OF BAHM MODELING FOR THE SURREY FARM PROJECT" REPORT FOR HYDROMODIFICATION AND STORMWATER TREATMENT DESIGN ASSUMPTIONS AND SUMMARY OF RESULTS.

2. Project Size

a. Total Site Area: 765,028 (ft²)		b. Total Land Area Disturbed During Construction: 842,482 (ft²) (including clearing, grading, stockpiling, or excavating)			
Project Totals	**Total Existing (Pre-project) Area (ft²)**	**Existing Area Retained[1] (ft²)**	**Existing Area Replaced[2] (ft²)**	**New Area Created[2] (ft²)**	**Total Post-Project Area (ft²)**
Impervious Area (IA)					
c. Total on-site IA	0	0	0	96,692	96,692
d. Total off-site IA[3]	202		202	0	202
e. Total project IA	202	0	202	96,692	96,894
f. Total new and replaced IA			96,894		
Pervious Area (PA)[4]					
g. Total on-site PA	764,378				667,686
h. Total off-site PA[3]	448				448
i. Total project PA	764,826				668,134
j. Total Project Area (2.e.+2.i.)	765,028				765,028
k. Percent Replacement of IA in Redevelopment Projects: (Total Existing IA Replaced ÷ Total Existing IA) x 100%					100 %

[1] "Retained" means to leave existing IA in place. An IA that receives surface treatment (e.g., pavement resurfacing/slurry seal/grind) only is considered "retained". This category does not apply to off-site areas

[2] The "new" and "replaced" IA are based on the total project area and not specific locations within the project. Constructed IA on a project that does not exceed the total pre-project IA will be considered "replaced" A. A project will have "new" IA only if the total post-project IA exceeds the total pre-project IA (total post-project IA – total pre-project IA = New IA).

[3] Off-site areas include sidewalks and other parts of the public right-of-way (e.g., roads, bike lanes, curbs, ramps, pink strip) that are being reconstructed as part of the project footprint. Do not include frontage areas that are not being reconstructed as part of the project. Note that gravel is considered an impervious surface.

[4] Include bioretention areas, infiltration areas, green roofs, and pervious pavement in PA calculations

HMH
Land Use Entitlements
Land Planning
Landscape Architecture
Civil Engineering
Utility Design
Land Surveying
Stormwater Compliance
1570 Oakland Road (408) 487-2200
San Jose, CA 95131 HMHca.com

SURREY FARM ESTATES

178 TWIN OAKS DRIVE

DEVELOPMENT REVIEW & TENTATIVE MAP

M-24-013

NO	DATE	DESCRIPTION
1	07/25/25	PER CITY COMMENTS
2	04/18/25	PER CITY COMMENTS
3	01/08/25	PER CITY COMMENTS
4	10/07/24	PER CITY COMMENTS

PROJECT NO:	4185.10
CAD DWG FILE:	4185103W.DWG
DESIGNED BY:	MD
DRAWN BY:	NW
CHECKED BY:	RH
DATE:	AUGUST XX, 2025
SCALE:	1" = 50'

© HMH

STORMWATER CONTROL PLAN

5.0

S:\PROJECTS\4185 SVFL\PERMIT_SITE\PERMIT\4185103W.DWG

PLOTTED: 7/23/2025 3:47 PM

*Figure not OCR Compatible.

APPENDIX C

Bay Area Hydrology Model Output

BAHM2023

PROJECT REPORT

General Model Information

BAHM2023 Project Name: 224067 Surrey Farm July 2025

Site Name:	Surrey Farm
Site Address:	
City:	Los Gatos
Report Date:	7/29/2025
Gage:	San Jose
Data Start:	1959/10/01
Data End:	2022/09/30
Timestep:	Hourly
Precip Scale:	1.724
Version Date:	2024/06/19

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year
Low Flow Threshold for POC2:	10 Percent of the 2 Year
High Flow Threshold for POC2:	10 Year

Landuse Basin Data

Pre-Project Land Use

DMA B Pre

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Ste(10-20)	14.0795
Pervious Total	14.0795
Impervious Land Use	acre
Impervious Total	0
Basin Total	14.0795

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

POC 1	POC 1

DMA C Pre

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Ste(10-20)	2.6829
Pervious Total	2.6829
Impervious Land Use	acre
Impervious Total	0
Basin Total	2.6829

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

POC 2	POC 2

DMA A Pre

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Mod(5-10%)	0.7956
Pervious Total	0.7956

Impervious Land Use	acre
Roads,Flat(0-5%)	0.0046
Impervious Total	0.0046
Basin Total	0.8002

Element Flow Componants:

Surface	Interflow	Groundwater
Componant Flows To:		
POC 1	POC 1	

Mitigated Land Use

DMA B OS

Bypass:	Yes
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Ste(10-20)	11.1346
Pervious Total	11.1346
Impervious Land Use	acre
Impervious Total	0
Basin Total	11.1346

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

POC 1	POC 1

DMA B2

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.0552
Pervious Total	0.0552

Impervious Land Use	acre
Roads,Mod(5-10%)	0.0238
Roof Area	0.0953
Impervious Total	0.1191
Basin Total	0.1743

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

Surface	Interflow	Groundwater
Surface BR B2	Surface BR B2	

DMA B3

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.0429
Pervious Total	0.0429

Impervious Land Use	acre
Roads,Mod(5-10%)	0.0244
Roof Area	0.0977
Impervious Total	0.1221
Basin Total	0.165

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

Surface	Interflow	Groundwater
Surface BR B3	Surface BR B3	

DMA B4

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.1444
Pervious Total	0.1444

Impervious Land Use	acre
Roads,Mod(5-10%)	0.0313
Roof Area	0.1251
Impervious Total	0.1564
Basin Total	0.3008

Element Flow Componants:

Surface	Interflow	Groundwater
Componant Flows To:		
Surface BR B4	Surface BR B4	

DMA B5-6

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.2084
Pervious Total	0.2084

Impervious Land Use	acre
Roads,Flat(0-5%)	0.0969
Roads,Mod(5-10%)	0.3385
Roof Area	0.2902
Impervious Total	0.7256
Basin Total	0.934

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

Surface	Interflow	Groundwater
Surface BR B5-6	Surface BR B5-6	

DMA B7

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.0638
Pervious Total	0.0638

Impervious Land Use	acre
Roads,Mod(5-10%)	0.0411
Roof Area	0.1643
Impervious Total	0.2054
Basin Total	0.2692

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

Surface	Interflow	Groundwater
Surface BR B7	Surface BR B7	

DMA B8

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.0081
Pervious Total	0.0081

Impervious Land Use	acre
Roads,Mod(5-10%)	0.041
Roof Area	0.1642
Impervious Total	0.2052
Basin Total	0.2133

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

Surface	Interflow	Groundwater
Surface BR B8	Surface BR B8	

DMA B9

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.0533
Pervious Total	0.0533

Impervious Land Use	acre
Roads,Mod(5-10%)	0.041
Roof Area	0.1641
Impervious Total	0.2051
Basin Total	0.2584

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

Surface	Interflow	Groundwater
Surface BR B9	Surface BR B9	

DMA B10

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.0604
Pervious Total	0.0604

Impervious Land Use	acre
Roads,Mod(5-10%)	0.0466
Roof Area	0.1865
Impervious Total	0.2331
Basin Total	0.2935

Element Flow Componants:

Surface	Interflow	Groundwater
Componant Flows To:		
Surface BR B10	Surface BR B10	

DMA B11

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	0.0352
Pervious Total	0.0352

Impervious Land Use	acre
Roads,Mod(5-10%)	0.0262
Roof Area	0.1048
Impervious Total	0.131
Basin Total	0.1662

Element Flow Componants:

Surface	Interflow	Groundwater
Componant Flows To:		
Surface BR B11	Surface BR B11	

DMA C OS

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C D,Grass,Ste(10-20)	2.5729
Pervious Total	2.5729
Impervious Land Use	acre
Impervious Total	0
Basin Total	2.5729

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

POC 2	POC 2

DMA A OS

Bypass: No

GroundWater: No

Pervious Land Use	acre
C D,Grass,Mod(5-10%)	.5146

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

DMA A PP	DMA A PP

DMA A Imp

Bypass:	No
Impervious Land Use	acre
Roads,Mod(5-10%)	0.0329

Element Flow Componant:
Surface
Componant Flows To:
DMA A PP

DMA B1 Perv

Bypass: No

GroundWater: No

Pervious Land Use	acre
C D,Grass,Flat(0-5%)	.0658

Element Flow Componants:

Surface	Interflow	Groundwater

Componant Flows To:

DMA B1 PP	DMA B1 PP

DMA B1 Imp

Bypass:	No
Impervious Land Use	acre
Roof Area	0.0884
Element Flow Componant:	
Surface	
Componant Flows To:	
DMA B1 PP	

Routing Elements
Pre-Project Routing

Mitigated Routing

BR B2

Bottom Length:	25.90 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	16.025
Total Outflow (ac-ft.):	17.308
Percent Through Underdrain:	92.59
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0059	0.0000	0.0000	0.0000
0.0385	0.0059	0.0001	0.0000	0.0000
0.0769	0.0059	0.0002	0.0000	0.0000
0.1154	0.0059	0.0003	0.0000	0.0000
0.1538	0.0059	0.0003	0.0000	0.0000
0.1923	0.0059	0.0004	0.0000	0.0000
0.2308	0.0059	0.0005	0.0000	0.0000
0.2692	0.0059	0.0006	0.0000	0.0000
0.3077	0.0059	0.0007	0.0000	0.0000
0.3462	0.0059	0.0008	0.0000	0.0000
0.3846	0.0059	0.0009	0.0000	0.0000
0.4231	0.0059	0.0010	0.0013	0.0000
0.4615	0.0059	0.0010	0.0016	0.0000
0.5000	0.0059	0.0011	0.0018	0.0000
0.5385	0.0059	0.0012	0.0022	0.0000
0.5769	0.0059	0.0013	0.0025	0.0000
0.6154	0.0059	0.0014	0.0029	0.0000
0.6538	0.0059	0.0015	0.0033	0.0000
0.6923	0.0059	0.0016	0.0038	0.0000
0.7308	0.0059	0.0017	0.0043	0.0000
0.7692	0.0059	0.0017	0.0049	0.0000
0.8077	0.0059	0.0018	0.0055	0.0000
0.8462	0.0059	0.0019	0.0062	0.0000
0.8846	0.0059	0.0020	0.0069	0.0000
0.9231	0.0059	0.0021	0.0076	0.0000
0.9615	0.0059	0.0022	0.0077	0.0000
1.0000	0.0059	0.0023	0.0085	0.0000
1.0385	0.0059	0.0023	0.0094	0.0000

1.0769	0.0059	0.0024	0.0104	0.0000
1.1154	0.0059	0.0025	0.0114	0.0000
1.1538	0.0059	0.0026	0.0124	0.0000
1.1923	0.0059	0.0027	0.0135	0.0000
1.2308	0.0059	0.0028	0.0147	0.0000
1.2692	0.0059	0.0029	0.0160	0.0000
1.3077	0.0059	0.0030	0.0173	0.0000
1.3462	0.0059	0.0030	0.0183	0.0000
1.3846	0.0059	0.0031	0.0186	0.0000
1.4231	0.0059	0.0032	0.0201	0.0000
1.4615	0.0059	0.0033	0.0216	0.0000
1.5000	0.0059	0.0034	0.0231	0.0000
1.5385	0.0059	0.0035	0.0248	0.0000
1.5769	0.0059	0.0036	0.0265	0.0000
1.6154	0.0059	0.0037	0.0282	0.0000
1.6538	0.0059	0.0038	0.0366	0.0000
1.6923	0.0059	0.0039	0.0400	0.0000
1.7308	0.0059	0.0040	0.0400	0.0000
1.7692	0.0059	0.0041	0.0400	0.0000
1.8077	0.0059	0.0042	0.0400	0.0000
1.8462	0.0059	0.0043	0.0400	0.0000
1.8846	0.0059	0.0043	0.0400	0.0000
1.9231	0.0059	0.0044	0.0400	0.0000
1.9615	0.0059	0.0045	0.0400	0.0000
2.0000	0.0059	0.0046	0.0400	0.0000
2.0385	0.0059	0.0047	0.0400	0.0000
2.0769	0.0059	0.0048	0.0400	0.0000
2.1154	0.0059	0.0049	0.0400	0.0000
2.1538	0.0059	0.0050	0.0400	0.0000
2.1923	0.0059	0.0051	0.0400	0.0000
2.2308	0.0059	0.0052	0.0400	0.0000
2.2692	0.0059	0.0053	0.0400	0.0000
2.3077	0.0059	0.0054	0.0400	0.0000
2.3462	0.0059	0.0055	0.0400	0.0000
2.3846	0.0059	0.0056	0.0400	0.0000
2.4231	0.0059	0.0057	0.0400	0.0000
2.4615	0.0059	0.0058	0.0400	0.0000
2.5000	0.0059	0.0059	0.0400	0.0000
2.5000	0.0059	0.0059	0.0400	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0059	0.0059	0.0000	0.0300	0.0000
2.5385	0.0061	0.0061	0.0000	0.0300	0.0000
2.5769	0.0063	0.0063	0.0000	0.0315	0.0000
2.6154	0.0065	0.0066	0.0000	0.0323	0.0000
2.6538	0.0067	0.0068	0.0000	0.0331	0.0000
2.6923	0.0069	0.0071	0.0000	0.0338	0.0000
2.7308	0.0071	0.0074	0.0000	0.0346	0.0000
2.7692	0.0073	0.0077	0.0000	0.0354	0.0000
2.8077	0.0075	0.0079	0.0000	0.0361	0.0000
2.8462	0.0078	0.0082	0.0000	0.0369	0.0000
2.8846	0.0080	0.0085	0.0000	0.0377	0.0000
2.9231	0.0082	0.0088	0.0000	0.0384	0.0000
2.9615	0.0084	0.0092	0.0000	0.0392	0.0000
3.0000	0.0086	0.0095	0.0000	0.0400	0.0000
3.0385	0.0088	0.0098	0.0800	0.0407	0.0000
3.0769	0.0091	0.0102	0.2257	0.0415	0.0000

3.1154	0.0093	0.0105	0.4122	0.0423	0.0000
3.1538	0.0095	0.0109	0.6273	0.0430	0.0000
3.1923	0.0098	0.0113	0.8600	0.0438	0.0000
3.2308	0.0100	0.0116	1.0991	0.0446	0.0000
3.2692	0.0102	0.0120	1.3333	0.0453	0.0000
3.3077	0.0105	0.0124	1.5516	0.0461	0.0000
3.3462	0.0107	0.0128	1.7445	0.0469	0.0000
3.3846	0.0110	0.0133	1.9054	0.0477	0.0000
3.4231	0.0112	0.0137	2.0318	0.0484	0.0000
3.4615	0.0115	0.0141	2.1274	0.0492	0.0000
3.5000	0.0117	0.0146	2.2033	0.0500	0.0000

BR B3

Bottom Length:	25.90 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	15.903
Total Outflow (ac-ft.):	17.105
Percent Through Underdrain:	92.98
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0059	0.0000	0.0000	0.0000
0.0385	0.0059	0.0001	0.0000	0.0000
0.0769	0.0059	0.0002	0.0000	0.0000
0.1154	0.0059	0.0003	0.0000	0.0000
0.1538	0.0059	0.0003	0.0000	0.0000
0.1923	0.0059	0.0004	0.0000	0.0000
0.2308	0.0059	0.0005	0.0000	0.0000
0.2692	0.0059	0.0006	0.0000	0.0000
0.3077	0.0059	0.0007	0.0000	0.0000
0.3462	0.0059	0.0008	0.0000	0.0000
0.3846	0.0059	0.0009	0.0000	0.0000
0.4231	0.0059	0.0010	0.0013	0.0000
0.4615	0.0059	0.0010	0.0016	0.0000
0.5000	0.0059	0.0011	0.0018	0.0000
0.5385	0.0059	0.0012	0.0022	0.0000
0.5769	0.0059	0.0013	0.0025	0.0000
0.6154	0.0059	0.0014	0.0029	0.0000
0.6538	0.0059	0.0015	0.0033	0.0000
0.6923	0.0059	0.0016	0.0038	0.0000
0.7308	0.0059	0.0017	0.0043	0.0000
0.7692	0.0059	0.0017	0.0049	0.0000
0.8077	0.0059	0.0018	0.0055	0.0000
0.8462	0.0059	0.0019	0.0062	0.0000
0.8846	0.0059	0.0020	0.0069	0.0000
0.9231	0.0059	0.0021	0.0076	0.0000
0.9615	0.0059	0.0022	0.0077	0.0000
1.0000	0.0059	0.0023	0.0085	0.0000
1.0385	0.0059	0.0023	0.0094	0.0000
1.0769	0.0059	0.0024	0.0104	0.0000
1.1154	0.0059	0.0025	0.0114	0.0000

1.1538	0.0059	0.0026	0.0124	0.0000
1.1923	0.0059	0.0027	0.0135	0.0000
1.2308	0.0059	0.0028	0.0147	0.0000
1.2692	0.0059	0.0029	0.0160	0.0000
1.3077	0.0059	0.0030	0.0173	0.0000
1.3462	0.0059	0.0030	0.0183	0.0000
1.3846	0.0059	0.0031	0.0186	0.0000
1.4231	0.0059	0.0032	0.0201	0.0000
1.4615	0.0059	0.0033	0.0216	0.0000
1.5000	0.0059	0.0034	0.0231	0.0000
1.5385	0.0059	0.0035	0.0248	0.0000
1.5769	0.0059	0.0036	0.0265	0.0000
1.6154	0.0059	0.0037	0.0282	0.0000
1.6538	0.0059	0.0038	0.0366	0.0000
1.6923	0.0059	0.0039	0.0400	0.0000
1.7308	0.0059	0.0040	0.0400	0.0000
1.7692	0.0059	0.0041	0.0400	0.0000
1.8077	0.0059	0.0042	0.0400	0.0000
1.8462	0.0059	0.0043	0.0400	0.0000
1.8846	0.0059	0.0043	0.0400	0.0000
1.9231	0.0059	0.0044	0.0400	0.0000
1.9615	0.0059	0.0045	0.0400	0.0000
2.0000	0.0059	0.0046	0.0400	0.0000
2.0385	0.0059	0.0047	0.0400	0.0000
2.0769	0.0059	0.0048	0.0400	0.0000
2.1154	0.0059	0.0049	0.0400	0.0000
2.1538	0.0059	0.0050	0.0400	0.0000
2.1923	0.0059	0.0051	0.0400	0.0000
2.2308	0.0059	0.0052	0.0400	0.0000
2.2692	0.0059	0.0053	0.0400	0.0000
2.3077	0.0059	0.0054	0.0400	0.0000
2.3462	0.0059	0.0055	0.0400	0.0000
2.3846	0.0059	0.0056	0.0400	0.0000
2.4231	0.0059	0.0057	0.0400	0.0000
2.4615	0.0059	0.0058	0.0400	0.0000
2.5000	0.0059	0.0059	0.0400	0.0000
2.5000	0.0059	0.0059	0.0400	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0059	0.0059	0.0000	0.0300	0.0000
2.5385	0.0061	0.0061	0.0000	0.0300	0.0000
2.5769	0.0063	0.0063	0.0000	0.0315	0.0000
2.6154	0.0065	0.0066	0.0000	0.0323	0.0000
2.6538	0.0067	0.0068	0.0000	0.0331	0.0000
2.6923	0.0069	0.0071	0.0000	0.0338	0.0000
2.7308	0.0071	0.0074	0.0000	0.0346	0.0000
2.7692	0.0073	0.0077	0.0000	0.0354	0.0000
2.8077	0.0075	0.0079	0.0000	0.0361	0.0000
2.8462	0.0078	0.0082	0.0000	0.0369	0.0000
2.8846	0.0080	0.0085	0.0000	0.0377	0.0000
2.9231	0.0082	0.0088	0.0000	0.0384	0.0000
2.9615	0.0084	0.0092	0.0000	0.0392	0.0000
3.0000	0.0086	0.0095	0.0000	0.0400	0.0000
3.0385	0.0088	0.0098	0.0800	0.0407	0.0000
3.0769	0.0091	0.0102	0.2257	0.0415	0.0000
3.1154	0.0093	0.0105	0.4122	0.0423	0.0000
3.1538	0.0095	0.0109	0.6273	0.0430	0.0000

3.1923	0.0098	0.0113	0.8600	0.0438	0.0000
3.2308	0.0100	0.0116	1.0991	0.0446	0.0000
3.2692	0.0102	0.0120	1.3333	0.0453	0.0000
3.3077	0.0105	0.0124	1.5516	0.0461	0.0000
3.3462	0.0107	0.0128	1.7445	0.0469	0.0000
3.3846	0.0110	0.0133	1.9054	0.0477	0.0000
3.4231	0.0112	0.0137	2.0318	0.0484	0.0000
3.4615	0.0115	0.0141	2.1274	0.0492	0.0000
3.5000	0.0117	0.0146	2.2033	0.0500	0.0000

BR B4

Bottom Length:	30.60 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	22.784
Total Outflow (ac-ft.):	25.986
Percent Through Underdrain:	87.68
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0070	0.0000	0.0000	0.0000
0.0385	0.0070	0.0001	0.0000	0.0000
0.0769	0.0070	0.0002	0.0000	0.0000
0.1154	0.0070	0.0003	0.0000	0.0000
0.1538	0.0070	0.0004	0.0000	0.0000
0.1923	0.0070	0.0005	0.0000	0.0000
0.2308	0.0070	0.0006	0.0000	0.0000
0.2692	0.0070	0.0007	0.0000	0.0000
0.3077	0.0070	0.0008	0.0000	0.0000
0.3462	0.0070	0.0009	0.0000	0.0000
0.3846	0.0070	0.0010	0.0000	0.0000
0.4231	0.0070	0.0011	0.0016	0.0000
0.4615	0.0070	0.0012	0.0019	0.0000
0.5000	0.0070	0.0013	0.0022	0.0000
0.5385	0.0070	0.0014	0.0025	0.0000
0.5769	0.0070	0.0015	0.0030	0.0000
0.6154	0.0070	0.0016	0.0034	0.0000
0.6538	0.0070	0.0017	0.0039	0.0000
0.6923	0.0070	0.0018	0.0045	0.0000
0.7308	0.0070	0.0020	0.0051	0.0000
0.7692	0.0070	0.0021	0.0058	0.0000
0.8077	0.0070	0.0022	0.0065	0.0000
0.8462	0.0070	0.0023	0.0073	0.0000
0.8846	0.0070	0.0024	0.0082	0.0000
0.9231	0.0070	0.0025	0.0090	0.0000
0.9615	0.0070	0.0026	0.0091	0.0000
1.0000	0.0070	0.0027	0.0101	0.0000
1.0385	0.0070	0.0028	0.0111	0.0000
1.0769	0.0070	0.0029	0.0122	0.0000
1.1154	0.0070	0.0030	0.0134	0.0000

1.1538	0.0070	0.0031	0.0147	0.0000
1.1923	0.0070	0.0032	0.0160	0.0000
1.2308	0.0070	0.0033	0.0174	0.0000
1.2692	0.0070	0.0034	0.0189	0.0000
1.3077	0.0070	0.0035	0.0204	0.0000
1.3462	0.0070	0.0036	0.0216	0.0000
1.3846	0.0070	0.0037	0.0220	0.0000
1.4231	0.0070	0.0038	0.0237	0.0000
1.4615	0.0070	0.0039	0.0255	0.0000
1.5000	0.0070	0.0040	0.0273	0.0000
1.5385	0.0070	0.0041	0.0293	0.0000
1.5769	0.0070	0.0042	0.0313	0.0000
1.6154	0.0070	0.0043	0.0333	0.0000
1.6538	0.0070	0.0045	0.0366	0.0000
1.6923	0.0070	0.0046	0.0452	0.0000
1.7308	0.0070	0.0047	0.0472	0.0000
1.7692	0.0070	0.0048	0.0472	0.0000
1.8077	0.0070	0.0049	0.0472	0.0000
1.8462	0.0070	0.0050	0.0472	0.0000
1.8846	0.0070	0.0051	0.0472	0.0000
1.9231	0.0070	0.0052	0.0472	0.0000
1.9615	0.0070	0.0054	0.0472	0.0000
2.0000	0.0070	0.0055	0.0472	0.0000
2.0385	0.0070	0.0056	0.0472	0.0000
2.0769	0.0070	0.0057	0.0472	0.0000
2.1154	0.0070	0.0058	0.0472	0.0000
2.1538	0.0070	0.0059	0.0472	0.0000
2.1923	0.0070	0.0060	0.0472	0.0000
2.2308	0.0070	0.0061	0.0472	0.0000
2.2692	0.0070	0.0063	0.0472	0.0000
2.3077	0.0070	0.0064	0.0472	0.0000
2.3462	0.0070	0.0065	0.0472	0.0000
2.3846	0.0070	0.0066	0.0472	0.0000
2.4231	0.0070	0.0067	0.0472	0.0000
2.4615	0.0070	0.0068	0.0472	0.0000
2.5000	0.0070	0.0069	0.0472	0.0000
2.5000	0.0070	0.0069	0.0472	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0070	0.0069	0.0000	0.0354	0.0000
2.5385	0.0072	0.0072	0.0000	0.0354	0.0000
2.5769	0.0075	0.0075	0.0000	0.0372	0.0000
2.6154	0.0077	0.0078	0.0000	0.0381	0.0000
2.6538	0.0079	0.0081	0.0000	0.0390	0.0000
2.6923	0.0081	0.0084	0.0000	0.0400	0.0000
2.7308	0.0084	0.0087	0.0000	0.0409	0.0000
2.7692	0.0086	0.0090	0.0000	0.0418	0.0000
2.8077	0.0088	0.0094	0.0000	0.0427	0.0000
2.8462	0.0091	0.0097	0.0000	0.0436	0.0000
2.8846	0.0093	0.0101	0.0000	0.0445	0.0000
2.9231	0.0095	0.0104	0.0000	0.0454	0.0000
2.9615	0.0098	0.0108	0.0000	0.0463	0.0000
3.0000	0.0100	0.0112	0.0000	0.0472	0.0000
3.0385	0.0103	0.0116	0.0800	0.0481	0.0000
3.0769	0.0105	0.0120	0.2257	0.0490	0.0000
3.1154	0.0108	0.0124	0.4122	0.0499	0.0000
3.1538	0.0110	0.0128	0.6273	0.0509	0.0000

3.1923	0.0113	0.0132	0.8600	0.0518	0.0000
3.2308	0.0116	0.0137	1.0991	0.0527	0.0000
3.2692	0.0118	0.0141	1.3333	0.0536	0.0000
3.3077	0.0121	0.0146	1.5516	0.0545	0.0000
3.3462	0.0123	0.0150	1.7445	0.0554	0.0000
3.3846	0.0126	0.0155	1.9054	0.0563	0.0000
3.4231	0.0129	0.0160	2.0318	0.0572	0.0000
3.4615	0.0132	0.0165	2.1274	0.0581	0.0000
3.5000	0.0134	0.0170	2.2033	0.0590	0.0000

BR B5-6

Bottom Length:	139.80 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	88.656
Total Outflow (ac-ft.):	99.74
Percent Through Underdrain:	88.89
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0321	0.0000	0.0000	0.0000
0.0385	0.0321	0.0005	0.0000	0.0000
0.0769	0.0321	0.0009	0.0000	0.0000
0.1154	0.0321	0.0014	0.0000	0.0000
0.1538	0.0321	0.0019	0.0000	0.0000
0.1923	0.0321	0.0023	0.0000	0.0000
0.2308	0.0321	0.0028	0.0000	0.0000
0.2692	0.0321	0.0033	0.0000	0.0000
0.3077	0.0321	0.0038	0.0000	0.0000
0.3462	0.0321	0.0042	0.0000	0.0000
0.3846	0.0321	0.0047	0.0000	0.0000
0.4231	0.0321	0.0052	0.0073	0.0000
0.4615	0.0321	0.0056	0.0085	0.0000
0.5000	0.0321	0.0061	0.0100	0.0000
0.5385	0.0321	0.0066	0.0116	0.0000
0.5769	0.0321	0.0070	0.0135	0.0000
0.6154	0.0321	0.0075	0.0156	0.0000
0.6538	0.0321	0.0080	0.0180	0.0000
0.6923	0.0321	0.0084	0.0199	0.0000
0.7308	0.0321	0.0089	0.0234	0.0000
0.7692	0.0321	0.0094	0.0249	0.0000
0.8077	0.0321	0.0099	0.0252	0.0000
0.8462	0.0321	0.0103	0.0295	0.0000
0.8846	0.0321	0.0108	0.0333	0.0000
0.9231	0.0321	0.0113	0.0354	0.0000
0.9615	0.0321	0.0117	0.0366	0.0000
1.0000	0.0321	0.0122	0.0397	0.0000
1.0385	0.0321	0.0127	0.0425	0.0000
1.0769	0.0321	0.0131	0.0452	0.0000
1.1154	0.0321	0.0136	0.0477	0.0000

1.1538	0.0321	0.0141	0.0501	0.0000
1.1923	0.0321	0.0145	0.0523	0.0000
1.2308	0.0321	0.0150	0.0545	0.0000
1.2692	0.0321	0.0155	0.0566	0.0000
1.3077	0.0321	0.0159	0.0586	0.0000
1.3462	0.0321	0.0164	0.0605	0.0000
1.3846	0.0321	0.0169	0.0624	0.0000
1.4231	0.0321	0.0174	0.0642	0.0000
1.4615	0.0321	0.0178	0.0660	0.0000
1.5000	0.0321	0.0183	0.0677	0.0000
1.5385	0.0321	0.0188	0.0694	0.0000
1.5769	0.0321	0.0194	0.0710	0.0000
1.6154	0.0321	0.0199	0.0726	0.0000
1.6538	0.0321	0.0204	0.0742	0.0000
1.6923	0.0321	0.0209	0.0757	0.0000
1.7308	0.0321	0.0214	0.0772	0.0000
1.7692	0.0321	0.0219	0.0787	0.0000
1.8077	0.0321	0.0224	0.0801	0.0000
1.8462	0.0321	0.0229	0.0815	0.0000
1.8846	0.0321	0.0235	0.0829	0.0000
1.9231	0.0321	0.0240	0.0843	0.0000
1.9615	0.0321	0.0245	0.0857	0.0000
2.0000	0.0321	0.0250	0.0870	0.0000
2.0385	0.0321	0.0255	0.0883	0.0000
2.0769	0.0321	0.0260	0.0896	0.0000
2.1154	0.0321	0.0265	0.0909	0.0000
2.1538	0.0321	0.0270	0.0921	0.0000
2.1923	0.0321	0.0276	0.0934	0.0000
2.2308	0.0321	0.0281	0.0946	0.0000
2.2692	0.0321	0.0286	0.0958	0.0000
2.3077	0.0321	0.0291	0.0970	0.0000
2.3462	0.0321	0.0296	0.0994	0.0000
2.3846	0.0321	0.0301	0.1017	0.0000
2.4231	0.0321	0.0306	0.1040	0.0000
2.4615	0.0321	0.0311	0.1063	0.0000
2.5000	0.0321	0.0317	0.1096	0.0000
2.5000	0.0321	0.0317	0.1096	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0321	0.0317	0.0000	0.1618	0.0000
2.5385	0.0329	0.0329	0.0000	0.1618	0.0000
2.5769	0.0337	0.0342	0.0000	0.1701	0.0000
2.6154	0.0345	0.0355	0.0000	0.1743	0.0000
2.6538	0.0353	0.0368	0.0000	0.1784	0.0000
2.6923	0.0361	0.0382	0.0000	0.1826	0.0000
2.7308	0.0369	0.0396	0.0000	0.1867	0.0000
2.7692	0.0377	0.0410	0.0000	0.1908	0.0000
2.8077	0.0385	0.0425	0.0000	0.1950	0.0000
2.8462	0.0393	0.0440	0.0000	0.1991	0.0000
2.8846	0.0402	0.0455	0.0000	0.2033	0.0000
2.9231	0.0410	0.0471	0.0000	0.2074	0.0000
2.9615	0.0418	0.0487	0.0000	0.2116	0.0000
3.0000	0.0426	0.0503	0.0000	0.2157	0.0000
3.0385	0.0434	0.0520	0.0800	0.2199	0.0000
3.0769	0.0443	0.0537	0.2257	0.2240	0.0000
3.1154	0.0451	0.0554	0.4122	0.2282	0.0000
3.1538	0.0459	0.0571	0.6273	0.2323	0.0000

3.1923	0.0468	0.0589	0.8600	0.2365	0.0000
3.2308	0.0476	0.0607	1.0991	0.2406	0.0000
3.2692	0.0485	0.0626	1.3333	0.2448	0.0000
3.3077	0.0493	0.0645	1.5516	0.2489	0.0000
3.3462	0.0501	0.0664	1.7445	0.2531	0.0000
3.3846	0.0510	0.0683	1.9054	0.2572	0.0000
3.4231	0.0518	0.0703	2.0318	0.2614	0.0000
3.4615	0.0527	0.0723	2.1274	0.2655	0.0000
3.5000	0.0536	0.0743	2.2033	0.2697	0.0000

BR B7

Bottom Length:	30.50 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	24.688
Total Outflow (ac-ft.):	28.237
Percent Through Underdrain:	87.43
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0070	0.0000	0.0000	0.0000
0.0385	0.0070	0.0001	0.0000	0.0000
0.0769	0.0070	0.0002	0.0000	0.0000
0.1154	0.0070	0.0003	0.0000	0.0000
0.1538	0.0070	0.0004	0.0000	0.0000
0.1923	0.0070	0.0005	0.0000	0.0000
0.2308	0.0070	0.0006	0.0000	0.0000
0.2692	0.0070	0.0007	0.0000	0.0000
0.3077	0.0070	0.0008	0.0000	0.0000
0.3462	0.0070	0.0009	0.0000	0.0000
0.3846	0.0070	0.0010	0.0000	0.0000
0.4231	0.0070	0.0011	0.0016	0.0000
0.4615	0.0070	0.0012	0.0019	0.0000
0.5000	0.0070	0.0013	0.0022	0.0000
0.5385	0.0070	0.0014	0.0025	0.0000
0.5769	0.0070	0.0015	0.0029	0.0000
0.6154	0.0070	0.0016	0.0034	0.0000
0.6538	0.0070	0.0017	0.0039	0.0000
0.6923	0.0070	0.0018	0.0045	0.0000
0.7308	0.0070	0.0019	0.0051	0.0000
0.7692	0.0070	0.0020	0.0058	0.0000
0.8077	0.0070	0.0021	0.0065	0.0000
0.8462	0.0070	0.0023	0.0073	0.0000
0.8846	0.0070	0.0024	0.0081	0.0000
0.9231	0.0070	0.0025	0.0090	0.0000
0.9615	0.0070	0.0026	0.0091	0.0000
1.0000	0.0070	0.0027	0.0100	0.0000
1.0385	0.0070	0.0028	0.0111	0.0000
1.0769	0.0070	0.0029	0.0122	0.0000
1.1154	0.0070	0.0030	0.0134	0.0000

1.1538	0.0070	0.0031	0.0146	0.0000
1.1923	0.0070	0.0032	0.0159	0.0000
1.2308	0.0070	0.0033	0.0173	0.0000
1.2692	0.0070	0.0034	0.0188	0.0000
1.3077	0.0070	0.0035	0.0203	0.0000
1.3462	0.0070	0.0036	0.0215	0.0000
1.3846	0.0070	0.0037	0.0220	0.0000
1.4231	0.0070	0.0038	0.0236	0.0000
1.4615	0.0070	0.0039	0.0254	0.0000
1.5000	0.0070	0.0040	0.0273	0.0000
1.5385	0.0070	0.0041	0.0292	0.0000
1.5769	0.0070	0.0042	0.0312	0.0000
1.6154	0.0070	0.0043	0.0332	0.0000
1.6538	0.0070	0.0044	0.0366	0.0000
1.6923	0.0070	0.0046	0.0452	0.0000
1.7308	0.0070	0.0047	0.0471	0.0000
1.7692	0.0070	0.0048	0.0471	0.0000
1.8077	0.0070	0.0049	0.0471	0.0000
1.8462	0.0070	0.0050	0.0471	0.0000
1.8846	0.0070	0.0051	0.0471	0.0000
1.9231	0.0070	0.0052	0.0471	0.0000
1.9615	0.0070	0.0053	0.0471	0.0000
2.0000	0.0070	0.0055	0.0471	0.0000
2.0385	0.0070	0.0056	0.0471	0.0000
2.0769	0.0070	0.0057	0.0471	0.0000
2.1154	0.0070	0.0058	0.0471	0.0000
2.1538	0.0070	0.0059	0.0471	0.0000
2.1923	0.0070	0.0060	0.0471	0.0000
2.2308	0.0070	0.0061	0.0471	0.0000
2.2692	0.0070	0.0062	0.0471	0.0000
2.3077	0.0070	0.0063	0.0471	0.0000
2.3462	0.0070	0.0065	0.0471	0.0000
2.3846	0.0070	0.0066	0.0471	0.0000
2.4231	0.0070	0.0067	0.0471	0.0000
2.4615	0.0070	0.0068	0.0471	0.0000
2.5000	0.0070	0.0069	0.0471	0.0000
2.5000	0.0070	0.0069	0.0471	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0070	0.0069	0.0000	0.0353	0.0000
2.5385	0.0072	0.0072	0.0000	0.0353	0.0000
2.5769	0.0074	0.0075	0.0000	0.0371	0.0000
2.6154	0.0077	0.0078	0.0000	0.0380	0.0000
2.6538	0.0079	0.0081	0.0000	0.0389	0.0000
2.6923	0.0081	0.0084	0.0000	0.0398	0.0000
2.7308	0.0083	0.0087	0.0000	0.0407	0.0000
2.7692	0.0086	0.0090	0.0000	0.0416	0.0000
2.8077	0.0088	0.0093	0.0000	0.0425	0.0000
2.8462	0.0090	0.0097	0.0000	0.0434	0.0000
2.8846	0.0093	0.0100	0.0000	0.0444	0.0000
2.9231	0.0095	0.0104	0.0000	0.0453	0.0000
2.9615	0.0098	0.0108	0.0000	0.0462	0.0000
3.0000	0.0100	0.0111	0.0000	0.0471	0.0000
3.0385	0.0102	0.0115	0.0800	0.0480	0.0000
3.0769	0.0105	0.0119	0.2257	0.0489	0.0000
3.1154	0.0107	0.0123	0.4122	0.0498	0.0000
3.1538	0.0110	0.0128	0.6273	0.0507	0.0000

3.1923	0.0113	0.0132	0.8600	0.0516	0.0000
3.2308	0.0115	0.0136	1.0991	0.0525	0.0000
3.2692	0.0118	0.0141	1.3333	0.0534	0.0000
3.3077	0.0120	0.0145	1.5516	0.0543	0.0000
3.3462	0.0123	0.0150	1.7445	0.0552	0.0000
3.3846	0.0126	0.0155	1.9054	0.0561	0.0000
3.4231	0.0129	0.0160	2.0318	0.0570	0.0000
3.4615	0.0131	0.0165	2.1274	0.0579	0.0000
3.5000	0.0134	0.0170	2.2033	0.0588	0.0000

BR B8

Bottom Length:	37.10 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	23.936
Total Outflow (ac-ft.):	25.754
Percent Through Underdrain:	92.94
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0085	0.0000	0.0000	0.0000
0.0385	0.0085	0.0001	0.0000	0.0000
0.0769	0.0085	0.0002	0.0000	0.0000
0.1154	0.0085	0.0004	0.0000	0.0000
0.1538	0.0085	0.0005	0.0000	0.0000
0.1923	0.0085	0.0006	0.0000	0.0000
0.2308	0.0085	0.0007	0.0000	0.0000
0.2692	0.0085	0.0009	0.0000	0.0000
0.3077	0.0085	0.0010	0.0000	0.0000
0.3462	0.0085	0.0011	0.0000	0.0000
0.3846	0.0085	0.0012	0.0000	0.0000
0.4231	0.0085	0.0014	0.0019	0.0000
0.4615	0.0085	0.0015	0.0023	0.0000
0.5000	0.0085	0.0016	0.0026	0.0000
0.5385	0.0085	0.0017	0.0031	0.0000
0.5769	0.0085	0.0019	0.0036	0.0000
0.6154	0.0085	0.0020	0.0041	0.0000
0.6538	0.0085	0.0021	0.0048	0.0000
0.6923	0.0085	0.0022	0.0054	0.0000
0.7308	0.0085	0.0024	0.0062	0.0000
0.7692	0.0085	0.0025	0.0070	0.0000
0.8077	0.0085	0.0026	0.0079	0.0000
0.8462	0.0085	0.0027	0.0089	0.0000
0.8846	0.0085	0.0029	0.0099	0.0000
0.9231	0.0085	0.0030	0.0109	0.0000
0.9615	0.0085	0.0031	0.0110	0.0000
1.0000	0.0085	0.0032	0.0122	0.0000
1.0385	0.0085	0.0034	0.0135	0.0000
1.0769	0.0085	0.0035	0.0148	0.0000
1.1154	0.0085	0.0036	0.0163	0.0000

1.1538	0.0085	0.0037	0.0178	0.0000
1.1923	0.0085	0.0039	0.0194	0.0000
1.2308	0.0085	0.0040	0.0211	0.0000
1.2692	0.0085	0.0041	0.0229	0.0000
1.3077	0.0085	0.0042	0.0247	0.0000
1.3462	0.0085	0.0044	0.0262	0.0000
1.3846	0.0085	0.0045	0.0267	0.0000
1.4231	0.0085	0.0046	0.0288	0.0000
1.4615	0.0085	0.0047	0.0309	0.0000
1.5000	0.0085	0.0049	0.0332	0.0000
1.5385	0.0085	0.0050	0.0355	0.0000
1.5769	0.0085	0.0051	0.0366	0.0000
1.6154	0.0085	0.0053	0.0397	0.0000
1.6538	0.0085	0.0054	0.0417	0.0000
1.6923	0.0085	0.0055	0.0425	0.0000
1.7308	0.0085	0.0057	0.0501	0.0000
1.7692	0.0085	0.0058	0.0545	0.0000
1.8077	0.0085	0.0060	0.0573	0.0000
1.8462	0.0085	0.0061	0.0573	0.0000
1.8846	0.0085	0.0062	0.0573	0.0000
1.9231	0.0085	0.0064	0.0573	0.0000
1.9615	0.0085	0.0065	0.0573	0.0000
2.0000	0.0085	0.0066	0.0573	0.0000
2.0385	0.0085	0.0068	0.0573	0.0000
2.0769	0.0085	0.0069	0.0573	0.0000
2.1154	0.0085	0.0070	0.0573	0.0000
2.1538	0.0085	0.0072	0.0573	0.0000
2.1923	0.0085	0.0073	0.0573	0.0000
2.2308	0.0085	0.0074	0.0573	0.0000
2.2692	0.0085	0.0076	0.0573	0.0000
2.3077	0.0085	0.0077	0.0573	0.0000
2.3462	0.0085	0.0079	0.0573	0.0000
2.3846	0.0085	0.0080	0.0573	0.0000
2.4231	0.0085	0.0081	0.0573	0.0000
2.4615	0.0085	0.0083	0.0573	0.0000
2.5000	0.0085	0.0084	0.0573	0.0000
2.5000	0.0085	0.0084	0.0573	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0085	0.0084	0.0000	0.0429	0.0000
2.5385	0.0088	0.0087	0.0000	0.0429	0.0000
2.5769	0.0090	0.0091	0.0000	0.0451	0.0000
2.6154	0.0093	0.0094	0.0000	0.0462	0.0000
2.6538	0.0095	0.0098	0.0000	0.0473	0.0000
2.6923	0.0098	0.0102	0.0000	0.0484	0.0000
2.7308	0.0101	0.0105	0.0000	0.0495	0.0000
2.7692	0.0103	0.0109	0.0000	0.0506	0.0000
2.8077	0.0106	0.0113	0.0000	0.0517	0.0000
2.8462	0.0109	0.0117	0.0000	0.0528	0.0000
2.8846	0.0111	0.0122	0.0000	0.0540	0.0000
2.9231	0.0114	0.0126	0.0000	0.0551	0.0000
2.9615	0.0117	0.0130	0.0000	0.0562	0.0000
3.0000	0.0120	0.0135	0.0000	0.0573	0.0000
3.0385	0.0122	0.0140	0.0800	0.0584	0.0000
3.0769	0.0125	0.0144	0.2257	0.0595	0.0000
3.1154	0.0128	0.0149	0.4122	0.0606	0.0000
3.1538	0.0131	0.0154	0.6273	0.0617	0.0000

3.1923	0.0134	0.0159	0.8600	0.0628	0.0000
3.2308	0.0137	0.0165	1.0991	0.0639	0.0000
3.2692	0.0140	0.0170	1.3333	0.0650	0.0000
3.3077	0.0143	0.0175	1.5516	0.0661	0.0000
3.3462	0.0146	0.0181	1.7445	0.0672	0.0000
3.3846	0.0149	0.0187	1.9054	0.0683	0.0000
3.4231	0.0152	0.0192	2.0318	0.0694	0.0000
3.4615	0.0155	0.0198	2.1274	0.0705	0.0000
3.5000	0.0158	0.0204	2.2033	0.0716	0.0000

BR B9

Bottom Length:	34.60 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	25.053
Total Outflow (ac-ft.):	27.774
Percent Through Underdrain:	90.2
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0079	0.0000	0.0000	0.0000
0.0385	0.0079	0.0001	0.0000	0.0000
0.0769	0.0079	0.0002	0.0000	0.0000
0.1154	0.0079	0.0003	0.0000	0.0000
0.1538	0.0079	0.0005	0.0000	0.0000
0.1923	0.0079	0.0006	0.0000	0.0000
0.2308	0.0079	0.0007	0.0000	0.0000
0.2692	0.0079	0.0008	0.0000	0.0000
0.3077	0.0079	0.0009	0.0000	0.0000
0.3462	0.0079	0.0010	0.0000	0.0000
0.3846	0.0079	0.0012	0.0000	0.0000
0.4231	0.0079	0.0013	0.0018	0.0000
0.4615	0.0079	0.0014	0.0021	0.0000
0.5000	0.0079	0.0015	0.0025	0.0000
0.5385	0.0079	0.0016	0.0029	0.0000
0.5769	0.0079	0.0017	0.0033	0.0000
0.6154	0.0079	0.0019	0.0039	0.0000
0.6538	0.0079	0.0020	0.0044	0.0000
0.6923	0.0079	0.0021	0.0051	0.0000
0.7308	0.0079	0.0022	0.0058	0.0000
0.7692	0.0079	0.0023	0.0065	0.0000
0.8077	0.0079	0.0024	0.0074	0.0000
0.8462	0.0079	0.0026	0.0083	0.0000
0.8846	0.0079	0.0027	0.0092	0.0000
0.9231	0.0079	0.0028	0.0102	0.0000
0.9615	0.0079	0.0029	0.0103	0.0000
1.0000	0.0079	0.0030	0.0114	0.0000
1.0385	0.0079	0.0031	0.0126	0.0000
1.0769	0.0079	0.0033	0.0138	0.0000
1.1154	0.0079	0.0034	0.0152	0.0000

1.1538	0.0079	0.0035	0.0166	0.0000
1.1923	0.0079	0.0036	0.0181	0.0000
1.2308	0.0079	0.0037	0.0197	0.0000
1.2692	0.0079	0.0038	0.0213	0.0000
1.3077	0.0079	0.0039	0.0231	0.0000
1.3462	0.0079	0.0041	0.0244	0.0000
1.3846	0.0079	0.0042	0.0249	0.0000
1.4231	0.0079	0.0043	0.0268	0.0000
1.4615	0.0079	0.0044	0.0288	0.0000
1.5000	0.0079	0.0045	0.0309	0.0000
1.5385	0.0079	0.0047	0.0331	0.0000
1.5769	0.0079	0.0048	0.0354	0.0000
1.6154	0.0079	0.0049	0.0366	0.0000
1.6538	0.0079	0.0050	0.0397	0.0000
1.6923	0.0079	0.0052	0.0452	0.0000
1.7308	0.0079	0.0053	0.0501	0.0000
1.7692	0.0079	0.0054	0.0534	0.0000
1.8077	0.0079	0.0056	0.0534	0.0000
1.8462	0.0079	0.0057	0.0534	0.0000
1.8846	0.0079	0.0058	0.0534	0.0000
1.9231	0.0079	0.0059	0.0534	0.0000
1.9615	0.0079	0.0061	0.0534	0.0000
2.0000	0.0079	0.0062	0.0534	0.0000
2.0385	0.0079	0.0063	0.0534	0.0000
2.0769	0.0079	0.0064	0.0534	0.0000
2.1154	0.0079	0.0066	0.0534	0.0000
2.1538	0.0079	0.0067	0.0534	0.0000
2.1923	0.0079	0.0068	0.0534	0.0000
2.2308	0.0079	0.0069	0.0534	0.0000
2.2692	0.0079	0.0071	0.0534	0.0000
2.3077	0.0079	0.0072	0.0534	0.0000
2.3462	0.0079	0.0073	0.0534	0.0000
2.3846	0.0079	0.0075	0.0534	0.0000
2.4231	0.0079	0.0076	0.0534	0.0000
2.4615	0.0079	0.0077	0.0534	0.0000
2.5000	0.0079	0.0078	0.0534	0.0000
2.5000	0.0079	0.0078	0.0534	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0079	0.0078	0.0000	0.0400	0.0000
2.5385	0.0082	0.0081	0.0000	0.0400	0.0000
2.5769	0.0084	0.0085	0.0000	0.0421	0.0000
2.6154	0.0087	0.0088	0.0000	0.0431	0.0000
2.6538	0.0089	0.0091	0.0000	0.0442	0.0000
2.6923	0.0092	0.0095	0.0000	0.0452	0.0000
2.7308	0.0094	0.0098	0.0000	0.0462	0.0000
2.7692	0.0097	0.0102	0.0000	0.0472	0.0000
2.8077	0.0099	0.0106	0.0000	0.0483	0.0000
2.8462	0.0102	0.0110	0.0000	0.0493	0.0000
2.8846	0.0104	0.0114	0.0000	0.0503	0.0000
2.9231	0.0107	0.0118	0.0000	0.0513	0.0000
2.9615	0.0110	0.0122	0.0000	0.0524	0.0000
3.0000	0.0112	0.0126	0.0000	0.0534	0.0000
3.0385	0.0115	0.0130	0.0800	0.0544	0.0000
3.0769	0.0118	0.0135	0.2257	0.0554	0.0000
3.1154	0.0120	0.0140	0.4122	0.0565	0.0000
3.1538	0.0123	0.0144	0.6273	0.0575	0.0000

3.1923	0.0126	0.0149	0.8600	0.0585	0.0000
3.2308	0.0129	0.0154	1.0991	0.0596	0.0000
3.2692	0.0132	0.0159	1.3333	0.0606	0.0000
3.3077	0.0134	0.0164	1.5516	0.0616	0.0000
3.3462	0.0137	0.0169	1.7445	0.0626	0.0000
3.3846	0.0140	0.0175	1.9054	0.0637	0.0000
3.4231	0.0143	0.0180	2.0318	0.0647	0.0000
3.4615	0.0146	0.0186	2.1274	0.0657	0.0000
3.5000	0.0149	0.0191	2.2033	0.0667	0.0000

BR B10

Bottom Length:	36.30 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	27.995
Total Outflow (ac-ft.):	31.519
Percent Through Underdrain:	88.82
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0083	0.0000	0.0000	0.0000
0.0385	0.0083	0.0001	0.0000	0.0000
0.0769	0.0083	0.0002	0.0000	0.0000
0.1154	0.0083	0.0004	0.0000	0.0000
0.1538	0.0083	0.0005	0.0000	0.0000
0.1923	0.0083	0.0006	0.0000	0.0000
0.2308	0.0083	0.0007	0.0000	0.0000
0.2692	0.0083	0.0009	0.0000	0.0000
0.3077	0.0083	0.0010	0.0000	0.0000
0.3462	0.0083	0.0011	0.0000	0.0000
0.3846	0.0083	0.0012	0.0000	0.0000
0.4231	0.0083	0.0013	0.0019	0.0000
0.4615	0.0083	0.0015	0.0022	0.0000
0.5000	0.0083	0.0016	0.0026	0.0000
0.5385	0.0083	0.0017	0.0030	0.0000
0.5769	0.0083	0.0018	0.0035	0.0000
0.6154	0.0083	0.0019	0.0041	0.0000
0.6538	0.0083	0.0021	0.0047	0.0000
0.6923	0.0083	0.0022	0.0053	0.0000
0.7308	0.0083	0.0023	0.0061	0.0000
0.7692	0.0083	0.0024	0.0069	0.0000
0.8077	0.0083	0.0026	0.0077	0.0000
0.8462	0.0083	0.0027	0.0087	0.0000
0.8846	0.0083	0.0028	0.0097	0.0000
0.9231	0.0083	0.0029	0.0107	0.0000
0.9615	0.0083	0.0030	0.0108	0.0000
1.0000	0.0083	0.0032	0.0120	0.0000
1.0385	0.0083	0.0033	0.0132	0.0000
1.0769	0.0083	0.0034	0.0145	0.0000
1.1154	0.0083	0.0035	0.0159	0.0000

1.1538	0.0083	0.0037	0.0174	0.0000
1.1923	0.0083	0.0038	0.0190	0.0000
1.2308	0.0083	0.0039	0.0206	0.0000
1.2692	0.0083	0.0040	0.0224	0.0000
1.3077	0.0083	0.0041	0.0242	0.0000
1.3462	0.0083	0.0043	0.0256	0.0000
1.3846	0.0083	0.0044	0.0261	0.0000
1.4231	0.0083	0.0045	0.0281	0.0000
1.4615	0.0083	0.0046	0.0302	0.0000
1.5000	0.0083	0.0048	0.0324	0.0000
1.5385	0.0083	0.0049	0.0347	0.0000
1.5769	0.0083	0.0050	0.0366	0.0000
1.6154	0.0083	0.0052	0.0395	0.0000
1.6538	0.0083	0.0053	0.0397	0.0000
1.6923	0.0083	0.0054	0.0452	0.0000
1.7308	0.0083	0.0056	0.0501	0.0000
1.7692	0.0083	0.0057	0.0545	0.0000
1.8077	0.0083	0.0058	0.0560	0.0000
1.8462	0.0083	0.0060	0.0560	0.0000
1.8846	0.0083	0.0061	0.0560	0.0000
1.9231	0.0083	0.0062	0.0560	0.0000
1.9615	0.0083	0.0064	0.0560	0.0000
2.0000	0.0083	0.0065	0.0560	0.0000
2.0385	0.0083	0.0066	0.0560	0.0000
2.0769	0.0083	0.0068	0.0560	0.0000
2.1154	0.0083	0.0069	0.0560	0.0000
2.1538	0.0083	0.0070	0.0560	0.0000
2.1923	0.0083	0.0072	0.0560	0.0000
2.2308	0.0083	0.0073	0.0560	0.0000
2.2692	0.0083	0.0074	0.0560	0.0000
2.3077	0.0083	0.0076	0.0560	0.0000
2.3462	0.0083	0.0077	0.0560	0.0000
2.3846	0.0083	0.0078	0.0560	0.0000
2.4231	0.0083	0.0080	0.0560	0.0000
2.4615	0.0083	0.0081	0.0560	0.0000
2.5000	0.0083	0.0082	0.0560	0.0000
2.5000	0.0083	0.0082	0.0560	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0083	0.0082	0.0000	0.0420	0.0000
2.5385	0.0086	0.0085	0.0000	0.0420	0.0000
2.5769	0.0088	0.0089	0.0000	0.0442	0.0000
2.6154	0.0091	0.0092	0.0000	0.0452	0.0000
2.6538	0.0093	0.0096	0.0000	0.0463	0.0000
2.6923	0.0096	0.0099	0.0000	0.0474	0.0000
2.7308	0.0098	0.0103	0.0000	0.0485	0.0000
2.7692	0.0101	0.0107	0.0000	0.0496	0.0000
2.8077	0.0104	0.0111	0.0000	0.0506	0.0000
2.8462	0.0106	0.0115	0.0000	0.0517	0.0000
2.8846	0.0109	0.0119	0.0000	0.0528	0.0000
2.9231	0.0112	0.0123	0.0000	0.0539	0.0000
2.9615	0.0115	0.0128	0.0000	0.0549	0.0000
3.0000	0.0117	0.0132	0.0000	0.0560	0.0000
3.0385	0.0120	0.0137	0.0800	0.0571	0.0000
3.0769	0.0123	0.0141	0.2257	0.0582	0.0000
3.1154	0.0126	0.0146	0.4122	0.0593	0.0000
3.1538	0.0129	0.0151	0.6273	0.0603	0.0000

3.1923	0.0131	0.0156	0.8600	0.0614	0.0000
3.2308	0.0134	0.0161	1.0991	0.0625	0.0000
3.2692	0.0137	0.0166	1.3333	0.0636	0.0000
3.3077	0.0140	0.0172	1.5516	0.0646	0.0000
3.3462	0.0143	0.0177	1.7445	0.0657	0.0000
3.3846	0.0146	0.0183	1.9054	0.0668	0.0000
3.4231	0.0149	0.0188	2.0318	0.0679	0.0000
3.4615	0.0152	0.0194	2.1274	0.0689	0.0000
3.5000	0.0155	0.0200	2.2033	0.0700	0.0000

BR B11

Bottom Length:	23.80 ft.
Bottom Width:	10.00 ft.
Material thickness of first layer:	1.5
Material type for first layer:	BAHM 5
Material thickness of second layer:	1
Material type for second layer:	GRAVEL
Material thickness of third layer:	0
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.333333333333333
Orifice Diameter (in.):	2
Offset (in.):	0
Flow Through Underdrain (ac-ft.):	16.253
Total Outflow (ac-ft.):	17.799
Percent Through Underdrain:	91.31
Discharge Structure	
Riser Height:	0.5 ft.
Riser Diameter:	12 in.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0055	0.0000	0.0000	0.0000
0.0385	0.0055	0.0001	0.0000	0.0000
0.0769	0.0055	0.0002	0.0000	0.0000
0.1154	0.0055	0.0002	0.0000	0.0000
0.1538	0.0055	0.0003	0.0000	0.0000
0.1923	0.0055	0.0004	0.0000	0.0000
0.2308	0.0055	0.0005	0.0000	0.0000
0.2692	0.0055	0.0006	0.0000	0.0000
0.3077	0.0055	0.0006	0.0000	0.0000
0.3462	0.0055	0.0007	0.0000	0.0000
0.3846	0.0055	0.0008	0.0000	0.0000
0.4231	0.0055	0.0009	0.0012	0.0000
0.4615	0.0055	0.0010	0.0015	0.0000
0.5000	0.0055	0.0010	0.0017	0.0000
0.5385	0.0055	0.0011	0.0020	0.0000
0.5769	0.0055	0.0012	0.0023	0.0000
0.6154	0.0055	0.0013	0.0027	0.0000
0.6538	0.0055	0.0014	0.0031	0.0000
0.6923	0.0055	0.0014	0.0035	0.0000
0.7308	0.0055	0.0015	0.0040	0.0000
0.7692	0.0055	0.0016	0.0045	0.0000
0.8077	0.0055	0.0017	0.0051	0.0000
0.8462	0.0055	0.0018	0.0057	0.0000
0.8846	0.0055	0.0018	0.0064	0.0000
0.9231	0.0055	0.0019	0.0070	0.0000
0.9615	0.0055	0.0020	0.0071	0.0000
1.0000	0.0055	0.0021	0.0078	0.0000
1.0385	0.0055	0.0022	0.0087	0.0000
1.0769	0.0055	0.0022	0.0095	0.0000
1.1154	0.0055	0.0023	0.0104	0.0000

1.1538	0.0055	0.0024	0.0114	0.0000
1.1923	0.0055	0.0025	0.0124	0.0000
1.2308	0.0055	0.0026	0.0135	0.0000
1.2692	0.0055	0.0026	0.0147	0.0000
1.3077	0.0055	0.0027	0.0159	0.0000
1.3462	0.0055	0.0028	0.0168	0.0000
1.3846	0.0055	0.0029	0.0171	0.0000
1.4231	0.0055	0.0030	0.0185	0.0000
1.4615	0.0055	0.0030	0.0198	0.0000
1.5000	0.0055	0.0031	0.0213	0.0000
1.5385	0.0055	0.0032	0.0228	0.0000
1.5769	0.0055	0.0033	0.0243	0.0000
1.6154	0.0055	0.0034	0.0259	0.0000
1.6538	0.0055	0.0035	0.0366	0.0000
1.6923	0.0055	0.0036	0.0367	0.0000
1.7308	0.0055	0.0036	0.0367	0.0000
1.7692	0.0055	0.0037	0.0367	0.0000
1.8077	0.0055	0.0038	0.0367	0.0000
1.8462	0.0055	0.0039	0.0367	0.0000
1.8846	0.0055	0.0040	0.0367	0.0000
1.9231	0.0055	0.0041	0.0367	0.0000
1.9615	0.0055	0.0042	0.0367	0.0000
2.0000	0.0055	0.0043	0.0367	0.0000
2.0385	0.0055	0.0043	0.0367	0.0000
2.0769	0.0055	0.0044	0.0367	0.0000
2.1154	0.0055	0.0045	0.0367	0.0000
2.1538	0.0055	0.0046	0.0367	0.0000
2.1923	0.0055	0.0047	0.0367	0.0000
2.2308	0.0055	0.0048	0.0367	0.0000
2.2692	0.0055	0.0049	0.0367	0.0000
2.3077	0.0055	0.0050	0.0367	0.0000
2.3462	0.0055	0.0050	0.0367	0.0000
2.3846	0.0055	0.0051	0.0367	0.0000
2.4231	0.0055	0.0052	0.0367	0.0000
2.4615	0.0055	0.0053	0.0367	0.0000
2.5000	0.0055	0.0054	0.0367	0.0000
2.5000	0.0055	0.0054	0.0367	0.0000

Bioretention Surface Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
2.5000	0.0055	0.0054	0.0000	0.0275	0.0000
2.5385	0.0056	0.0056	0.0000	0.0275	0.0000
2.5769	0.0058	0.0058	0.0000	0.0290	0.0000
2.6154	0.0060	0.0061	0.0000	0.0297	0.0000
2.6538	0.0062	0.0063	0.0000	0.0304	0.0000
2.6923	0.0064	0.0065	0.0000	0.0311	0.0000
2.7308	0.0066	0.0068	0.0000	0.0318	0.0000
2.7692	0.0068	0.0070	0.0000	0.0325	0.0000
2.8077	0.0070	0.0073	0.0000	0.0332	0.0000
2.8462	0.0072	0.0076	0.0000	0.0339	0.0000
2.8846	0.0074	0.0079	0.0000	0.0346	0.0000
2.9231	0.0076	0.0081	0.0000	0.0353	0.0000
2.9615	0.0078	0.0084	0.0000	0.0360	0.0000
3.0000	0.0080	0.0087	0.0000	0.0367	0.0000
3.0385	0.0082	0.0090	0.0800	0.0374	0.0000
3.0769	0.0084	0.0094	0.2257	0.0381	0.0000
3.1154	0.0086	0.0097	0.4122	0.0388	0.0000
3.1538	0.0089	0.0100	0.6273	0.0396	0.0000

3.1923	0.0091	0.0104	0.8600	0.0403	0.0000
3.2308	0.0093	0.0107	1.0991	0.0410	0.0000
3.2692	0.0095	0.0111	1.3333	0.0417	0.0000
3.3077	0.0098	0.0115	1.5516	0.0424	0.0000
3.3462	0.0100	0.0118	1.7445	0.0431	0.0000
3.3846	0.0102	0.0122	1.9054	0.0438	0.0000
3.4231	0.0105	0.0126	2.0318	0.0445	0.0000
3.4615	0.0107	0.0130	2.1274	0.0452	0.0000
3.5000	0.0109	0.0135	2.2033	0.0459	0.0000

DMA A PP

Pavement Area:0.2086 acre.Pavement Length:413.00 ft.

Pavement Width:	22.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.333
Pour Space of Pavement:	0.2
Material thickness of second layer:	0.75
Pour Space of material for second layer:	0.4
Material thickness of third layer:	0
Pour Space of material for third layer:	0
Infiltration On	
Infiltration rate:	0.3
Infiltration reduction factor:	0.5
Total Volume Infiltrated (ac-ft.):	52.742
Total Volume Through Riser (ac-ft.):	0.812
Total Volume Through Facility (ac-ft.):	53.554
Percent Infiltrated:	98.48
Total Precip Applied to Facility:	0
Total Evap From Facility:	1.558
Discharge Structure	
Riser Height:	2.08 ft.
Riser Diameter:	264 in.
Notch Type:	Rectangular
Notch Width:	5.000 ft.
Notch Height:	0.497 ft.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Permeable Pavement Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.208	0.000	0.000	0.000
0.0231	0.208	0.001	0.000	0.031
0.0462	0.208	0.003	0.000	0.031
0.0693	0.208	0.005	0.000	0.031
0.0924	0.208	0.007	0.000	0.031
0.1156	0.208	0.009	0.000	0.031
0.1387	0.208	0.011	0.000	0.031
0.1618	0.208	0.013	0.000	0.031
0.1849	0.208	0.015	0.000	0.031
0.2080	0.208	0.017	0.000	0.031
0.2311	0.208	0.019	0.000	0.031
0.2542	0.208	0.021	0.000	0.031
0.2773	0.208	0.023	0.000	0.031
0.3004	0.208	0.025	0.000	0.031
0.3236	0.208	0.027	0.000	0.031
0.3467	0.208	0.028	0.000	0.031
0.3698	0.208	0.030	0.000	0.031
0.3929	0.208	0.032	0.000	0.031
0.4160	0.208	0.034	0.000	0.031
0.4391	0.208	0.036	0.000	0.031
0.4622	0.208	0.038	0.000	0.031
0.4853	0.208	0.040	0.000	0.031
0.5084	0.208	0.042	0.000	0.031
0.5316	0.208	0.044	0.000	0.031

0.5547	0.208	0.046	0.000	0.031
0.5778	0.208	0.048	0.000	0.031
0.6009	0.208	0.050	0.000	0.031
0.6240	0.208	0.052	0.000	0.031
0.6471	0.208	0.054	0.000	0.031
0.6702	0.208	0.055	0.000	0.031
0.6933	0.208	0.057	0.000	0.031
0.7164	0.208	0.059	0.000	0.031
0.7396	0.208	0.061	0.000	0.031
0.7627	0.208	0.062	0.000	0.031
0.7858	0.208	0.063	0.000	0.031
0.8089	0.208	0.064	0.000	0.031
0.8320	0.208	0.065	0.000	0.031
0.8551	0.208	0.066	0.000	0.031
0.8782	0.208	0.067	0.000	0.031
0.9013	0.208	0.068	0.000	0.031
0.9244	0.208	0.069	0.000	0.031
0.9476	0.208	0.070	0.000	0.031
0.9707	0.208	0.071	0.000	0.031
0.9938	0.208	0.072	0.000	0.031
1.0169	0.208	0.073	0.000	0.031
1.0400	0.208	0.074	0.000	0.031
1.0631	0.208	0.075	0.000	0.031
1.0862	0.208	0.080	0.000	0.031
1.1093	0.208	0.084	0.000	0.031
1.1324	0.208	0.089	0.000	0.031
1.1556	0.208	0.094	0.000	0.031
1.1787	0.208	0.099	0.000	0.031
1.2018	0.208	0.104	0.000	0.031
1.2249	0.208	0.108	0.000	0.031
1.2480	0.208	0.113	0.000	0.031
1.2711	0.208	0.118	0.000	0.031
1.2942	0.208	0.123	0.000	0.031
1.3173	0.208	0.128	0.000	0.031
1.3404	0.208	0.133	0.000	0.031
1.3636	0.208	0.137	0.000	0.031
1.3867	0.208	0.142	0.000	0.031
1.4098	0.208	0.147	0.000	0.031
1.4329	0.208	0.152	0.000	0.031
1.4560	0.208	0.157	0.000	0.031
1.4791	0.208	0.162	0.000	0.031
1.5022	0.208	0.166	0.000	0.031
1.5253	0.208	0.171	0.000	0.031
1.5484	0.208	0.176	0.000	0.031
1.5716	0.208	0.181	0.000	0.031
1.5947	0.208	0.186	0.021	0.031
1.6178	0.208	0.190	0.108	0.031
1.6409	0.208	0.195	0.231	0.031
1.6640	0.208	0.200	0.383	0.031
1.6871	0.208	0.205	0.559	0.031
1.7102	0.208	0.210	0.755	0.031
1.7333	0.208	0.215	0.970	0.031
1.7564	0.208	0.219	1.202	0.031
1.7796	0.208	0.224	1.450	0.031
1.8027	0.208	0.229	1.714	0.031
1.8258	0.208	0.234	1.991	0.031
1.8489	0.208	0.239	2.282	0.031
1.8720	0.208	0.243	2.586	0.031

1.8951	0.208	0.248	2.903	0.031
1.9182	0.208	0.253	3.231	0.031
1.9413	0.208	0.258	3.571	0.031
1.9644	0.208	0.263	3.922	0.031
1.9876	0.208	0.268	4.284	0.031
2.0107	0.208	0.272	4.656	0.031
2.0338	0.208	0.277	5.039	0.031
2.0569	0.208	0.282	5.431	0.031
2.0800	0.208	0.287	5.833	0.031

DMA B1 PP

Pavement Area:0.0752 acre.Pavement Length:156.00 ft.

Pavement Width:	21.00 ft.
	Pavement slope 1:0 To 1
Pavement thickness:	0.333
Pour Space of Pavement:	0.2
Material thickness of second layer:	0.75
Pour Space of material for second layer:	0.4
Material thickness of third layer:	0
Pour Space of material for third layer:	0
Infiltration On	
Infiltration rate:	0.3
Infiltration reduction factor:	0.5
Total Volume Infiltrated (ac-ft.):	21.995
Total Volume Through Riser (ac-ft.):	0.224
Total Volume Through Facility (ac-ft.):	22.219
Percent Infiltrated:	98.99
Total Precip Applied to Facility:	0
Total Evap From Facility:	0.549
Discharge Structure	
Riser Height:	2.08 ft.
Riser Diameter:	252 in.
Notch Type:	Rectangular
Notch Width:	5.000 ft.
Notch Height:	0.497 ft.
Element Outlets:	
Outlet 1	Outlet 2
Outlet Flows To:	

Permeable Pavement Hydraulic Table

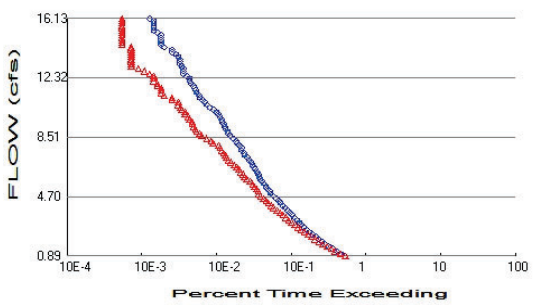
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.075	0.000	0.000	0.000
0.0231	0.075	0.000	0.000	0.011
0.0462	0.075	0.001	0.000	0.011
0.0693	0.075	0.002	0.000	0.011
0.0924	0.075	0.002	0.000	0.011
0.1156	0.075	0.003	0.000	0.011
0.1387	0.075	0.004	0.000	0.011
0.1618	0.075	0.004	0.000	0.011
0.1849	0.075	0.005	0.000	0.011
0.2080	0.075	0.006	0.000	0.011
0.2311	0.075	0.007	0.000	0.011
0.2542	0.075	0.007	0.000	0.011
0.2773	0.075	0.008	0.000	0.011
0.3004	0.075	0.009	0.000	0.011
0.3236	0.075	0.009	0.000	0.011
0.3467	0.075	0.010	0.000	0.011
0.3698	0.075	0.011	0.000	0.011
0.3929	0.075	0.011	0.000	0.011
0.4160	0.075	0.012	0.000	0.011
0.4391	0.075	0.013	0.000	0.011
0.4622	0.075	0.013	0.000	0.011
0.4853	0.075	0.014	0.000	0.011
0.5084	0.075	0.015	0.000	0.011
0.5316	0.075	0.016	0.000	0.011

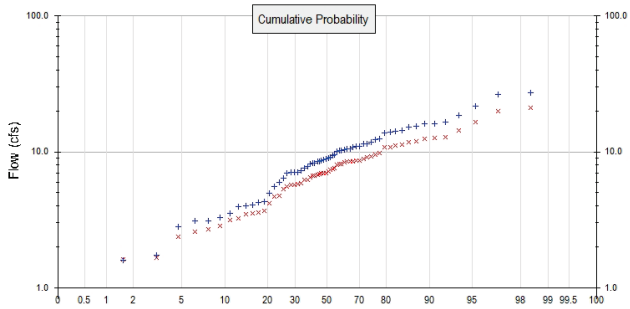
0.5547	0.075	0.016	0.000	0.011
0.5778	0.075	0.017	0.000	0.011
0.6009	0.075	0.018	0.000	0.011
0.6240	0.075	0.018	0.000	0.011
0.6471	0.075	0.019	0.000	0.011
0.6702	0.075	0.020	0.000	0.011
0.6933	0.075	0.020	0.000	0.011
0.7164	0.075	0.021	0.000	0.011
0.7396	0.075	0.022	0.000	0.011
0.7627	0.075	0.022	0.000	0.011
0.7858	0.075	0.022	0.000	0.011
0.8089	0.075	0.023	0.000	0.011
0.8320	0.075	0.023	0.000	0.011
0.8551	0.075	0.024	0.000	0.011
0.8782	0.075	0.024	0.000	0.011
0.9013	0.075	0.024	0.000	0.011
0.9244	0.075	0.025	0.000	0.011
0.9476	0.075	0.025	0.000	0.011
0.9707	0.075	0.025	0.000	0.011
0.9938	0.075	0.026	0.000	0.011
1.0169	0.075	0.026	0.000	0.011
1.0400	0.075	0.026	0.000	0.011
1.0631	0.075	0.027	0.000	0.011
1.0862	0.075	0.028	0.000	0.011
1.1093	0.075	0.030	0.000	0.011
1.1324	0.075	0.032	0.000	0.011
1.1556	0.075	0.034	0.000	0.011
1.1787	0.075	0.035	0.000	0.011
1.2018	0.075	0.037	0.000	0.011
1.2249	0.075	0.039	0.000	0.011
1.2480	0.075	0.041	0.000	0.011
1.2711	0.075	0.042	0.000	0.011
1.2942	0.075	0.044	0.000	0.011
1.3173	0.075	0.046	0.000	0.011
1.3404	0.075	0.048	0.000	0.011
1.3636	0.075	0.049	0.000	0.011
1.3867	0.075	0.051	0.000	0.011
1.4098	0.075	0.053	0.000	0.011
1.4329	0.075	0.054	0.000	0.011
1.4560	0.075	0.056	0.000	0.011
1.4791	0.075	0.058	0.000	0.011
1.5022	0.075	0.060	0.000	0.011
1.5253	0.075	0.061	0.000	0.011
1.5484	0.075	0.063	0.000	0.011
1.5716	0.075	0.065	0.000	0.011
1.5947	0.075	0.067	0.021	0.011
1.6178	0.075	0.068	0.108	0.011
1.6409	0.075	0.070	0.231	0.011
1.6640	0.075	0.072	0.383	0.011
1.6871	0.075	0.074	0.559	0.011
1.7102	0.075	0.075	0.755	0.011
1.7333	0.075	0.077	0.970	0.011
1.7564	0.075	0.079	1.202	0.011
1.7796	0.075	0.081	1.450	0.011
1.8027	0.075	0.082	1.714	0.011
1.8258	0.075	0.084	1.991	0.011
1.8489	0.075	0.086	2.282	0.011
1.8720	0.075	0.087	2.586	0.011

1.8951	0.075	0.089	2.903	0.011
1.9182	0.075	0.091	3.231	0.011
1.9413	0.075	0.093	3.571	0.011
1.9644	0.075	0.094	3.922	0.011
1.9876	0.075	0.096	4.284	0.011
2.0107	0.075	0.098	4.656	0.011
2.0338	0.075	0.100	5.039	0.011
2.0569	0.075	0.101	5.431	0.011
2.0800	0.075	0.103	5.833	0.011

Analysis Results

POC 1





\+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #1
Total Pervious Area: 14.8751
Total Impervious Area: 0.0046

Mitigated Landuse Totals for POC #1
Total Pervious Area: 12.3867
Total Impervious Area: 2.508093

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Pre-Project. POC #1

Return Period	**Flow(cfs)**
2 year	8.86219
5 year	13.810125
10 year	16.1301
25 year	23.351553

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	6.99226
5 year	10.835944
10 year	12.610544
25 year	17.774469

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #1

Year	**Pre-Project**	**Mitigated**
1960	4.930	4.191
1961	3.098	2.690
1962	9.369	7.527
1963	10.306	8.534
1964	13.785	10.854
1965	6.373	5.299
1966	3.503	3.132
1967	10.273	8.184
1968	14.284	11.272
1969	8.311	6.708
1970	9.537	7.632
1971	8.467	6.788
1972	3.295	2.857
1973	10.927	8.607

1974	7.829	6.259
1975	8.737	6.916
1976	0.145	0.382
1977	1.593	1.607
1978	7.266	5.892
1979	9.009	7.181
1980	11.521	9.103
1981	4.309	3.678
1982	13.919	10.832
1983	10.557	8.450
1984	5.977	4.759
1985	12.417	9.833
1986	10.507	8.354
1987	4.043	3.509
1988	7.001	5.737
1989	3.093	2.563
1990	5.548	4.697
1991	7.111	5.786
1992	10.105	8.058
1993	10.238	8.119
1994	7.039	5.721
1995	8.457	6.821
1996	16.653	12.825
1997	8.220	6.632
1998	8.862	6.992
1999	3.926	3.248
2000	8.100	6.509
2001	2.814	2.358
2002	1.740	1.655
2003	15.130	11.708
2004	26.274	19.963
2005	10.965	8.485
2006	7.023	5.586
2007	4.244	3.589
2008	9.163	7.377
2009	14.200	11.129
2010	18.664	14.288
2011	11.409	8.839
2012	10.868	8.558
2013	27.364	20.977
2014	16.208	12.697
2015	16.030	12.499
2016	15.331	11.982
2017	21.821	16.628
2018	3.994	3.485
2019	8.565	6.918
2020	12.321	9.561
2021	7.547	6.178
2022	11.853	9.277

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #1

Rank	Pre-Project	Mitigated
1	27.3640	20.9769
2	26.2739	19.9628
3	21.8208	16.6282
4	18.6638	14.2881
5	16.6533	12.8250

6	16.2078	12.6973
7	16.0302	12.4990
8	15.3306	11.9817
9	15.1303	11.7076
10	14.2843	11.2715
11	14.2000	11.1291
12	13.9190	10.8539
13	13.7850	10.8318
14	12.4169	9.8326
15	12.3208	9.5607
16	11.8533	9.2766
17	11.5212	9.1034
18	11.4093	8.8394
19	10.9651	8.6074
20	10.9270	8.5584
21	10.8680	8.5344
22	10.5568	8.4850
23	10.5065	8.4499
24	10.3055	8.3542
25	10.2729	8.1842
26	10.2378	8.1188
27	10.1050	8.0582
28	9.5371	7.6317
29	9.3694	7.5267
30	9.1625	7.3768
31	9.0094	7.1805
32	8.8622	6.9923
33	8.7367	6.9183
34	8.5647	6.9165
35	8.4674	6.8211
36	8.4568	6.7876
37	8.3107	6.7081
38	8.2201	6.6319
39	8.0997	6.5086
40	7.8295	6.2590
41	7.5470	6.1776
42	7.2661	5.8915
43	7.1112	5.7858
44	7.0387	5.7374
45	7.0228	5.7209
46	7.0013	5.5859
47	6.3727	5.2989
48	5.9773	4.7592
49	5.5479	4.6967
50	4.9300	4.1907
51	4.3089	3.6778
52	4.2444	3.5888
53	4.0433	3.5089
54	3.9935	3.4846
55	3.9260	3.2481
56	3.5027	3.1316
57	3.2951	2.8570
58	3.0984	2.6898
59	3.0929	2.5634
60	2.8145	2.3576
61	1.7395	1.6549
62	1.5933	1.6075
63	0.1447	0.3825

Duration Flows

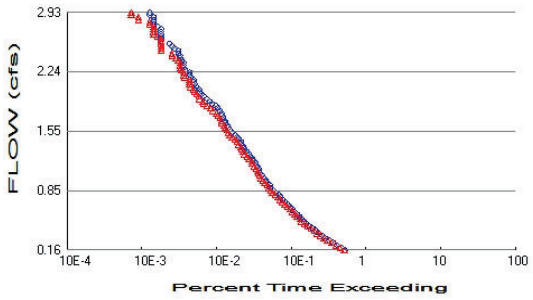
The Facility PASSED

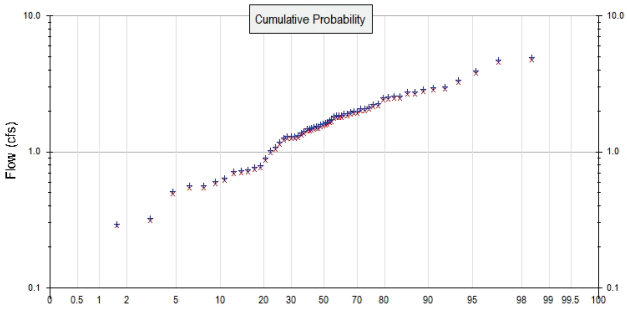
Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.8862	2875	2936	102	Pass
1.0402	2560	2514	98	Pass
1.1942	2253	2146	95	Pass
1.3482	1985	1891	95	Pass
1.5021	1747	1661	95	Pass
1.6561	1563	1448	92	Pass
1.8101	1426	1290	90	Pass
1.9641	1285	1143	88	Pass
2.1180	1177	1039	88	Pass
2.2720	1065	925	86	Pass
2.4260	973	823	84	Pass
2.5800	881	747	84	Pass
2.7340	815	683	83	Pass
2.8879	749	622	83	Pass
3.0419	712	559	78	Pass
3.1959	661	512	77	Pass
3.3499	613	468	76	Pass
3.5039	573	428	74	Pass
3.6578	529	389	73	Pass
3.8118	494	357	72	Pass
3.9658	458	320	69	Pass
4.1198	422	295	69	Pass
4.2737	394	273	69	Pass
4.4277	374	255	68	Pass
4.5817	347	236	68	Pass
4.7357	318	215	67	Pass
4.8897	297	205	69	Pass
5.0436	285	201	70	Pass
5.1976	265	189	71	Pass
5.3516	253	177	69	Pass
5.5056	237	169	71	Pass
5.6596	222	156	70	Pass
5.8135	213	141	66	Pass
5.9675	205	129	62	Pass
6.1215	200	127	63	Pass
6.2755	193	116	60	Pass
6.4294	183	110	60	Pass
6.5834	176	103	58	Pass
6.7374	167	95	56	Pass
6.8914	162	86	53	Pass
7.0454	150	79	52	Pass
7.1993	142	75	52	Pass
7.3533	131	73	55	Pass
7.5073	128	69	53	Pass
7.6613	119	64	53	Pass
7.8153	119	62	52	Pass
7.9692	112	59	52	Pass
8.1232	104	50	48	Pass
8.2772	100	47	47	Pass
8.4312	93	41	44	Pass
8.5851	84	35	41	Pass
8.7391	80	33	41	Pass
8.8931	78	30	38	Pass

9.0471	73	29	39	Pass
9.2011	72	27	37	Pass
9.3550	69	26	37	Pass
9.5090	66	26	39	Pass
9.6630	64	24	37	Pass
9.8170	61	23	37	Pass
9.9710	58	21	36	Pass
10.1249	55	21	38	Pass
10.2789	51	19	37	Pass
10.4329	45	18	40	Pass
10.5869	41	17	41	Pass
10.7408	38	17	44	Pass
10.8948	36	14	38	Pass
11.0488	33	14	42	Pass
11.2028	32	11	34	Pass
11.3568	30	10	33	Pass
11.5107	29	10	34	Pass
11.6647	28	10	35	Pass
11.8187	27	9	33	Pass
11.9727	25	9	36	Pass
12.1267	24	8	33	Pass
12.2806	24	8	33	Pass
12.4346	22	8	36	Pass
12.5886	20	7	35	Pass
12.7426	20	6	30	Pass
12.8965	20	5	25	Pass
13.0505	19	4	21	Pass
13.2045	18	4	22	Pass
13.3585	18	4	22	Pass
13.5125	18	4	22	Pass
13.6664	17	4	23	Pass
13.8204	16	4	25	Pass
13.9744	14	4	28	Pass
14.1284	14	4	28	Pass
14.2824	11	4	36	Pass
14.4363	10	3	30	Pass
14.5903	10	3	30	Pass
14.7443	10	3	30	Pass
14.8983	10	3	30	Pass
15.0522	10	3	30	Pass
15.2062	9	3	33	Pass
15.3602	8	3	37	Pass
15.5142	8	3	37	Pass
15.6682	8	3	37	Pass
15.8221	8	3	37	Pass
15.9761	8	3	37	Pass
16.1301	7	3	42	Pass

Water Quality

POC 2





+ Pre-Project x Mitigated

Pre-Project Landuse Totals for POC #2
Total Pervious Area: 2.6829
Total Impervious Area: 0

Mitigated Landuse Totals for POC #2
Total Pervious Area: 2.5729
Total Impervious Area: 0

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Pre-Project. POC #2

Return Period	**Flow(cfs)**
2 year	1.60657
5 year	2.502204
10 year	2.932572
25 year	4.227573

Flow Frequency Return Periods for Mitigated. POC #2

Return Period	**Flow(cfs)**
2 year	1.5407
5 year	2.399613
10 year	2.812342
25 year	4.054243

Annual Peaks

Annual Peaks for Pre-Project and Mitigated. POC #2

Year	**Pre-Project**	**Mitigated**
1960	0.895	0.858
1961	0.564	0.540
1962	1.697	1.627
1963	1.862	1.786
1964	2.499	2.396
1965	1.173	1.125
1966	0.639	0.613
1967	1.857	1.781
1968	2.583	2.477
1969	1.501	1.440
1970	1.726	1.655
1971	1.548	1.484
1972	0.600	0.576
1973	1.979	1.898
1974	1.417	1.359

1975	1.583	1.518
1976	0.027	0.026
1977	0.295	0.283
1978	1.315	1.261
1979	1.634	1.567
1980	2.080	1.995
1981	0.791	0.758
1982	2.517	2.414
1983	1.906	1.828
1984	1.088	1.043
1985	2.260	2.167
1986	1.898	1.820
1987	0.738	0.707
1988	1.270	1.218
1989	0.563	0.540
1990	1.023	0.981
1991	1.304	1.250
1992	1.826	1.751
1993	1.855	1.779
1994	1.294	1.241
1995	1.526	1.464
1996	3.012	2.889
1997	1.485	1.424
1998	1.607	1.541
1999	0.712	0.683
2000	1.469	1.409
2001	0.513	0.492
2002	0.323	0.310
2003	2.742	2.630
2004	4.755	4.560
2005	1.987	1.905
2006	1.294	1.241
2007	0.773	0.741
2008	1.660	1.592
2009	2.567	2.462
2010	3.378	3.240
2011	2.067	1.982
2012	1.970	1.889
2013	4.954	4.751
2014	2.960	2.839
2015	2.897	2.779
2016	2.770	2.656
2017	3.951	3.789
2018	0.728	0.698
2019	1.552	1.488
2020	2.241	2.149
2021	1.374	1.317
2022	2.150	2.062

Ranked Annual Peaks

Ranked Annual Peaks for Pre-Project and Mitigated. POC #2

Rank	Pre-Project	Mitigated
1	4.9543	4.7512
2	4.7547	4.5597
3	3.9515	3.7895
4	3.3783	3.2398
5	3.0121	2.8886
6	2.9599	2.8385

7	2.8975	2.7787
8	2.7696	2.6561
9	2.7423	2.6299
10	2.5827	2.4768
11	2.5670	2.4617
12	2.5169	2.4137
13	2.4988	2.3964
14	2.2598	2.1672
15	2.2413	2.1494
16	2.1502	2.0620
17	2.0798	1.9945
18	2.0672	1.9824
19	1.9867	1.9053
20	1.9794	1.8983
21	1.9698	1.8890
22	1.9060	1.8278
23	1.8977	1.8199
24	1.8624	1.7860
25	1.8571	1.7810
26	1.8551	1.7790
27	1.8261	1.7513
28	1.7258	1.6551
29	1.6966	1.6271
30	1.6601	1.5920
31	1.6341	1.5671
32	1.6066	1.5407
33	1.5826	1.5177
34	1.5518	1.4882
35	1.5477	1.4842
36	1.5262	1.4636
37	1.5014	1.4398
38	1.4847	1.4238
39	1.4694	1.4092
40	1.4170	1.3589
41	1.3737	1.3174
42	1.3149	1.2610
43	1.3036	1.2502
44	1.2940	1.2409
45	1.2939	1.2409
46	1.2696	1.2175
47	1.1728	1.1247
48	1.0881	1.0435
49	1.0226	0.9807
50	0.8952	0.8585
51	0.7908	0.7583
52	0.7730	0.7413
53	0.7377	0.7075
54	0.7275	0.6977
55	0.7121	0.6829
56	0.6389	0.6127
57	0.6004	0.5758
58	0.5636	0.5405
59	0.5634	0.5403
60	0.5131	0.4921
61	0.3234	0.3102
62	0.2952	0.2831
63	0.0274	0.0262

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1607	2902	2833	97	Pass
0.1887	2586	2494	96	Pass
0.2167	2272	2168	95	Pass
0.2447	2005	1911	95	Pass
0.2727	1759	1682	95	Pass
0.3007	1572	1504	95	Pass
0.3287	1435	1365	95	Pass
0.3567	1298	1220	93	Pass
0.3847	1179	1125	95	Pass
0.4126	1071	1015	94	Pass
0.4406	974	914	93	Pass
0.4686	880	836	95	Pass
0.4966	816	765	93	Pass
0.5246	752	724	96	Pass
0.5526	713	667	93	Pass
0.5806	661	621	93	Pass
0.6086	614	577	93	Pass
0.6366	574	532	92	Pass
0.6646	531	492	92	Pass
0.6926	492	455	92	Pass
0.7206	458	423	92	Pass
0.7486	425	391	92	Pass
0.7766	394	367	93	Pass
0.8046	374	336	89	Pass
0.8326	344	310	90	Pass
0.8606	316	292	92	Pass
0.8886	297	273	91	Pass
0.9166	285	263	92	Pass
0.9446	266	245	92	Pass
0.9726	253	231	91	Pass
1.0006	237	217	91	Pass
1.0286	223	207	92	Pass
1.0566	210	201	95	Pass
1.0846	205	197	96	Pass
1.1126	200	187	93	Pass
1.1406	193	177	91	Pass
1.1686	185	167	90	Pass
1.1966	174	164	94	Pass
1.2246	166	151	90	Pass
1.2526	160	142	88	Pass
1.2806	151	131	86	Pass
1.3086	140	126	90	Pass
1.3366	131	119	90	Pass
1.3646	126	117	92	Pass
1.3926	119	110	92	Pass
1.4206	118	104	88	Pass
1.4486	110	97	88	Pass
1.4766	104	90	86	Pass
1.5046	98	83	84	Pass
1.5326	92	79	85	Pass
1.5606	83	76	91	Pass
1.5886	79	73	92	Pass
1.6166	77	70	90	Pass

1.6446	73	66	90	Pass
1.6726	71	64	90	Pass
1.7006	68	62	91	Pass
1.7286	65	58	89	Pass
1.7566	64	55	85	Pass
1.7846	61	50	81	Pass
1.8126	57	46	80	Pass
1.8406	54	41	75	Pass
1.8686	48	37	77	Pass
1.8966	45	36	80	Pass
1.9246	41	33	80	Pass
1.9526	37	32	86	Pass
1.9806	35	30	85	Pass
2.0086	33	28	84	Pass
2.0366	32	27	84	Pass
2.0646	30	25	83	Pass
2.0926	28	24	85	Pass
2.1206	27	24	88	Pass
2.1486	27	24	88	Pass
2.1766	25	21	84	Pass
2.2046	24	20	83	Pass
2.2326	24	20	83	Pass
2.2606	21	19	90	Pass
2.2886	20	18	90	Pass
2.3166	20	18	90	Pass
2.3446	20	18	90	Pass
2.3726	19	17	89	Pass
2.4006	18	16	88	Pass
2.4286	18	14	77	Pass
2.4566	17	14	82	Pass
2.4846	17	10	58	Pass
2.5126	15	10	66	Pass
2.5406	14	10	71	Pass
2.5686	13	10	76	Pass
2.5966	10	10	100	Pass
2.6246	10	10	100	Pass
2.6526	10	9	90	Pass
2.6806	10	8	80	Pass
2.7086	10	8	80	Pass
2.7366	10	8	80	Pass
2.7646	9	8	88	Pass
2.7926	8	7	87	Pass
2.8206	8	7	87	Pass
2.8486	8	5	62	Pass
2.8766	8	5	62	Pass
2.9046	7	4	57	Pass
2.9326	7	4	57	Pass

Water Quality

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

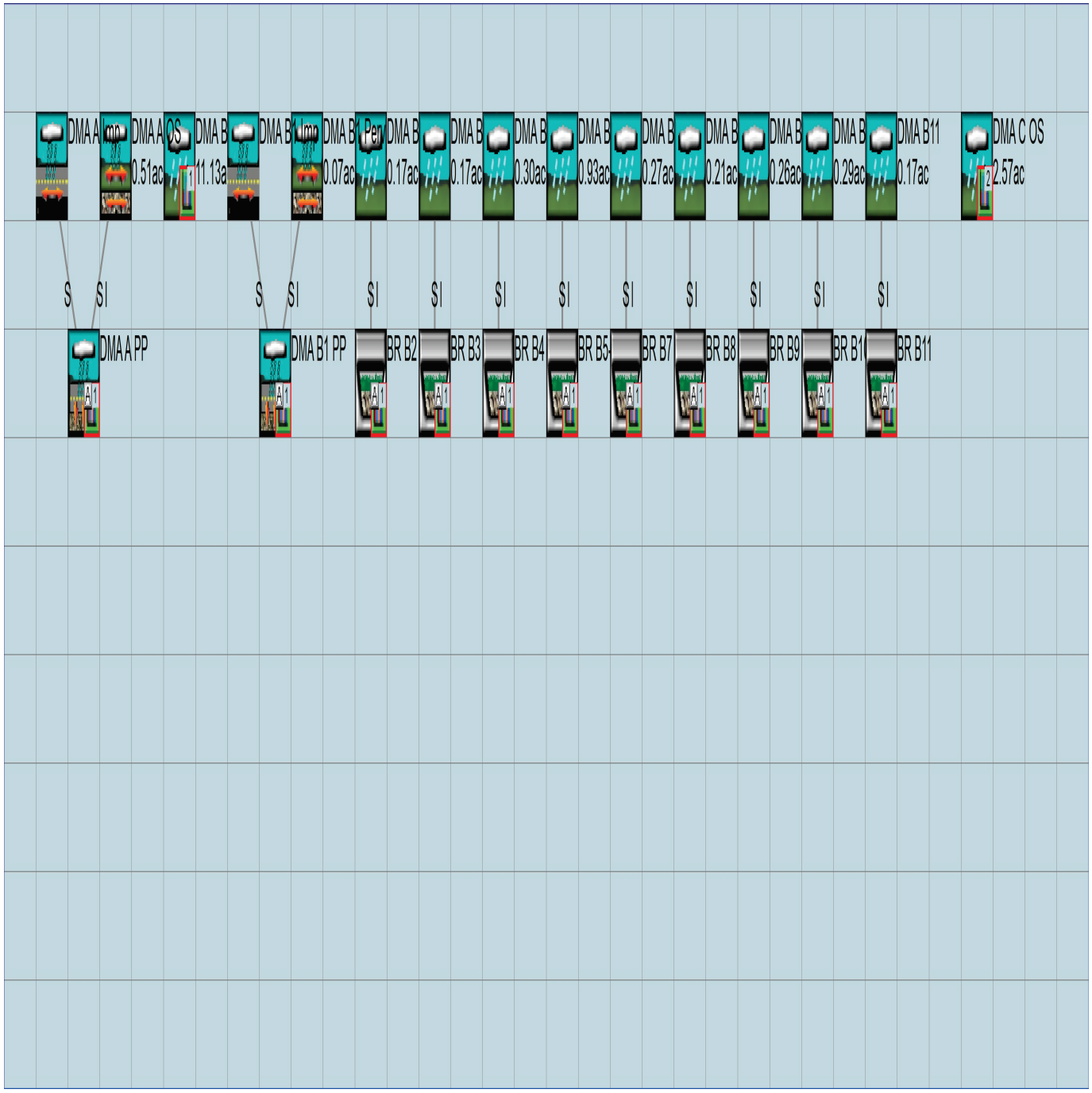
No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Pre-Project Schematic

Mitigated Schematic



Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind.The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc, Applied Marine SciencesIncorporated, the Alameda County Flood Control and Water Conservation District, EOA Incorporated, member agencies of the Alameda Countywide Clean Water Program, member agencies of the San Mateo Countywide Water Pollution Prevention Program, member agencies of the Santa Clara Valley Urban Runoff Pollution Prevention Program or any other LOU Participants or authorized representatives of LOU Participants be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information,business interruption, and the like) arising out of the use of, or inability to use this programeven if Clear Creek Solutions Inc., Applied Marine Sciences Incorporated, the Alameda County Flood Control and Water Conservation District, EOA Incorporated or any member agencies of the LOU Participants or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by Clear Creek Solutions, Inc. 2005-2025; All Rights Reserved.

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

BAHM October 2024 Zip File

(Attached to email)

APPENDIX D

~~GEOTECHNICAL AND GEOLOGIC HAZARD INVESTIGATION~~ ARBORIST REPORT

CERTIFIED ARBORIST REPORT
Tree Preservation Plan

December 15, 2024

SITE PROJECT
Arborist Report, Tree Preservation Plan
Surrey Farms, Project #4185.10
Los Gatos, CA 95032
APN: 532-16-006

PREPARED FOR
Mr. Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road
San Jose, CA 95131

PREPARED BY
Michael Gladden
ISA Certified Arborist #WE-2205A

McClintock Landscape Horticultural Services
1821 South Bascom Avenue, #243
Campbell, CA 95008

TABLE OF CONTENTS

	Page
Introduction and Overview	3
Methodology	3
Municipal Code Governing Trees	4
Tree Protection Los Gatos	4
Summary of Findings	9
Tree Inventory	10
Tree Count	27
Tree Location Map	28
Legend of Abbreviations	38
Preservation Assessment	39
Tree Photographs	40
Recommended Actions	127
Additional Tree Protection Specifications	127
Trenching, Excavation and Equipment Use	129
General Recommendations	131
Conclusion	131
Assumptions and Limitations	131
Tree Protection Signs	132
Tree Protection Fencing Type 1	134

INTRODUCTION AND OVERVIEW

McClintock Landscape Horticultural Services was engaged by Mr. Shawn Taylor, HMH Landscape Architect, HMH Engineers, located at 1570 Oakland Road, San Jose, CA 95131, to develop a Certified Arborist Report serving as a Tree Preservation Plan for the Surrey Farms project, Project #4185.10, in Los Gatos, CA 95032, APN: 532-16-006. This Arborist Report outlines the current observable health and structural conditions of the trees from a visual assessment conducted at ground level. It includes details on tree species, photographs, diameter at breast height (DBH), health ratings, structural evaluations, height, and canopy spread in both the North-South (N/S) and East-West (E/W) directions. Each tree is identified with a metal numbered tag, and their locations are marked on a diagrammatic site map. The inventory assesses the estimated construction impact tolerance, tree protection zone (TPZ), and critical root zone (CRZ) distances, along with general observations for 677 tree locations within the proposed work area at the aforementioned site. Please note that tree appraisals are not included in this report and will be conducted by others.

The health and structure ratings, along with the overall calculated condition derived from these assessments, reflect the state of the trees during the data collection period, approximately from November 15 to December 15, 2024. This time of year can present challenges for leaf and foliage assessment.

All tree inspections were carried out by a Certified Arborist accredited by the International Society of Arboriculture to accurately evaluate the tree conditions at this time.

The work zone's terrain is primarily characterized as foothills, bordered by developed properties along the project's perimeters.

This document serves as a tree preservation plan and condition assessment report; however, it does not include foundation, grading, planting plans, or soil reports at the time of its creation. Additionally, this report does NOT encompass tree appraisals, nor does it provide real estate appraisals or assumptions beyond those explicitly stated. All trees were visually inspected from the ground, utilizing a steel diameter tape or equivalent when feasible to measure the DBH at 54 inches above grade, along with visual estimates and laser measurements to assess tree canopy height and width in both the North-South (N/S) and East-West (E/W) orientations. Soil and tissue laboratory analyses were not conducted, and root collars were examined visually without any excavations performed.

METHODOLOGY

Our tree survey work is a deliberate and systematic methodology for cataloging trees on-site as per Town of Los Gatos Sec. 29.10.1000

1. Identify each tree species.
2. Number each tree with a metal tag and its approximate location on a diagrammatic map. It's not always possible to place a physical tag due to inaccessible uses such as impassable brush, poison oak, and private property. In cases of non-access, tags were placed on a fence close to the tree as practical.
3. Measure each trunk circumference at 54" above grade also known as DBH, Diameter Breast Height.
4. Tissue or laboratory analysis was **not** performed while assessing these trees.
5. General observations from the ground were used to estimate both health and structure.

6. Combined Health and Structure ratings calculated with the Construction Impact Rating, formulate the viability of the tree to be retained and protected based on a retention rating of HIGH/MODERATE/LOW from the arborist's perspective.

MUNICIPAL CODE GOVERNING TREES

In accordance with the Town of Los Gatos ("The Town") Sec. 29.10.1000 on TREE PRESERVATION and established industry standards, the following guidelines are set forth for tree protection during construction. Protected trees designated for preservation must be safeguarded throughout the construction process using the methods outlined below.

The definition of protected trees is provided in The Town of Los Gatos Sec. 29.10.0950, which details the scope of protected trees. As recommended in Sec. 29.10.1005 regarding the protection of trees during construction, the Town advises that the canopy drip-line serves as the tree protection zone. This zone is primarily intended to protect the roots while also preventing damage to the canopy. Given the presence of numerous trees in close proximity, their canopies may not be centered due to phototropism, leading to offset canopies or drip lines relative to the tree stems.

In this tree protection plan, I propose establishing a Critical Root Zone (CRZ) at six times the Diameter at Breast Height (DBH) to protect the critical root zone, which encompasses the soil area surrounding a tree that contains the minimum volume of roots necessary for the tree's structural stability and health. It is essential to allow the closest possible access to the trees while avoiding damage to the structural roots. Although there are no universally accepted methods for calculating the CRZ, this guideline is recommended. Furthermore, I suggest implementing a Tree Protection Zone (TPZ) at fifteen times the DBH. This area should be managed under the oversight of a certified Arborist or the Town Arborist. Currently, the plan includes only Type 1 tree protection fencing to delineate boundaries, effectively integrating the canopy drip line with the proposed Tree Protection Zone (TPZ). This strategy offers a practical and effective solution for ensuring the approved protection of trees within this development.

Sec. 29.10.0960. - Scope of protected trees.

This division shall apply to every property owner and to every person, corporation, partnership, sole proprietorship or other entity responsible for removing, maintaining or protecting a tree. The trees protected by this division are:

(1)

All trees which have a twelve-inch or greater diameter (thirty-seven and one-half-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eighteen inches or greater diameter (fifty-six and one-half-inch circumference) of the sum of all trunks, where such trees are located on developed residential property.

(2)

All trees which have an eight-inch or greater diameter (twenty-five-inch circumference) of any trunk or in the case of multi-trunk trees, a total of eight inches or greater diameter (twenty-five-inch circumference) of the sum of all trunks, where such trees are located on developed Hillside residential property.

Sec. 29.10.0960. - Scope of protected trees. (continued)

(3)

All trees of the following species which have an eight-inch or greater diameter (twenty-five-inch circumference) located on developed residential property:

a. Blue Oak (Quercus douglasii);
b. Black Oak (Quercus kelloggii);
c. California Buckeye (Aesculus californica);
d. Pacific Madrone (Arbutus menziesii).

(4)

All trees which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk, when removal relates to any review for which zoning approval or subdivision approval is required.

(5)

Any tree that existed at the time of a zoning approval or subdivision approval and was a specific subject of such approval or otherwise covered by subsection (6) of this section (e.g., landscape or site plans).

(6)

Any tree that was required by the Town to be planted or retained by the terms and conditions of a development application, building permit or subdivision approval in all zoning districts, tree removal permit or code enforcement action.

(7)

All trees, which have a four-inch or greater diameter (twelve and one half-inch circumference) of any trunk and are located on property other than developed residential property.

(8)

All publicly owned trees growing on Town lands, public places or in a public right-of-way easement, which have a four-inch or greater diameter (twelve and one-half-inch circumference) of any trunk.

(9)

A protected tree shall also include a stand of trees, the nature of which makes each dependent upon the other for the survival of the stand.

(10)

The following trees shall also be considered protected trees and shall be subject to the pruning permit requirements set forth in section 29.10.0982 and the public noticing procedures set forth in section 20.10.0994:

a. Heritage trees;
b. Large protected trees.

Sec. 29.10.1005. - Protection of trees during construction.

(a) Protective tree fencing shall specify the following:

(1)

Size and materials. Six (6) foot high chain link fencing, mounted on two-inch diameter galvanized iron posts, shall be driven into the ground to a depth of at least two (2) feet at no more than ten-foot spacing. For paving area that will not be demolished and when stipulated in a tree preservation plan, posts may be supported by a concrete base.

(2)

Area type to be fenced. Type I: Enclosure with chain link fencing of either the entire dripline area or at the tree protection zone (TPZ), when specified by a certified or consulting arborist. Type II: Enclosure for street trees located in a planter strip: chain link fence around the entire planter strip to the outer branches. Type III: Protection for a tree located in a small planter cutout only (such as downtown): orange plastic fencing shall be wrapped around the trunk from the ground to the first branch with two-inch wooden boards bound securely on the outside. Caution shall be used to avoid damaging any bark or branches.

(3)

Duration of Type I, II, III fencing. Fencing shall be erected before demolition, grading or construction permits are issued and remain in place until the work is completed. Contractor shall first obtain the approval of the project arborist on record prior to removing a tree protection fence.

(4)

Warning sign. Each tree fence shall have prominently displayed an eight and one-half-inch by eleven-inch sign stating: "Warning—Tree Protection Zone—This fence shall not be removed and is subject to penalty according to Town Code 29.10.1025."

(b)

All persons, shall comply with the following precautions:

(1)

Prior to the commencement of construction, install the fence at the dripline, or tree protection zone (TPZ) when specified in an approved arborist report, around any tree and/or vegetation to be retained which could be affected by the construction and prohibit any storage of construction materials or other materials, equipment cleaning, or parking of vehicles within the TPZ. The dripline shall not be altered in any way so as to increase the encroachment of the construction.

(2)

Prohibit all construction activities within the TPZ, including but not limited to: excavation, grading, drainage and leveling within the dripline of the tree unless approved by the Director.

Sec. 29.10.1005. - Protection of trees during construction. (Continued)

(3)

Prohibit disposal or depositing of oil, gasoline, chemicals or other harmful materials within the dripline of or in drainage channels, swales or areas that may lead to the dripline of a protected tree.

(4)

Prohibit the attachment of wires, signs or ropes to any protected tree.

(5)

Design utility services and irrigation lines to be located outside of the dripline when feasible.

(6)

Retain the services of a certified or consulting arborist who shall serve as the project arborist for periodic monitoring of the project site and the health of those trees to be preserved. The project arborist shall be present whenever activities occur which may pose a potential threat to the health of the trees to be preserved and shall document all site visits.

(7)

The Director and project arborist shall be notified of any damage that occurs to a protected tree during construction so that proper treatment may be administered.

Sec. 29.10.1010. - Pruning and maintenance.

Tree pruning must not be done in a manner that is detrimental to the tree. Any action undertaken which intentionally or recklessly causes or tends to cause injury, death, or disfigurement to a tree is considered to be detrimental. Examples of actions which are detrimental to trees may include excessive cutting, poisoning, burning, over-watering, relocating, or transplanting a tree.

All tree pruning shall be in accordance with the current version of the International Society of Arboriculture Best Management Practices-Tree Pruning and ANSI A300-Part 1 Tree, Shrub and Other Woody Plant Management-Standard Practices, (Pruning) and any special conditions as determined by the Director. For developments, which require a tree preservation report, a certified or consulting arborist shall be in reasonable charge of all activities involving protected trees, including pruning, cabling and any other work if specified.

Sec. 29.10.1010. - Pruning and maintenance. (continued)

(1)
Any public utility installing or maintaining any overhead wires or underground pipes or conduits in the vicinity of a protected tree shall obtain written permission from the Director before performing any work, including pruning, which may cause injury to a protected tree (e.g. cable TV/fiber optic trenching, gas, water, sewer trench, etc.).
(2)
Pruning for clearance of utility lines and energized conductors shall be performed in compliance with the current version of the American National Standards Institute (ANSI) A300 (Part 1)-Pruning, Section 5.9 Utility Pruning. Using spikes or gaffs when pruning, except where no other alternative is available, is prohibited.
(3)
No person shall prune, trim, cut off, or perform any work, on a single occasion or cumulatively, over a three-year period, affecting twenty-five percent or more of the crown of any protected tree without first obtaining a permit pursuant to this division except for pollarding of fruitless mulberry trees (Morus alba) or other species approved by the Town Arborist. Applications for a pruning permit shall include photographs indicating where pruning is proposed.
(4)
No person shall remove any Heritage tree or large protected tree branch or root through pruning or other method greater than four (4) inches in diameter (twelve and one-half (12.5) inches in circumference) without first obtaining a permit pursuant to this division.

SUMMARY OF FINDINGS

From November 22 to December 14, 2024, Michael Gladden, ISA Certified Arborist #WE-2205A of McClintock Landscape Horticultural Services, conducted a tree inventory of 673 trees measuring 4 inches or greater in diameter at breast height (DBH) on the site of Surrey Farms, Project #4185.10, located in Los Gatos, CA 95032. The majority of these trees are volunteer species found in the undeveloped areas of the site, with a few appearing to have been planted some time ago. The proposed site improvement areas are surrounded by residential development. Trees excluded from this report include #5, #198, #201, and #469, which were deemed too small (less than 4 inches in DBH) or unnecessary for inclusion.

As of the date of this report, a specific scope of site development has not been defined or finalized. The project has not produced any final landscape, grading, or other plans that I am aware of. However, it is customary for the site arborist to provide suggestions for site improvements as the landscape architecture progresses and the project evolves.

The tree inventory includes details for each tree measuring 4” inches or greater in DBH, such as identification number, botanical name, diameter at 54 inches above grade, and whether the tree is exempt, protected, or classified as large protected size. Additionally, it assesses preservation suitability as High, Moderate, or Low for retention rating, along with evaluations of health, structure, and species tolerance to construction impacts, accompanied by general notes.

The inventory encompasses 29 species, totaling 673 individual trees over 4” inches in diameter at 54 inches above grade. Among these, 69 trees have a Low retention rating (10%), 227 trees are rated Moderate (34%), and the remaining 365 trees are classified with a High retention rating (54%).

To the best of my knowledge, no Heritage trees were identified. A Heritage tree is defined as a tree or group of trees designated by the Town Council, based on the recommendation of the Historic Preservation Commission, that possesses exceptional aesthetic, biological, cultural, or historic value and is expected to continue contributing to the community.

Some trees tagged in the inventory were cut down and left on site, which is a common practice among PG&E crews, with the stumps located under power lines.

Discing has previously been used to create a fire break, and the path of this fire break runs through the site. While this technique may be effective for wildfire management, it has caused irreparable damage to the trees. This impact could pose issues in the future when targets or assets are placed within the vicinity of these trees.

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
1		Calocedrus decurrens	11.0	28	14	14		EXEMPT		3	4	3.5	M	3.3	5.5	13.8	MODERATE
2	358	Calocedrus decurrens	11.0	27	14	14		EXEMPT		4	4	4.0	M	3.5	5.5	13.8	HIGH
3		Quercus agrifolia	6.0	20	12	10		EXEMPT		4	4	4.0	G	4.5	3	7.5	HIGH
4	378	Quercus agrifolia	18.0	30	24	20	Leaning Tree	X		4	3	3.5	G	4.3	9	22.5	HIGH
5		Not Used	0.0					0				0.0	0	0.0	0	0.0	
6	377	Quercus agrifolia	24.0	32	36	26			X	4	4	4.0	G	4.5	12	30.0	HIGH
7		Quercus lobata	8.0	30	24	24	Leaning Tree	X		4	3	3.5	M	3.3	4	10.0	MODERATE
8	359	Calocedrus decurrens	6.0	18	10	10	Severe Decline	EXEMPT		2	3	2.5	M	2.8	3	7.5	MODERATE
9		Quercus agrifolia	6.0	25	10	12		EXEMPT		4	3	3.5	G	4.3	3	7.5	HIGH
10	376	Quercus agrifolia	13.0	20	21	27		X		4	4	4.0	G	4.5	6.5	16.3	HIGH
11	360	Calocedrus decurrens	6.0	12	12	9	Poor Pruning Technique	EXEMPT		4	2	3.0	M	3.0	3	7.5	MODERATE
12		Calocedrus decurrens	8.0	9	9	3	Previously Headed	EXEMPT		3	2	2.5	M	2.8	4	10.0	MODERATE
13		Calocedrus decurrens	9.0	8	4	6	Previously Headed	EXEMPT		3	2	2.5	M	2.8	4.5	11.3	MODERATE
14		Quercus agrifolia	8.0	22	18	24		X		4	4	4.0	G	4.5	4	10.0	HIGH
15		Quercus agrifolia	5.0	20	6	20	Crowded Growing Conditions	EXEMPT		4	4	4.0	G	4.5	2.5	6.3	HIGH
16		Quercus agrifolia	5.0	20	6	15	Crowded Growing Conditions	EXEMPT		4	4	4.0	G	4.5	2.5	6.3	HIGH
17		Quercus agrifolia	5.0	20	14	21	Crowded Growing Conditions	EXEMPT		4	4	4.0	G	4.5	2.5	6.3	HIGH
18		Quercus agrifolia	5.0	20	14	21	Crowded Growing Conditions	EXEMPT		4	4	4.0	G	4.5	2.5	6.3	HIGH
19	574	Calocedrus decurrens	13.0	28	12	12		X		3	4	3.5	M	3.3	6.5	16.3	MODERATE
20		Calocedrus decurrens	8.0	21	12	12		EXEMPT		3	3	3.0	M	3.0	4	10.0	MODERATE
21	365	Calocedrus decurrens	11.0	25	12	12		EXEMPT		3	4	3.5	M	3.3	5.5	13.8	MODERATE
22	366	Calocedrus decurrens	12.0	28	12	12		X		3	4	3.5	M	3.3	6	15.0	MODERATE
23	379	Quercus agrifolia	21.0	38	40	32		X		4	4	4.0	G	4.5	10.5	26.3	HIGH
24		Quercus agrifolia	6.0	30	14	12	Crowded Growing Conditions	EXEMPT		4	4	4.0	G	4.5	3	7.5	HIGH
25		Quercus agrifolia	14.0	32	40	32		X		4	4	4.0	G	4.5	7	17.5	HIGH
26		Quercus agrifolia	9.0	26	18	14	Leaning Tree	X		4	3	3.5	G	4.3	4.5	11.3	HIGH
27		Calocedrus decurrens	8.0	19	12	12		EXEMPT		3	4	3.5	M	3.3	4	10.0	MODERATE
28	369	Calocedrus decurrens	9.0	23	14	14		EXEMPT		4	4	4.0	M	3.5	4.5	11.3	HIGH
29		Calocedrus decurrens	11.0	17	10	12	Previously Headed	EXEMPT		3	2	2.5	M	2.8	5.5	13.8	MODERATE
30		Quercus agrifolia	7.0	26	18	22		EXEMPT		4	4	4.0	G	4.5	3.5	8.8	HIGH
31		Quercus lobata	6.0	30	10	14	Crowded Growing Conditions	EXEMPT		3	3	3.0	M	3.0	3	7.5	MODERATE
32	381	Quercus agrifolia	18.0	30	40	35		X		4	4	4.0	G	4.5	9	22.5	HIGH
33		Quercus lobata	8.0	20	18	15		X		3	3	3.0	M	3.0	4	10.0	MODERATE
34		Quercus agrifolia	4.0	20	10	8	Crowded Growing Conditions	EXEMPT		3	3	3.0	G	4.0	2	5.0	HIGH
35	363	Pinus halepensis	22.0	37	36	36		X		4	4	4.0	M-G	4.0	11	27.5	HIGH
36	537	Cupressus macrocarpa	7.0	25	12	15		EXEMPT		4	4	4.0	P	2.5	3.5	8.8	LOW
37		Ligustrum japonicum	4.0	15	12	12		EXEMPT		3	3	3.0	G	4.0	2	5.0	HIGH
38	604	Quercus lobata	6.0	27	14	14		EXEMPT		3	3	3.0	M	3.0	3	7.5	MODERATE
39		Quercus lobata	19.0	41	54	54		X		4	4	4.0	M	3.5	9.5	23.8	HIGH
40	5	Calocedrus decurrens	7.0	18	8	12		EXEMPT		2	4	3.0	M	3.0	3.5	8.8	MODERATE
41	6	Quercus agrifolia	17.0	36	40	40		X		4	4	4.0	G	4.5	8.5	21.3	HIGH
42	7	Calocedrus decurrens	4.0	15	10	5	Severe Decline	EXEMPT		1	3	2.0	M	2.5	2	5.0	LOW

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
43	8	Quercus agrifolia	14.0	33	44	40		X		3	3	3.0	G	4.0	7	17.5	HIGH
44	9	Quercus agrifolia	6.0	45	6	12	Crowded Growing Conditions	EXEMPT		2	2	2.0	G	3.5	3	7.5	HIGH
45	10	Quercus agrifolia	8.0	40	15	20	Leaning Tree	X		3	3	3.0	G	4.0	4	10.0	HIGH
46	11	Quercus agrifolia	7.0	30	10	14	Crowded Growing Conditions	EXEMPT		2	3	2.5	G	3.8	3.5	8.8	HIGH
47		Quercus agrifolia	4.0	12	5	10	Leaning Tree	EXEMPT		3	2	2.5	G	3.8	2	5.0	HIGH
48	12	Quercus agrifolia	21.0	51	36	42		X		2	3	2.5	G	3.8	10.5	26.3	HIGH
49		Quercus agrifolia	4.0	30	10	14	Crowded Growing Conditions	EXEMPT		3	3	3.0	G	4.0	2	5.0	HIGH
50	14	Pinus halepensis	6.0	30	8	6		EXEMPT		3	2	2.5	M-G	3.3	3	7.5	MODERATE
51		Calocedrus decurrens	5.0	20	8	8		EXEMPT		4	4	4.0	M	3.5	2.5	6.3	HIGH
52		Juglans regia	8.0	25	5	18	Decay	EXEMPT		1	2	1.5	G	3.3	4	10.0	MODERATE
53	13	Juglans hindsii	20.0	21	27	35	Severe Decline	X		2	2	2.0	G	3.5	10	25.0	HIGH
54	16	Pinus halepensis	17.0	45	24	20	Stem Damage	X		3	2	2.5	M-G	3.3	8.5	21.3	MODERATE
55		Calocedrus decurrens	3.0	18	4	6		EXEMPT		4	4	4.0	M	3.5	1.5	3.8	HIGH
56		Quercus lobata	22.0	47	33	35		X		3	4	3.5	M	3.3	11	27.5	MODERATE
57	18	Quercus agrifolia	24.0	46	33	45			X	4	4	4.0	G	4.5	12	30.0	HIGH
58	19	Quercus agrifolia	8.0	21	6	9	Dead	X		1	1	1.0	G	3.0	4	10.0	MODERATE
59		Quercus agrifolia	6.0	25	14	18	Crowded Growing Conditions	EXEMPT		2	3	2.5	G	3.8	3	7.5	HIGH
60	20	Quercus agrifolia	26.0	38	43	35			X	4	3	3.5	G	4.3	13	32.5	HIGH
61	22	Aesculus californica	7.0	27	15	10	Dead	EXEMPT		1	1	1.0	G	3.0	3.5	8.8	MODERATE
62	23	Quercus agrifolia	13.0	32	20	23		X		5	5	5.0	G	5.0	6.5	16.3	HIGH
63	21	Quercus agrifolia	23.0	37	25	28		X		4	3	3.5	G	4.3	11.5	28.8	HIGH
64		Quercus lobata	20.0	44	26	22	Severe Decline	X		1	2	1.5	M	2.3	10	25.0	LOW
65		Quercus agrifolia	30.0	37	35	45			X	5	4	4.5	G	4.8	15	37.5	HIGH
66	25	Quercus agrifolia	15.0	24	23	18	Poor Tree Structure	X		1	3	2.0	G	3.5	7.5	18.8	HIGH
67		Quercus agrifolia	16.0	32	25	20	Severe Decline	X		2	2	2.0	G	3.5	8	20.0	HIGH
68		Quercus agrifolia	15.0	47	28	20		X		4	4	4.0	G	4.5	7.5	18.8	HIGH
69	27	Quercus agrifolia	12.0	35	25	27	Leaning Tree	X		3	2	2.5	G	3.8	6	15.0	HIGH
70	29	Quercus agrifolia	16.0	48	28	25		X		4	4	4.0	G	4.5	8	20.0	HIGH
71	90	Quercus agrifolia	17.0	25	18	22		X		4	4	4.0	G	4.5	8.5	21.3	HIGH
72		Quercus agrifolia	16.0	48	25	23	Leaning Tree	X		4	3	3.5	G	4.3	8	20.0	HIGH
73		Quercus lobata	19.0	46	27	45	Leaning Tree	X		4	3	3.5	M	3.3	9.5	23.8	MODERATE
74	36	Quercus lobata	19.0	46	22	34	Leaning Tree	X		4	3	3.5	M	3.3	9.5	23.8	MODERATE
75		Quercus lobata	9.0	35	23	26	Dead Wood	X		3	4	3.5	M	3.3	4.5	11.3	MODERATE
76	31	Quercus agrifolia	10.0	33	15	12		X		5	5	5.0	G	5.0	5	12.5	HIGH
77		Olea europaea	3.0	26	22	20	Severe Decline	EXEMPT		2	2	2.0	M	2.5	1.5	3.8	LOW
78	32	Olea europaea	8.0	31	20	18		EXEMPT		4	3	3.5	M	3.3	4	10.0	MODERATE
79		Quercus lobata	15.0	37	20	22	Severe Decline	X		1	2	1.5	M	2.3	7.5	18.8	LOW
80	0	Quercus agrifolia	19.0	48	35	43		X		4	3	3.5	G	4.3	9.5	23.8	HIGH
81		Quercus lobata	25.0	48	33	25	Dead Limbs		X	3	2	2.5	M	2.8	12.5	31.3	MODERATE
82		Quercus lobata	10.0	37	12	18		X		3	3	3.0	M	3.0	5	12.5	MODERATE
83		Quercus lobata	5.0	23	12	10	Dead Wood	EXEMPT		2	3	2.5	M	2.8	2.5	6.3	MODERATE
84		Quercus lobata	13.0	33	20	22	Dead Wood	X		3	2	2.5	M	2.8	6.5	16.3	MODERATE

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
85	40	Quercus lobata	16.0	33	26	18		X		4	3	3.5	M	3.3	8	20.0	MODERATE
86	44	Quercus agrifolia	8.0	22	13	20	Dead Wood	X		4	4	4.0	G	4.5	4	10.0	HIGH
87		Quercus agrifolia	5.0	22	20	13	Dead Wood	EXEMPT		3	3	3.0	G	4.0	2.5	6.3	HIGH
88	45	Quercus agrifolia	7.0	23	21	16	Dead Wood	EXEMPT		3	3	3.0	G	4.0	3.5	8.8	HIGH
89	62	Quercus agrifolia	18.0	24	28	20	Poor Pruning Technique	X		3	2	2.5	G	3.8	9	22.5	HIGH
90	63	Quercus agrifolia	19.0	28	26	18	Dead Wood	X		4	3	3.5	G	4.3	9.5	23.8	HIGH
91	64	Quercus agrifolia	14.0	28	23	16		X		5	4	4.5	G	4.8	7	17.5	HIGH
92	65	Quercus agrifolia	12.0	26	27	26	Dead Wood	X		5	4	4.5	G	4.8	6	15.0	HIGH
93	579	Quercus agrifolia	9.0	28	18	23		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
94	46	Quercus lobata	18.0	42	35	33		X		4	4	4.0	M	3.5	9	22.5	HIGH
95	607	Quercus agrifolia	3.0	18	4	5		EXEMPT		3	3	3.0	G	4.0	1.5	3.8	HIGH
96	47	Quercus agrifolia	14.0	23	18	12		X		3	3	3.0	G	4.0	7	17.5	HIGH
97		Quercus agrifolia	7.0	23	12	10		EXEMPT		4	3	3.5	G	4.3	3.5	8.8	HIGH
98	580	Quercus agrifolia	9.0	20	12	15		X		3	3	3.0	G	4.0	4.5	11.3	HIGH
99	608	Quercus agrifolia	5.0	20	8	10	Co-Dominant Lead	EXEMPT		3	3	3.0	G	4.0	2.5	6.3	HIGH
100	606	Quercus agrifolia	5.0	24	7	9		EXEMPT		4	4	4.0	G	4.5	2.5	6.3	HIGH
101	3	Quercus lobata	19.0	42	27	25	Dead Wood	X		4	4	4.0	M	3.5	9.5	23.8	HIGH
102	4	Quercus agrifolia	13.0	28	27	18		X		5	4	4.5	G	4.8	6.5	16.3	HIGH
103	49	Quercus lobata	26.0	34	22	38			X	4	4	4.0	M	3.5	13	32.5	HIGH
104	76	Quercus agrifolia	10.0	32	16	24		X		4	3	3.5	G	4.3	5	12.5	HIGH
105		Quercus agrifolia	6.0	20	12	10		EXEMPT		5	4	4.5	G	4.8	3	7.5	HIGH
106	75	Quercus agrifolia	23.0	44	35	33		X		5	4	4.5	G	4.8	11.5	28.8	HIGH
107	68	Quercus lobata	10.0	36	25	23	Dead Wood	X		3	4	3.5	M	3.3	5	12.5	MODERATE
108		Quercus agrifolia	13.0	48	28	26	Poor Tree Structure	X		3	3	3.0	G	4.0	6.5	16.3	HIGH
109		Quercus lobata	10.0	43	28	25	Severe Decline	X		3	2	2.5	M	2.8	5	12.5	MODERATE
110		Quercus agrifolia	4.0	20	17	10		EXEMPT		5	3	4.0	G	4.5	2	5.0	HIGH
111	61	Quercus agrifolia	8.0	23	15	9		X		4	4	4.0	G	4.5	4	10.0	HIGH
112	69	Quercus agrifolia	14.0	43	31	27		X		3	4	3.5	G	4.3	7	17.5	HIGH
113	58	Quercus agrifolia	11.0	23	2	1	Dead	X		1	1	1.0	G	3.0	5.5	13.8	MODERATE
114	54	Quercus agrifolia	5.0	26	13	10		EXEMPT		3	3	3.0	G	4.0	2.5	6.3	HIGH
115		Quercus lobata	4.0	24	12	8		EXEMPT		3	3	3.0	M	3.0	2	5.0	MODERATE
116		Quercus agrifolia	5.0	22	8	5	Dead Wood	EXEMPT		4	3	3.5	G	4.3	2.5	6.3	HIGH
117		Quercus agrifolia	10.0	36	16	8		X		4	4	4.0	G	4.5	5	12.5	HIGH
118	52	Quercus agrifolia	20.0	46	36	33	Dead Wood	X		4	4	4.0	G	4.5	10	25.0	HIGH
119	98	Quercus lobata	26.0	42	33	32	Dead Wood		X	4	4	4.0	M	3.5	13	32.5	HIGH
120	99	Quercus lobata	12.0	36	28	20	Dead Limbs	X		3	3	3.0	M	3.0	6	15.0	MODERATE
121	104	Quercus agrifolia	10.0	12	16	12	Poor Tree Structure	X		4	2	3.0	G	4.0	5	12.5	HIGH
122		Quercus lobata	9.0	36	20	13	Leaning Tree	X		4	3	3.5	M	3.3	4.5	11.3	MODERATE
123	103	Quercus agrifolia	16.0	48	36	33		X		5	4	4.5	G	4.8	8	20.0	HIGH
124	102	Quercus agrifolia	9.0	33	15	18		X		5	4	4.5	G	4.8	4.5	11.3	HIGH
125		Olea europaea	4.0	18	15	15		EXEMPT		3	2	2.5	M	2.8	2	5.0	MODERATE
126	97	Quercus agrifolia	5.0	27	12	10		EXEMPT		5	4	4.5	G	4.8	2.5	6.3	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
127	74	Quercus agrifolia	9.0	44	15	22	Leaning Tree	X		5	4	4.5	G	4.8	4.5	11.3	HIGH
128	585	Quercus agrifolia	7.0	38	6	5		EXEMPT		4	4	4.0	G	4.5	3.5	8.8	HIGH
129	100	Quercus agrifolia	11.0	46	20	15		X		5	4	4.5	G	4.8	5.5	13.8	HIGH
130	101	Quercus agrifolia	14.0	46	28	23		X		5	4	4.5	G	4.8	7	17.5	HIGH
131		Quercus agrifolia	11.0	23	16	12		X		4	4	4.0	G	4.5	5.5	13.8	HIGH
132		Quercus lobata	6.0	23	7	6		EXEMPT		4	4	4.0	M	3.5	3	7.5	HIGH
133	92	Quercus agrifolia	9.0	31	12	12	Dead Limbs	X		3	3	3.0	G	4.0	4.5	11.3	HIGH
134		Quercus agrifolia	7.0	15	4	3	Dead	EXEMPT		1	1	1.0	G	3.0	3.5	8.8	MODERATE
135	95	Quercus agrifolia	9.0	32	15	12		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
136	94	Quercus agrifolia	10.0	32	10	6		X		3	4	3.5	G	4.3	5	12.5	HIGH
137	583	Snag	4.0	22	1	1	Dead	0		1	1	1.0	0	0.0	2	0.0	
138	584	Quercus agrifolia	5.0	25	10	13		EXEMPT		5	4	4.5	G	4.8	2.5	6.3	HIGH
139	96	Quercus agrifolia	12.0	35	30	25	Dead Wood	X		4	3	3.5	G	4.3	6	15.0	HIGH
140	106	Quercus agrifolia	23.0	37	30	46	Dead Wood	X		4	3	3.5	G	4.3	11.5	28.8	HIGH
141	108	Quercus agrifolia	26.0	48	33	40			X	5	4	4.5	G	4.8	13	32.5	HIGH
142	113	Quercus agrifolia	17.0	36	35	26		X		4	3	3.5	G	4.3	8.5	21.3	HIGH
143		Quercus agrifolia	5.0	27	6	3		EXEMPT		4	4	4.0	G	4.5	2.5	6.3	HIGH
144		Quercus agrifolia	5.0	27	5	7		EXEMPT		4	4	4.0	G	4.5	2.5	6.3	HIGH
145		Quercus lobata	12.0	36	12	5	Severe Decline	X		3	2	2.5	M	2.8	6	15.0	MODERATE
146		Quercus agrifolia	18.0	32	23	22		X		4	3	3.5	G	4.3	9	22.5	HIGH
147		Quercus agrifolia	15.0	43	25	12	Dead Wood	X		4	3	3.5	G	4.3	7.5	18.8	HIGH
148	116	Quercus agrifolia	8.0	25	7	5	Dead Wood	X		3	3	3.0	G	4.0	4	10.0	HIGH
149		Quercus lobata	5.0	10	5	4	Severe Decline	EXEMPT		2	2	2.0	M	2.5	2.5	6.3	LOW
150	120	Quercus agrifolia	18.0	43	23	27		X		5	4	4.5	G	4.8	9	22.5	HIGH
151	121	Quercus lobata	21.0	54	33	31		X		4	4	4.0	M	3.5	10.5	26.3	HIGH
152	122	Quercus agrifolia	15.0	40	5	4		X		3	3	3.0	G	4.0	7.5	18.8	HIGH
153	586	Quercus lobata	5.0	15	5	4		EXEMPT		4	3	3.5	M	3.3	2.5	6.3	MODERATE
154		Quercus agrifolia	12.0	16	12	13	Future Root Problems	X		4	2	3.0	G	4.0	6	15.0	HIGH
155	126	Quercus agrifolia	18.0	16	23	13	Leaning Tree	X		4	3	3.5	G	4.3	9	22.5	HIGH
156	124	Quercus agrifolia	14.0	40	20	26		X		4	4	4.0	G	4.5	7	17.5	HIGH
157	127	Quercus agrifolia	14.0	42	22	30		X		4	4	4.0	G	4.5	7	17.5	HIGH
158		Quercus agrifolia	6.0	12	4	3	Dead	EXEMPT		1	1	1.0	G	3.0	3	7.5	MODERATE
159	128	Quercus agrifolia	24.0	47	28	22	Leaning Tree		X	4	4	4.0	G	4.5	12	30.0	HIGH
160	129	Quercus agrifolia	17.0	33	20	15	Leaning Tree	X		4	4	4.0	G	4.5	8.5	21.3	HIGH
161	130	Quercus agrifolia	21.0	36	27	30		X		4	4	4.0	G	4.5	10.5	26.3	HIGH
162	131	Quercus agrifolia	8.0	25	7	12		X		4	3	3.5	G	4.3	4	10.0	HIGH
163		Quercus agrifolia	9.0	25	18	10		X		3	3	3.0	G	4.0	4.5	11.3	HIGH
164	132	Quercus lobata	22.0	35	27	20	Dead Limbs	X		4	4	4.0	M	3.5	11	27.5	HIGH
165		Quercus lobata	7.0	23	6	5	Poor Tree Structure	EXEMPT		2	2	2.0	M	2.5	3.5	8.8	LOW
166	589	Quercus lobata	16.0	31	21	34	Leaning Tree	X		3	3	3.0	M	3.0	8	20.0	MODERATE
167		Quercus agrifolia	17.0	25	18	22		X		4	3	3.5	G	4.3	8.5	21.3	HIGH
168		Quercus agrifolia	16.0	25	16	18		X		4	4	4.0	G	4.5	8	20.0	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
169		Quercus agrifolia	9.0	24	16	14		X		5	5	5.0	G	5.0	4.5	11.3	HIGH
170		Quercus agrifolia	11.0	26	15	12		X		5	4	4.5	G	4.8	5.5	13.8	HIGH
171		Quercus lobata	35.0	46	48	36			X	4	4	4.0	M	3.5	17.5	43.8	HIGH
172		Quercus agrifolia	34.0	33	40	32			X	5	4	4.5	G	4.8	17	42.5	HIGH
173	593	Quercus agrifolia	9.0	27	32	32		X		3	3	3.0	G	4.0	4.5	11.3	HIGH
174		Quercus agrifolia	9.0	6	7	10	Crowded Growing Conditions	X		3	2	2.5	G	3.8	4.5	11.3	HIGH
175		Quercus agrifolia	14.0	27	25	28		X		5	5	5.0	G	5.0	7	17.5	HIGH
176		Quercus agrifolia	7.0	17	20	18		EXEMPT		4	4	4.0	G	4.5	3.5	8.8	HIGH
177		Quercus agrifolia	5.0	15	8	6		EXEMPT		5	5	5.0	G	5.0	2.5	6.3	HIGH
178		Quercus agrifolia	6.0	15	6	5		EXEMPT		5	5	5.0	G	5.0	3	7.5	HIGH
179		Quercus agrifolia	12.0	16	10	8		X		5	4	4.5	G	4.8	6	15.0	HIGH
180		Quercus agrifolia	6.0	13	10	7		EXEMPT		5	4	4.5	G	4.8	3	7.5	HIGH
181		Olea europaea	13.0	22	28	20		X		4	4	4.0	M	3.5	6.5	16.3	HIGH
182		Pinus brutia var. eldarica	9.0	24	10	4	Severe Decline	EXEMPT		2	2	2.0	M-G	3.0	4.5	11.3	MODERATE
183		Pinus brutia var. eldarica	11.0	22	7	6	Severe Decline	EXEMPT		3	2	2.5	M-G	3.3	5.5	13.8	MODERATE
184		Pinus brutia var. eldarica	14.0	28	13	10	Dead Wood	X		2	2	2.0	M-G	3.0	7	17.5	MODERATE
185		Pinus brutia var. eldarica	6.0	22	5	6	Severe Decline	EXEMPT		3	2	2.5	M-G	3.3	3	7.5	MODERATE
186	149	Pinus brutia var. eldarica	7.0	25	8	6	Severe Decline	EXEMPT		2	2	2.0	M-G	3.0	3.5	8.8	MODERATE
187	150	Pinus brutia var. eldarica	11.0	25	12	5	Poor Tree Structure	EXEMPT		4	3	3.5	M-G	3.8	5.5	13.8	HIGH
188	151	Pinus brutia var. eldarica	11.0	26	8	6	Severe Decline	EXEMPT		3	2	2.5	M-G	3.3	5.5	13.8	MODERATE
189	152	Pinus brutia var. eldarica	10.0	32	8	10		EXEMPT		4	4	4.0	M-G	4.0	5	12.5	HIGH
190	153	Pinus brutia var. eldarica	11.0	25	13	10	Severe Decline	EXEMPT		3	2	2.5	M-G	3.3	5.5	13.8	MODERATE
191		Pinus brutia var. eldarica	4.0	6	4	4	Severe Decline	EXEMPT		2	2	2.0	M-G	3.0	2	5.0	MODERATE
192	154	Pinus brutia var. eldarica	18.0	35	16	18		X		4	4	4.0	M-G	4.0	9	22.5	HIGH
193	155	Pinus brutia var. eldarica	5.0	23	6	10		EXEMPT		4	4	4.0	M-G	4.0	2.5	6.3	HIGH
194	594	Calocedrus decurrens	8.0	23	8	10		EXEMPT		4	4	4.0	M	3.5	4	10.0	HIGH
195	156	Pinus brutia var. eldarica	13.0	27	15	18		X		4	3	3.5	M-G	3.8	6.5	16.3	HIGH
196	157	Calocedrus decurrens	8.0	24	8	10		EXEMPT		5	5	5.0	M	4.0	4	10.0	HIGH
197		Calocedrus decurrens	6.0	15	8	6		EXEMPT		2	2	2.0	M	2.5	3	7.5	LOW
198		Not Used	0.0					EXEMPT				0.0	0	0	#N/A	0	
199	158	Pinus brutia var. eldarica	11.0	30	13	17		EXEMPT		4	4	4.0	M-G	4.0	5.5	13.8	HIGH
200		Pinus brutia var. eldarica	12.0	31	8	10		X		4	4	4.0	M-G	4.0	6	15.0	HIGH
201		Not Used	0.0					EXEMPT				0.0	0	0	0	0	
202	161	Quercus lobata	60.0	43	46	42			X	4	3	3.5	M	3.3	30	75.0	MODERATE
203	160	Quercus lobata	17.0	26	34	35		X		3	4	3.5	M	3.3	8.5	21.3	MODERATE
204	163	Quercus lobata	10.0	19	10	5		X		4	3	3.5	M	3.3	5	12.5	MODERATE
205	164	Quercus lobata	7.0	23	12	7	Severe Decline	EXEMPT		2	2	2.0	M	2.5	3.5	8.8	LOW
206	383	Quercus lobata	21.0	30	32	37	Dead Wood	X		3	3	3.0	M	3.0	10.5	26.3	MODERATE
207	165	Quercus agrifolia	9.0	16	12	13		X		5	5	5.0	G	5.0	4.5	11.3	HIGH
208		Quercus lobata	11.0	24	15	18		X		3	3	3.0	M	3.0	5.5	13.8	MODERATE
209	167	Quercus agrifolia	28.0	41	36	43			X	4	3	3.5	G	4.3	14	35.0	HIGH
210		Quercus lobata	18.0	34	20	15	Severe Decline	X		2	2	2.0	M	2.5	9	22.5	LOW

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
211		Quercus lobata	32.0	47	28	30			X	3	3	3.0	M	3.0	16	40.0	MODERATE
212		Olea europaea	10.0	27	26	20		EXEMPT		3	3	3.0	M	3.0	5	12.5	MODERATE
213	171	Olea europaea	12.0	34	21	18	Previous Limb Failure	X		3	2	2.5	M	2.8	6	15.0	MODERATE
214	172	Quercus lobata	11.0	28	8	10	Severe Decline	X		2	2	2.0	M	2.5	5.5	13.8	LOW
215	595	Olea europaea	9.0	32	20	20		EXEMPT		4	3	3.5	M	3.3	4.5	11.3	MODERATE
216	596	Quercus agrifolia	20.0	22	24	18		X		3	2	2.5	G	3.8	10	25.0	HIGH
217		Quercus lobata	35.0	38	36	32			X	4	4	4.0	M	3.5	17.5	43.8	HIGH
218		Olea europaea	5.0	16	12	22		EXEMPT		3	3	3.0	M	3.0	2.5	6.3	MODERATE
219		Quercus lobata	9.0	20	16	10	Severe Decline	X		2	2	2.0	M	2.5	4.5	11.3	LOW
220	175	Quercus lobata	9.0	10	1	1	Dead	X		1	1	1.0	M	2.0	4.5	11.3	LOW
221		Quercus lobata	13.0	23	13	8	Severe Decline	X		2	2	2.0	M	2.5	6.5	16.3	LOW
222	398	Quercus lobata	19.0	32	25	27		X		3	3	3.0	M	3.0	9.5	23.8	MODERATE
223		Quercus lobata	23.0	32	26	35		X		4	3	3.5	M	3.3	11.5	28.8	MODERATE
224	400	Quercus lobata	10.0	18	8	12	Severe Decline	X		2	2	2.0	M	2.5	5	12.5	LOW
225		Quercus lobata	11.0	21	10	20	Severe Decline	X		2	2	2.0	M	2.5	5.5	13.8	LOW
226	402	Quercus lobata	13.0	24	16	13	Severe Decline	X		3	2	2.5	M	2.8	6.5	16.3	MODERATE
227	392	Quercus lobata	28.0	37	33	36			X	4	4	4.0	M	3.5	14	35.0	HIGH
228	391	Quercus lobata	17.5	20	10	13	Poor Tree Structure	X		3	3	3.0	M	3.0	8.75	21.9	MODERATE
229	390	Quercus lobata	24.0	33	26	18	Dead Wood		X	3	3	3.0	M	3.0	12	30.0	MODERATE
230	393	Quercus lobata	14.5	20	18	10	Poor Tree Structure	X		3	3	3.0	M	3.0	7.25	18.1	MODERATE
231		Quercus lobata	13.5	21	16	7	Severe Decline	X		3	3	3.0	M	3.0	6.75	16.9	MODERATE
232		Quercus lobata	25.5	35	40	12			X	4	3	3.5	M	3.3	12.75	31.9	MODERATE
233	395	Quercus lobata	17.0	28	18	13		X		3	3	3.0	M	3.0	8.5	21.3	MODERATE
234		Quercus agrifolia	17.5	28	22	26		X		4	4	4.0	G	4.5	8.75	21.9	HIGH
235	387	Quercus lobata	18.5	35	26	10	Dead Wood	X		3	3	3.0	M	3.0	9.25	23.1	MODERATE
236	386	Quercus lobata	23.5	34	28	25	Dead Wood	X		3	3	3.0	M	3.0	11.75	29.4	MODERATE
237		Quercus agrifolia	34.0	30	40	47	Crowded Growing Conditions		X	4	3	3.5	G	4.3	17	42.5	HIGH
238	385	Quercus lobata	35.0	40	33	30	Leaning Tree		X	3	3	3.0	M	3.0	17.5	43.8	MODERATE
239	177	Quercus lobata	25.0	35	21	32			X	4	3	3.5	M	3.3	12.5	31.3	MODERATE
240		Quercus lobata	18.0	35	21	24		X		4	3	3.5	M	3.3	9	22.5	MODERATE
241	180	Quercus lobata	34.0	35	24	25			X	4	3	3.5	M	3.3	17	42.5	MODERATE
242		Quercus lobata	15.0	30	18	23		X		4	4	4.0	M	3.5	7.5	18.8	HIGH
243		Quercus lobata	14.0	25	15	12		X		3	2	2.5	M	2.8	7	17.5	MODERATE
244		Quercus lobata	20.5	28	16	22		X		3	3	3.0	M	3.0	10.25	25.6	MODERATE
245	184	Quercus lobata	11.0	15	6	12		X		4	2	3.0	M	3.0	5.5	13.8	MODERATE
246		Quercus lobata	19.0	31	16	28		X		4	3	3.5	M	3.3	9.5	23.8	MODERATE
247	186	Quercus lobata	22.0	32	20	27		X		4	3	3.5	M	3.3	11	27.5	MODERATE
248	187	Olea europaea	17.0	28	20	32	Dead Limbs	X		3	3	3.0	M	3.0	8.5	21.3	MODERATE
249		Quercus lobata	30.0	30	22	30	Severe Decline		X	2	2	2.0	M	2.5	15	37.5	LOW
250	189	Olea europaea	7.0	27	20	18		EXEMPT		4	3	3.5	M	3.3	3.5	8.8	MODERATE
251		Olea europaea	10.0	25	10	30	Future Root Problems	EXEMPT		3	3	3.0	M	3.0	5	12.5	MODERATE
252	193	Olea europaea	8.0	16	18	15	Dead Wood	EXEMPT		4	3	3.5	M	3.3	4	10.0	MODERATE

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
253	192	Olea europaea	18.0	24	30	40		X		4	4	4.0	M	3.5	9	22.5	HIGH
254	191	Olea europaea	14.0	24	30	34		X		4	4	4.0	M	3.5	7	17.5	HIGH
255	190	Quercus lobata	17.0	34	18	22		X		4	3	3.5	M	3.3	8.5	21.3	MODERATE
256	196	Quercus lobata	19.0	27	8	18	Dead Wood	X		3	3	3.0	M	3.0	9.5	23.8	MODERATE
257		Quercus lobata	12.0	26	15	12	Severe Decline	X		3	2	2.5	M	2.8	6	15.0	MODERATE
258	194	Quercus lobata	14.0	33	11	20	Dead Wood	X		3	3	3.0	M	3.0	7	17.5	MODERATE
259		Quercus lobata	12.0	28	15	13	Poor Tree Structure	X		3	3	3.0	M	3.0	6	15.0	MODERATE
260		Quercus lobata	25.0	32	27	25	Poor Tree Structure		X	4	3	3.5	M	3.3	12.5	31.3	MODERATE
261		Quercus lobata	17.0	25	18	26	Severe Decline	X		2	2	2.0	M	2.5	8.5	21.3	LOW
262	404	Quercus lobata	23.0	33	31	36		X		3	3	3.0	M	3.0	11.5	28.8	MODERATE
263	403	Quercus lobata	34.0	36	30	16	Severe Decline		X	2	2	2.0	M	2.5	17	42.5	LOW
264	198	Quercus lobata	15.0	33	12	20	Dead Wood	X		4	3	3.5	M	3.3	7.5	18.8	MODERATE
265	197	Quercus lobata	11.0	29	17	15	Dead Limbs	X		3	3	3.0	M	3.0	5.5	13.8	MODERATE
266	410	Quercus agrifolia	17.0	36	25	27		X		4	4	4.0	G	4.5	8.5	21.3	HIGH
267	411	Quercus lobata	25.0	28	15	13	Dead Wood		X	3	2	2.5	M	2.8	12.5	31.3	MODERATE
268	409	Quercus lobata	13.0	27	15	22	Dead Wood	X		3	3	3.0	M	3.0	6.5	16.3	MODERATE
269	417	Quercus lobata	13.0	28	13	15		X		3	3	3.0	M	3.0	6.5	16.3	MODERATE
270	418	Quercus lobata	17.0	31	26	17		X		3	3	3.0	M	3.0	8.5	21.3	MODERATE
271	420	Quercus lobata	16.0	31	20	17	Dead Wood	X		3	2	2.5	M	2.8	8	20.0	MODERATE
272	412	Quercus lobata	12.0	28	6	15	Severe Decline	X		3	2	2.5	M	2.8	6	15.0	MODERATE
273	414	Quercus lobata	14.0	31	18	22		X		4	3	3.5	M	3.3	7	17.5	MODERATE
274		Quercus lobata	9.0	33	15	20		X		4	3	3.5	M	3.3	4.5	11.3	MODERATE
275		Quercus lobata	17.0	32	18	26		X		4	4	4.0	M	3.5	8.5	21.3	HIGH
276	199	Quercus lobata	14.0	31	21	22		X		4	3	3.5	M	3.3	7	17.5	MODERATE
277	202	Quercus lobata	12.0	22	1	1	Dead	X		1	1	1.0	M	2.0	6	15.0	LOW
278	599	Quercus agrifolia	20.0	36	45	40		X		4	4	4.0	G	4.5	10	25.0	HIGH
279		Quercus lobata	11.0	25	13	6	Dead Wood	X		3	2	2.5	M	2.8	5.5	13.8	MODERATE
280	204	Quercus lobata	8.0	24	5	13		X		4	3	3.5	M	3.3	4	10.0	MODERATE
281		Umbellularia californica	8.0	31	20	24		EXEMPT		5	5	5.0	M	4.0	4	10.0	HIGH
282	207	Quercus lobata	11.0	33	8	12	Severe Decline	X		3	2	2.5	M	2.8	5.5	13.8	MODERATE
283	208	Quercus lobata	13.0	36	13	18		X		4	3	3.5	M	3.3	6.5	16.3	MODERATE
284	209	Quercus lobata	14.0	34	8	21		X		3	3	3.0	M	3.0	7	17.5	MODERATE
285		Quercus lobata	16.0	34	7	8	Severe Decline	X		2	2	2.0	M	2.5	8	20.0	LOW
286		Quercus lobata	16.0	38	12	10	Severe Decline	X		2	2	2.0	M	2.5	8	20.0	LOW
287	216	Quercus lobata	9.0	28	10	17	Leaning Tree	X		2	2	2.0	M	2.5	4.5	11.3	LOW
288	421	Quercus lobata	14.0	27	10	20	Severe Decline	X		2	2	2.0	M	2.5	7	17.5	LOW
289	422	Quercus lobata	22.0	35	28	30		X		4	4	4.0	M	3.5	11	27.5	HIGH
290	423	Pinus halepensis	7.0	25	12	15		EXEMPT		5	4	4.5	M-G	4.3	3.5	8.8	HIGH
291		Pinus halepensis	4.0	25	5	4		EXEMPT		3	3	3.0	M-G	3.5	2	5.0	HIGH
292		Pinus halepensis	10.0	30	17	14		EXEMPT		4	4	4.0	M-G	4.0	5	12.5	HIGH
293		Quercus lobata	10.0	20	10	17	Dead	X		1	1	1.0	M	2.0	5	12.5	LOW
294		Pinus halepensis	8.0	25	18	16		EXEMPT		4	4	4.0	M-G	4.0	4	10.0	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
295	428	Quercus lobata	20.0	26	27	25	Severe Decline	X		3	2	2.5	M	2.8	10	25.0	MODERATE
296		Quercus lobata	12.0	28	13	10		X		4	3	3.5	M	3.3	6	15.0	MODERATE
297	497	Pinus halepensis	14.0	35	20	24		X		4	4	4.0	M-G	4.0	7	17.5	HIGH
298	496	Pinus halepensis	13.0	32	20	13		X		4	4	4.0	M-G	4.0	6.5	16.3	HIGH
299		Quercus lobata	19.0	35	28	24		X		4	4	4.0	M	3.5	9.5	23.8	HIGH
300	491	Quercus lobata	19.0	28	26	17	Poor Tree Structure	X		3	2	2.5	M	2.8	9.5	23.8	MODERATE
301		Calocedrus decurrens	10.0	23	12	10		EXEMPT		5	5	5.0	M	4.0	5	12.5	HIGH
302		Calocedrus decurrens	7.0	17	8	8		EXEMPT		4	4	4.0	M	3.5	3.5	8.8	HIGH
303	456	Calocedrus decurrens	7.0	17	6	5	Dead	EXEMPT		1	1	1.0	M	2.0	3.5	8.8	LOW
304	457	Calocedrus decurrens	15.0	21	10	12		X		4	4	4.0	M	3.5	7.5	18.8	HIGH
305	458	Calocedrus decurrens	7.0	15	8	10	Severe Decline	EXEMPT		3	2	2.5	M	2.8	3.5	8.8	MODERATE
306		Calocedrus decurrens	7.0	15	10	5	Dead Wood	EXEMPT		3	3	3.0	M	3.0	3.5	8.8	MODERATE
307		Calocedrus decurrens	7.0	10	5	4	Severe Decline	EXEMPT		2	2	2.0	M	2.5	3.5	8.8	LOW
308	454	Pinus brutia var. eldarica	11.0	30	10	18	Dead Wood	EXEMPT		3	3	3.0	M-G	3.5	5.5	13.8	HIGH
309		Pinus brutia var. eldarica	12.0	30	12	10	Dead Wood	X		3	3	3.0	M-G	3.5	6	15.0	HIGH
310	462	Calocedrus decurrens	8.0	18	12	8	Severe Decline	EXEMPT		3	3	3.0	M	3.0	4	10.0	MODERATE
311	464	Calocedrus decurrens	8.0	15	10	9	Severe Decline	EXEMPT		3	2	2.5	M	2.8	4	10.0	MODERATE
312	463	Calocedrus decurrens	5.0	18	6	8		EXEMPT		4	4	4.0	M	3.5	2.5	6.3	HIGH
313		Calocedrus decurrens	6.0	7	6	6	Severe Decline	EXEMPT		2	2	2.0	M	2.5	3	7.5	LOW
314		Calocedrus decurrens	5.0	8	7	7	Poor Tree Structure	EXEMPT		3	3	3.0	M	3.0	2.5	6.3	MODERATE
315	505	Calocedrus decurrens	6.0	10	6	4	Severe Decline	EXEMPT		2	2	2.0	M	2.5	3	7.5	LOW
316	503	Pinus brutia var. eldarica	10.0	28	6	8	Severe Decline	EXEMPT		2	2	2.0	M-G	3.0	5	12.5	MODERATE
317	504	Pinus brutia var. eldarica	11.0	31	10	8	Dead Wood	EXEMPT		3	2	2.5	M-G	3.3	5.5	13.8	MODERATE
318		Pinus brutia var. eldarica	10.0	29	7	5	Poor Tree Structure	EXEMPT		3	2	2.5	M-G	3.3	5	12.5	MODERATE
319	509	Calocedrus decurrens	5.0	10	4	6	Severe Decline	EXEMPT		2	2	2.0	M	2.5	2.5	6.3	LOW
320	508	Calocedrus decurrens	6.0	18	6	6		EXEMPT		3	4	3.5	M	3.3	3	7.5	MODERATE
321		Calocedrus decurrens	5.0	8	4	5	Severe Decline	EXEMPT		3	3	3.0	M	3.0	2.5	6.3	MODERATE
322		Calocedrus decurrens	8.0	10	6	5		EXEMPT		3	3	3.0	M	3.0	4	10.0	MODERATE
323	515	Calocedrus decurrens	7.0	12	5	5	Severe Decline	EXEMPT		2	2	2.0	M	2.5	3.5	8.8	LOW
324	517	Calocedrus decurrens	8.0	10	8	6		EXEMPT		4	3	3.5	M	3.3	4	10.0	MODERATE
325	518	Calocedrus decurrens	7.0	8	6	7	Poor Tree Structure	EXEMPT		3	3	3.0	M	3.0	3.5	8.8	MODERATE
326	514	Calocedrus decurrens	9.0	16	8	9	Poor Tree Structure	EXEMPT		3	3	3.0	M	3.0	4.5	11.3	MODERATE
327	513	Pinus brutia var. eldarica	11.0	31	8	10	Dead Wood	EXEMPT		3	3	3.0	M-G	3.5	5.5	13.8	HIGH
328		Pinus brutia var. eldarica	11.0	28	15	12	Dead Wood	EXEMPT		3	3	3.0	M-G	3.5	5.5	13.8	HIGH
329		Calocedrus decurrens	5.0	10	8	6		EXEMPT		4	3	3.5	M	3.3	2.5	6.3	MODERATE
330		Calocedrus decurrens	7.0	10	8	5		EXEMPT		3	3	3.0	M	3.0	3.5	8.8	MODERATE
331		Calocedrus decurrens	6.0	18	8	6		EXEMPT		4	4	4.0	M	3.5	3	7.5	HIGH
332		Pinus brutia var. eldarica	13.0	28	18	20		X		4	3	3.5	M-G	3.8	6.5	16.3	HIGH
333		Calocedrus decurrens	7.0	12	8	6		EXEMPT		4	4	4.0	M	3.5	3.5	8.8	HIGH
334	526	Calocedrus decurrens	13.0	26	12	8		X		3	3	3.0	M	3.0	6.5	16.3	MODERATE
335	527	Calocedrus decurrens	5.0	8	7	3	Severe Decline	EXEMPT		3	2	2.5	M	2.8	2.5	6.3	MODERATE
336	528	Calocedrus decurrens	6.0	8	4	4	Root Impact	EXEMPT		2	2	2.0	M	2.5	3	7.5	LOW

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
337	529	Pinus brutia var. eldarica	12.0	28	13	14		X		3	3	3.0	M-G	3.5	6	15.0	HIGH
338		Pinus brutia var. eldarica	15.0	30	20	18	Dead Wood	X		4	3	3.5	M-G	3.8	7.5	18.8	HIGH
339		Calocedrus decurrens	3.0	10	4	3		EXEMPT		3	3	3.0	M	3.0	1.5	3.8	MODERATE
340		Calocedrus decurrens	4.0	15	5	3		EXEMPT		3	3	3.0	M	3.0	2	5.0	MODERATE
341		Pinus brutia var. eldarica	8.0	25	8	7	Severe Decline	EXEMPT		3	2	2.5	M-G	3.3	4	10.0	MODERATE
342	535	Pinus brutia var. eldarica	14.0	27	12	10	Poor Tree Structure	X		3	3	3.0	M-G	3.5	7	17.5	HIGH
343		Pinus brutia var. eldarica	15.0	28	15	10		X		3	3	3.0	M-G	3.5	7.5	18.8	HIGH
344	533	Calocedrus decurrens	6.0	15	5	4	Severe Decline	EXEMPT		2	2	2.0	M	2.5	3	7.5	LOW
345		Calocedrus decurrens	6.0	10	5	5	Leaning Tree	EXEMPT		4	3	3.5	M	3.3	3	7.5	MODERATE
346		Quercus lobata	21.0	30	27	22	Dead Wood	X		3	3	3.0	M	3.0	10.5	26.3	MODERATE
347		Quercus lobata	21.0	40	24	27	Dead Wood	X		4	3	3.5	M	3.3	10.5	26.3	MODERATE
348		Quercus douglasii	24.0	43	40	30			X	4	3	3.5	M-G	3.8	12	30.0	HIGH
349		Quercus douglasii	23.0	36	35	26		X		4	3	3.5	M-G	3.8	11.5	28.8	HIGH
350	440	Quercus lobata	11.0	25	16	18	Dead Wood	X		3	3	3.0	M	3.0	5.5	13.8	MODERATE
351	214	Olea europaea	14.0	30	40	45		X		4	3	3.5	M	3.3	7	17.5	MODERATE
352		Quercus douglasii	5.0	25	12	8	Severe Decline	EXEMPT		2	3	2.5	M-G	3.3	2.5	6.3	MODERATE
353	225	Quercus lobata	14.0	20	6	5	Dead	X		1	1	1.0	M	2.0	7	17.5	LOW
354		Quercus lobata	10.0	23	8	18		X		3	2	2.5	M	2.8	5	12.5	MODERATE
355	431	Quercus lobata	20.0	28	33	30		X		3	2	2.5	M	2.8	10	25.0	MODERATE
356		Snag	9.0	22	1	1	Dead	0		1	1	1.0	0	0.0	4.5	0.0	
357	443	Quercus douglasii	24.0	43	24	35			X	3	3	3.0	M-G	3.5	12	30.0	HIGH
358		Quercus lobata	8.0	15	1	11	Dead	X		1	1	1.0	M	2.0	4	10.0	LOW
359	446	Quercus lobata	12.0	25	10	6	Severe Decline	X		2	2	2.0	M	2.5	6	15.0	LOW
360	447	Quercus lobata	25.0	38	25	24	Dead Limbs		X	3	3	3.0	M	3.0	12.5	31.3	MODERATE
361		Quercus lobata	18.0	23	1	1	Dead	X		1	1	1.0	M	2.0	9	22.5	LOW
362	437	Quercus lobata	19.0	30	16	15	Poor Tree Architecture	X		3	2	2.5	M	2.8	9.5	23.8	MODERATE
363		Quercus agrifolia	21.0	32	35	36		X		4	4	4.0	G	4.5	10.5	26.3	HIGH
364		Quercus lobata	13.0	31	15	13		X		3	3	3.0	M	3.0	6.5	16.3	MODERATE
365		Quercus lobata	13.0	35	22	10		X		3	3	3.0	M	3.0	6.5	16.3	MODERATE
366	210	Quercus lobata	9.0	15	12	27	Excessive Limb Weight	X		4	2	3.0	M	3.0	4.5	11.3	MODERATE
367	211	Quercus lobata	16.0	46	16	15	Dead Limbs	X		4	2	3.0	M	3.0	8	20.0	MODERATE
368	213	Quercus lobata	17.0	32	26	22	Dead Wood	X		4	3	3.5	M	3.3	8.5	21.3	MODERATE
369	212	Quercus agrifolia	19.0	32	23	28		X		4	4	4.0	G	4.5	9.5	23.8	HIGH
370	219	Snag	7.0	5	1	1	Dead	0		1	1	1.0	0	0.0	3.5	0.0	
371		Quercus lobata	15.0	50	15	12		X		4	4	4.0	M	3.5	7.5	18.8	HIGH
372	221	Quercus lobata	8.0	43	12	15	Dead Wood	X		3	3	3.0	M	3.0	4	10.0	MODERATE
373		Snag	8.0	22	1	1	Dead	0		1	1	1.0	0	0.0	4	0.0	
374	220	Olea europaea	18.0	38	23	20		X		4	4	4.0	M	3.5	9	22.5	HIGH
375	223	Quercus lobata	18.0	26	28	23	Dead Wood	X		3	4	3.5	M	3.3	9	22.5	MODERATE
376		Quercus agrifolia	20.0	22	1	1	Dead	X		1	1	1.0	G	3.0	10	25.0	MODERATE
377		Quercus agrifolia	30.0	35	45	35			X	4	4	4.0	G	4.5	15	37.5	HIGH
378		Quercus lobata	9.0	22	1	1	Dead	X		1	1	1.0	M	2.0	4.5	11.3	LOW

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
379		Quercus agrifolia	10.0	14	2	10	Dead	X		1	1	1.0	G	3.0	5	12.5	MODERATE
380		Pinus halepensis	13.0	34	13	18		X		4	3	3.5	M-G	3.8	6.5	16.3	HIGH
381		Quercus lobata	9.0	25	23	15	Dead Wood	X		3	3	3.0	M	3.0	4.5	11.3	MODERATE
382		Quercus douglasii	23.0	36	43	50		X		4	3	3.5	M-G	3.8	11.5	28.8	HIGH
383		Pinus halepensis	5.0	21	12	5	Co-Dominant Lead	EXEMPT		4	3	3.5	M-G	3.8	2.5	6.3	HIGH
384		Pinus halepensis	11.0	10	20	10		EXEMPT		4	2	3.0	M-G	3.5	5.5	13.8	HIGH
385		Quercus agrifolia	22.0	26	10	36	Severe Decline	X		2	2	2.0	G	3.5	11	27.5	HIGH
386		Quercus lobata	15.0	20	1	1	Dead	X		1	1	1.0	M	2.0	7.5	18.8	LOW
387		Quercus douglasii	22.0	30	30	20	Sites of Decay	X		3	2	2.5	M-G	3.3	11	27.5	MODERATE
388		Quercus douglasii	11.0	20	6	17		X		3	3	3.0	M-G	3.5	5.5	13.8	HIGH
389		Quercus douglasii	8.0	22	8	14		X		4	4	4.0	M-G	4.0	4	10.0	HIGH
390		Quercus douglasii	20.0	33	20	30		X		4	4	4.0	M-G	4.0	10	25.0	HIGH
391	439	Quercus lobata	13.0	28	20	15		X		3	3	3.0	M	3.0	6.5	16.3	MODERATE
392	230	Quercus lobata	17.0	34	21	20	Dead Wood	X		3	3	3.0	M	3.0	8.5	21.3	MODERATE
393		Quercus lobata	14.0	27	10	20	Severe Decline	X		3	2	2.5	M	2.8	7	17.5	MODERATE
394	234	Quercus douglasii	12.0	33	22	18		X		4	3	3.5	M-G	3.8	6	15.0	HIGH
395	235	Quercus douglasii	10.0	22	15	12		X		4	3	3.5	M-G	3.8	5	12.5	HIGH
396		Quercus douglasii	13.0	22	14	10	Severe Decline	X		4	2	3.0	M-G	3.5	6.5	16.3	HIGH
397		Quercus douglasii	13.0	31	18	13		X		3	3	3.0	M-G	3.5	6.5	16.3	HIGH
398	236	Quercus douglasii	27.0	42	43	40			X	4	4	4.0	M-G	4.0	13.5	33.8	HIGH
399		Quercus douglasii	21.0	35	20	25	Sites of Decay	X		3	3	3.0	M-G	3.5	10.5	26.3	HIGH
400		Quercus douglasii	15.0	36	24	20	Dead Wood	X		4	3	3.5	M-G	3.8	7.5	18.8	HIGH
401		Quercus douglasii	10.0	30	20	13	Leaning Tree	X		3	2	2.5	M-G	3.3	5	12.5	MODERATE
402		Quercus douglasii	13.0	39	20	18	Severe Decline	X		2	2	2.0	M-G	3.0	6.5	16.3	MODERATE
403		Quercus douglasii	22.0	45	22	24	Severe Decline	X		2	2	2.0	M-G	3.0	11	27.5	MODERATE
404		Quercus douglasii	19.0	36	30	24		X		4	3	3.5	M-G	3.8	9.5	23.8	HIGH
405		Quercus lobata	10.0	25	10	8	Severe Decline	X		2	2	2.0	M	2.5	5	12.5	LOW
406		Quercus lobata	12.0	25	4	10	Severe Decline	X		2	2	2.0	M	2.5	6	15.0	LOW
407		Quercus douglasii	15.0	36	20	30	Severe Decline	X		3	2	2.5	M-G	3.3	7.5	18.8	MODERATE
408		Quercus lobata	17.0	34	27	40	Poor Tree Structure	X		3	2	2.5	M	2.8	8.5	21.3	MODERATE
409		Quercus douglasii	18.0	32	27	33		X		4	4	4.0	M-G	4.0	9	22.5	HIGH
410		Quercus douglasii	17.0	37	20	25		X		4	4	4.0	M-G	4.0	8.5	21.3	HIGH
411		Quercus douglasii	16.0	30	17	23		X		4	4	4.0	M-G	4.0	8	20.0	HIGH
412		Quercus lobata	16.0	33	25	30		X		3	3	3.0	M	3.0	8	20.0	MODERATE
413	481	Quercus lobata	8.0	24	1	1	Dead	X		1	1	1.0	M	2.0	4	10.0	LOW
414		Quercus douglasii	19.0	37	26	30		X		4	3	3.5	M-G	3.8	9.5	23.8	HIGH
415		Quercus douglasii	23.0	32	28	24		X		4	3	3.5	M-G	3.8	11.5	28.8	HIGH
416	489	Quercus lobata	14.0	30	17	22		X		4	4	4.0	M	3.5	7	17.5	HIGH
417	488	Quercus lobata	22.0	28	30	33	Dead Wood	X		3	3	3.0	M	3.0	11	27.5	MODERATE
418		Quercus douglasii	23.0	38	22	27		X		4	3	3.5	M-G	3.8	11.5	28.8	HIGH
419		Quercus lobata	17.0	34	15	13		X		3	3	3.0	M	3.0	8.5	21.3	MODERATE
420		Quercus lobata	14.0	26	15	12	Severe Decline	X		3	2	2.5	M	2.8	7	17.5	MODERATE

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
421	485	Quercus lobata	15.0	27	13	15	Severe Decline	X		2	2	2.0	M	2.5	7.5	18.8	LOW
422		Quercus lobata	28.0	42	44	28	Dead Limbs		X	3	2	2.5	M	2.8	14	35.0	MODERATE
423		Quercus lobata	28.0	35	20	40	Dead Limbs		X	3	2	2.5	M	2.8	14	35.0	MODERATE
424	486	Quercus douglasii	21.0	23	30	18		X		3	3	3.0	M-G	3.5	10.5	26.3	HIGH
425		Quercus douglasii	21.0	38	24	23	Leaning Tree	X		3	3	3.0	M-G	3.5	10.5	26.3	HIGH
426		Quercus douglasii	7.0	20	12	8		EXEMPT		3	3	3.0	M-G	3.5	3.5	8.8	HIGH
427		Quercus lobata	19.0	32	23	23		X		3	3	3.0	M	3.0	9.5	23.8	MODERATE
428		Quercus douglasii	25.0	41	30	35			X	3	3	3.0	M-G	3.5	12.5	31.3	HIGH
429	473	Quercus douglasii	16.0	28	15	18		X		3	3	3.0	M-G	3.5	8	20.0	HIGH
430		Quercus lobata	18.0	33	22	15		X		3	3	3.0	M	3.0	9	22.5	MODERATE
431		Quercus lobata	8.0	29	13	15	Severe Decline	X		2	3	2.5	M	2.8	4	10.0	MODERATE
432	291	Quercus douglasii	12.0	33	15	12		X		3	3	3.0	M-G	3.5	6	15.0	HIGH
433	290	Quercus douglasii	18.0	36	25	27		X		4	3	3.5	M-G	3.8	9	22.5	HIGH
434		Quercus lobata	13.0	28	34	12	Crowded Growing Conditions	X		4	3	3.5	M	3.3	6.5	16.3	MODERATE
435	285	Quercus agrifolia	25.0	38	34	37			X	4	4	4.0	G	4.5	12.5	31.3	HIGH
436	286	Quercus douglasii	16.0	40	22	20		X		4	4	4.0	M-G	4.0	8	20.0	HIGH
437	288	Quercus douglasii	15.0	36	27	17		X		4	3	3.5	M-G	3.8	7.5	18.8	HIGH
438		Quercus douglasii	7.0	25	4	12		EXEMPT		3	3	3.0	M-G	3.5	3.5	8.8	HIGH
439	289	Quercus douglasii	12.0	36	10	8		X		3	2	2.5	M-G	3.3	6	15.0	MODERATE
440		Quercus douglasii	22.0	29	15	27	Sites of Decay	X		2	2	2.0	M-G	3.0	11	27.5	MODERATE
441		Prunus domestica	5.0	10	1	1	Drought Stress	EXEMPT		1	1	1.0	P-M	1.5	2.5	6.3	LOW
442	241	Quercus agrifolia	24.0	37	36	40			X	5	5	5.0	G	5.0	12	30.0	HIGH
443	242	Quercus agrifolia	16.0	31	21	18	Poor Tree Structure	X		4	3	3.5	G	4.3	8	20.0	HIGH
444		Quercus lobata	14.0	30	26	12	Dead	X		1	1	1.0	M	2.0	7	17.5	LOW
445		Quercus agrifolia	20.0	36	30	26		X		4	4	4.0	G	4.5	10	25.0	HIGH
446		Quercus agrifolia	16.0	38	24	23		X		4	3	3.5	G	4.3	8	20.0	HIGH
447	246	Quercus agrifolia	20.0	38	30	27		X		4	4	4.0	G	4.5	10	25.0	HIGH
448		Quercus douglasii	15.0	41	27	30	Dead Wood	X		3	3	3.0	M-G	3.5	7.5	18.8	HIGH
449	248	Quercus douglasii	16.0	38	24	16	Severe Decline	X		3	2	2.5	M-G	3.3	8	20.0	MODERATE
450		Quercus douglasii	14.0	30	23	31		X		3	3	3.0	M-G	3.5	7	17.5	HIGH
451	302	Quercus douglasii	28.0	47	33	35			X	3	3	3.0	M-G	3.5	14	35.0	HIGH
452		Quercus agrifolia	27.0	35	40	40			X	4	4	4.0	G	4.5	13.5	33.8	HIGH
453	304	Quercus lobata	11.0	28	16	13		X		3	3	3.0	M	3.0	5.5	13.8	MODERATE
454		Quercus agrifolia	26.0	35	30	30			X	4	4	4.0	G	4.5	13	32.5	HIGH
455		Snag	16.0	8	1	1	Dead	0		1	1	1.0	0	0.0	8	0.0	
456	258	Quercus agrifolia	20.0	45	35	30		X		3	3	3.0	G	4.0	10	25.0	HIGH
457		Quercus douglasii	16.0	45	30	20		X		3	3	3.0	M-G	3.5	8	20.0	HIGH
458	252	Quercus douglasii	11.0	35	15	18	Severe Decline	X		2	2	2.0	M-G	3.0	5.5	13.8	MODERATE
459	254	Quercus agrifolia	15.0	45	23	30	Severe Decline	X		2	2	2.0	G	3.5	7.5	18.8	HIGH
460	249	Quercus agrifolia	21.0	36	38	30		X		4	3	3.5	G	4.3	10.5	26.3	HIGH
461		Quercus agrifolia	10.0	27	35	20		X		3	3	3.0	G	4.0	5	12.5	HIGH
462	253	Quercus agrifolia	14.0	38	22	23		X		4	5	4.5	G	4.8	7	17.5	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
463		Quercus agrifolia	5.0	15	10	10	Crowded Growing Conditions	EXEMPT		3	4	3.5	G	4.3	2.5	6.3	HIGH
464	255	Quercus agrifolia	15.0	30	22	20	Poor Tree Structure	X		4	2	3.0	G	4.0	7.5	18.8	HIGH
465	256	Quercus agrifolia	32.0	47	38	37			X	4	4	4.0	G	4.5	16	40.0	HIGH
466	260	Quercus agrifolia	16.0	31	18	22	Crowded Growing Conditions	X		4	3	3.5	G	4.3	8	20.0	HIGH
467	259	Quercus agrifolia	11.0	38	15	24		X		4	4	4.0	G	4.5	5.5	13.8	HIGH
468		Quercus agrifolia	9.0	26	15	15		X		3	4	3.5	G	4.3	4.5	11.3	HIGH
469		Not Used	0.0					EXEMPT				0.0	0	0	0	0	
470		Quercus lobata	3.0	23	6	5	Severe Decline	EXEMPT		2	2	2.0	M	2.5	1.5	3.8	LOW
471	540	Quercus agrifolia	14.0	30	16	13		X		4	3	3.5	G	4.3	7	17.5	HIGH
472		Quercus agrifolia	4.0	21	10	12		EXEMPT		3	3	3.0	G	4.0	2	5.0	HIGH
473	541	Quercus agrifolia	15.0	40	28	20	Dead Wood	X		4	4	4.0	G	4.5	7.5	18.8	HIGH
474	543	Quercus agrifolia	13.0	40	18	15		X		4	4	4.0	G	4.5	6.5	16.3	HIGH
475		Quercus agrifolia	12.0	37	10	13	Dead Wood	X		4	4	4.0	G	4.5	6	15.0	HIGH
476		Quercus lobata	13.0	40	21	20		X		4	4	4.0	M	3.5	6.5	16.3	HIGH
477		Quercus agrifolia	11.0	30	15	13		X		5	5	5.0	G	5.0	5.5	13.8	HIGH
478	546	Quercus agrifolia	11.0	28	18	15		X		5	5	5.0	G	5.0	5.5	13.8	HIGH
479	263	Quercus agrifolia	21.0	31	26	20	Dead Limbs	X		4	3	3.5	G	4.3	10.5	26.3	HIGH
480	545	Quercus agrifolia	10.0	31	15	12		X		5	4	4.5	G	4.8	5	12.5	HIGH
481		Quercus lobata	4.0	25	8	3	Crowded Growing Conditions	EXEMPT		3	3	3.0	M	3.0	2	5.0	MODERATE
482		Quercus agrifolia	7.0	21	10	8		EXEMPT		5	5	5.0	G	5.0	3.5	8.8	HIGH
483	547	Quercus agrifolia	16.0	42	24	23		X		4	4	4.0	G	4.5	8	20.0	HIGH
484	548	Quercus agrifolia	18.0	36	45	37		X		4	4	4.0	G	4.5	9	22.5	HIGH
485		Quercus agrifolia	9.0	26	20	18		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
486		Quercus agrifolia	12.0	24	27	15	Weak Crotch	X		4	3	3.5	G	4.3	6	15.0	HIGH
487		Quercus lobata	12.0	31	24	18	Dead Wood	X		3	3	3.0	M	3.0	6	15.0	MODERATE
488		Heteromeles arbutifolia	4.0	15	15	15	Severe Decline	EXEMPT		2	2	2.0	M	2.5	2	5.0	LOW
489	265	Quercus agrifolia	16.0	28	22	17		X		4	4	4.0	G	4.5	8	20.0	HIGH
490		Quercus agrifolia	36.0	55	36	40			X	4	4	4.0	G	4.5	18	45.0	HIGH
491	269	Quercus agrifolia	18.0	33	30	28		X		4	4	4.0	G	4.5	9	22.5	HIGH
492	270	Quercus agrifolia	27.0	51	35	33			X	4	4	4.0	G	4.5	13.5	33.8	HIGH
493	271	Quercus agrifolia	13.0	23	18	17		X		4	3	3.5	G	4.3	6.5	16.3	HIGH
494	274	Quercus agrifolia	32.0	40	35	46			X	4	4	4.0	G	4.5	16	40.0	HIGH
495	273	Quercus lobata	17.0	45	30	35	Dead Limbs	X		4	3	3.5	M	3.3	8.5	21.3	MODERATE
496		Quercus lobata	9.0	24	18	15	Severe Decline	X		2	2	2.0	M	2.5	4.5	11.3	LOW
497	279	Quercus lobata	10.0	30	15	22		X		3	4	3.5	M	3.3	5	12.5	MODERATE
498	293	Quercus agrifolia	17.0	34	30	28		X		4	4	4.0	G	4.5	8.5	21.3	HIGH
499		Quercus agrifolia	15.0	26	28	26		X		5	4	4.5	G	4.8	7.5	18.8	HIGH
500		Quercus lobata	12.0	27	23	15		X		4	3	3.5	M	3.3	6	15.0	MODERATE
501	278	Quercus agrifolia	26.0	37	55	60			X	3	3	3.0	G	4.0	13	32.5	HIGH
502		Quercus agrifolia	24.0	40	26	30			X	4	3	3.5	G	4.3	12	30.0	HIGH
503		Quercus agrifolia	15.0	35	20	15		X		4	3	3.5	G	4.3	7.5	18.8	HIGH
504	280	Quercus agrifolia	27.0	33	30	35			X	4	4	4.0	G	4.5	13.5	33.8	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
505	294	Quercus lobata	10.0	37	18	22	Severe Decline	X		3	2	2.5	M	2.8	5	12.5	MODERATE
506		Quercus lobata	14.0	37	23	27		X		4	3	3.5	M	3.3	7	17.5	MODERATE
507		Quercus lobata	16.0	40	35	27		X		4	3	3.5	M	3.3	8	20.0	MODERATE
508		Quercus agrifolia	17.0	30	50	45		X		5	4	4.5	G	4.8	8.5	21.3	HIGH
509		Quercus lobata	11.0	7	1	1	Dead	X		1	1	1.0	M	2.0	5.5	13.8	LOW
510	307	Quercus lobata	6.0	22	13	10		EXEMPT		4	3	3.5	M	3.3	3	7.5	MODERATE
511		Quercus lobata	19.0	37	26	30		X		4	3	3.5	M	3.3	9.5	23.8	MODERATE
512		Quercus lobata	13.0	40	25	27		X		4	3	3.5	M	3.3	6.5	16.3	MODERATE
513		Quercus agrifolia	3.0	16	3	5		EXEMPT		4	4	4.0	G	4.5	1.5	3.8	HIGH
514	306	Quercus lobata	7.0	33	5	6	Severe Decline	EXEMPT		3	3	3.0	M	3.0	3.5	8.8	MODERATE
515		Quercus agrifolia	9.0	5	1	1	Dead	X		1	1	1.0	G	3.0	4.5	11.3	MODERATE
516		Quercus agrifolia	10.0	33	18	13	Crowded Growing Conditions	X		4	3	3.5	G	4.3	5	12.5	HIGH
517		Quercus agrifolia	9.0	28	15	10	Crowded Growing Conditions	X		4	3	3.5	G	4.3	4.5	11.3	HIGH
518	310	Quercus lobata	18.0	32	18	15	Dead Wood	X		4	3	3.5	M	3.3	9	22.5	MODERATE
519		Quercus agrifolia	5.0	10	8	7		EXEMPT		5	4	4.5	G	4.8	2.5	6.3	HIGH
520	568	Prunus dulcis	8.0	15	8	12	Dead	EXEMPT		1	1	1.0	P-M	1.5	4	10.0	LOW
521		Quercus douglasii	7.0	26	13	6	Severe Decline	EXEMPT		2	2	2.0	M-G	3.0	3.5	8.8	MODERATE
522	315	Quercus agrifolia	12.0	27	20	15		X		4	3	3.5	G	4.3	6	15.0	HIGH
523		Quercus lobata	11.0	24	1	1	Dead	X		1	1	1.0	M	2.0	5.5	13.8	LOW
524	314	Quercus agrifolia	6.0	15	13	10		EXEMPT		4	3	3.5	G	4.3	3	7.5	HIGH
525		Quercus agrifolia	3.0	20	3	5		EXEMPT		5	4	4.5	G	4.8	1.5	3.8	HIGH
526	313	Quercus lobata	7.0	15	1	1	Dead Wood	EXEMPT		1	1	1.0	M	2.0	3.5	8.8	LOW
527	328	Quercus agrifolia	8.0	23	8	13		X		4	4	4.0	G	4.5	4	10.0	HIGH
528		Quercus agrifolia	10.0	23	10	10		X		4	4	4.0	G	4.5	5	12.5	HIGH
529		Quercus agrifolia	5.0	18	10	5		EXEMPT		4	3	3.5	G	4.3	2.5	6.3	HIGH
530	326	Quercus lobata	18.0	36	28	26		X		4	3	3.5	M	3.3	9	22.5	MODERATE
531	325	Quercus agrifolia	12.0	38	12	23		X		4	4	4.0	G	4.5	6	15.0	HIGH
532		Quercus lobata	9.0	31	15	13	Severe Decline	X		3	3	3.0	M	3.0	4.5	11.3	MODERATE
533	317	Quercus agrifolia	9.0	32	22	12		X		3	3	3.0	G	4.0	4.5	11.3	HIGH
534	318	Quercus lobata	12.0	32	16	10	Dead Wood	X		3	3	3.0	M	3.0	6	15.0	MODERATE
535	319	Quercus agrifolia	8.0	28	15	12		X		4	3	3.5	G	4.3	4	10.0	HIGH
536	320	Olea europaea	5.0	31	18	13		EXEMPT		4	4	4.0	M	3.5	2.5	6.3	HIGH
537		Olea europaea	4.0	16	18	16		EXEMPT		4	2	3.0	M	3.0	2	5.0	MODERATE
538	321	Olea europaea	4.0	36	20	18		EXEMPT		4	4	4.0	M	3.5	2	5.0	HIGH
539		Quercus agrifolia	4.0	15	10	10		EXEMPT		3	3	3.0	G	4.0	2	5.0	HIGH
540	322	Quercus lobata	13.0	35	26	28	Poor Tree Structure	X		3	3	3.0	M	3.0	6.5	16.3	MODERATE
541		Quercus lobata	17.0	50	33	27	Dead Wood	X		3	3	3.0	M	3.0	8.5	21.3	MODERATE
542	587	Quercus agrifolia	7.0	22	6	13		EXEMPT		3	2	2.5	G	3.8	3.5	8.8	HIGH
543	329	Quercus lobata	4.0	24	1	1	Severe Decline	EXEMPT		2	1	1.5	M	2.3	2	5.0	LOW
544	330	Quercus agrifolia	7.0	32	8	6		EXEMPT		4	4	4.0	G	4.5	3.5	8.8	HIGH
545		Quercus lobata	13.0	34	1	2	Severe Decline	X		2	1	1.5	M	2.3	6.5	16.3	LOW
546	334	Quercus agrifolia	8.0	28	12	10		X		4	4	4.0	G	4.5	4	10.0	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
547	333	Quercus agrifolia	15.0	42	23	20		X		4	4	4.0	G	4.5	7.5	18.8	HIGH
548		Quercus lobata	11.0	38	12	8	Severe Decline	X		2	2	2.0	M	2.5	5.5	13.8	LOW
549		Quercus lobata	15.0	36	20	20	Dead Wood	X		2	3	2.5	M	2.8	7.5	18.8	MODERATE
550	301	Quercus agrifolia	9.0	22	20	20	Crowded Growing Conditions	X		4	4	4.0	G	4.5	4.5	11.3	HIGH
551	343	Quercus lobata	17.0	40	34	30	Severe Decline	X		3	3	3.0	M	3.0	8.5	21.3	MODERATE
552		Olea europaea	4.0	17	18	23		EXEMPT		4	3	3.5	M	3.3	2	5.0	MODERATE
553	344	Quercus agrifolia	12.0	28	16	15		X		4	4	4.0	G	4.5	6	15.0	HIGH
554	609	Quercus agrifolia	8.0	25	13	11		X		4	4	4.0	G	4.5	4	10.0	HIGH
555	345	Quercus agrifolia	9.0	31	20	18		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
556	346	Quercus lobata	15.0	42	25	25	Dead Limbs	X		3	3	3.0	M	3.0	7.5	18.8	MODERATE
557	347	Quercus lobata	18.0	30	28	31	Dead Limbs	X		4	3	3.5	M	3.3	9	22.5	MODERATE
558	348	Quercus lobata	13.0	27	24	22	Dead Limbs	X		4	3	3.5	M	3.3	6.5	16.3	MODERATE
559		Quercus lobata	9.0	34	12	6	Severe Decline	X		3	3	3.0	M	3.0	4.5	11.3	MODERATE
560		Quercus lobata	16.0	41	27	18		X		4	3	3.5	M	3.3	8	20.0	MODERATE
561		Olea europaea	8.0	26	23	20	Severe Decline	EXEMPT		2	2	2.0	M	2.5	4	10.0	LOW
562		Quercus lobata	26.0	48	35	40	Dead Wood		X	4	4	4.0	M	3.5	13	32.5	HIGH
563	338	Quercus agrifolia	9.0	30	28	22		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
564	341	Quercus lobata	28.0	44	40	46			X	3	4	3.5	M	3.3	14	35.0	MODERATE
565		Quercus lobata	17.0	42	15	23	Dead Limbs	X		4	3	3.5	M	3.3	8.5	21.3	MODERATE
566	340	Quercus agrifolia	36.0	42	38	32			X	5	4	4.5	G	4.8	18	45.0	HIGH
567	352	Quercus lobata	19.0	40	30	33	Dead Wood	X		4	3	3.5	M	3.3	9.5	23.8	MODERATE
568	353	Quercus lobata	22.0	46	30	25	Dead Wood	X		3	4	3.5	M	3.3	11	27.5	MODERATE
569		Quercus lobata	35.0	42	30	30			X	4	3	3.5	M	3.3	17.5	43.8	MODERATE
570	352	Pyrus calleryana	7.0	23	13	10	Severe Decline	EXEMPT		2	2	2.0	M	2.5	3.5	8.8	LOW
571	355	Quercus agrifolia	13.0	35	20	21		X		4	4	4.0	G	4.5	6.5	16.3	HIGH
572	610	Quercus agrifolia	11.0	24	23	25		X		5	4	4.5	G	4.8	5.5	13.8	HIGH
573	356	Quercus lobata	21.0	44	36	30	Dead Wood	X		3	3	3.0	M	3.0	10.5	26.3	MODERATE
574		Quercus agrifolia	13.0	31	25	28	Dead Wood	X		4	4	4.0	G	4.5	6.5	16.3	HIGH
575		Sambucus neomexicana	14.0	26	25	15	Previous Limb Failure	X		2	2	2.0	G	3.5	7	17.5	HIGH
576		Quercus agrifolia	11.0	40	10	20		X		4	4	4.0	G	4.5	5.5	13.8	HIGH
577	85	Quercus agrifolia	38.0	48	40	42			X	5	4	4.5	G	4.8	19	47.5	HIGH
578		Quercus agrifolia	8.0	28	13	16	Crowded Growing Conditions	X		4	4	4.0	G	4.5	4	10.0	HIGH
579	84	Sambucus neomexicana	10.0	31	27	23	Poor Tree Structure	EXEMPT		2	2	2.0	G	3.5	5	12.5	HIGH
580	82	Platanus racemosa	27.0	43	20	45	Sites of Decay	X	X	3	2	2.5	M-G	3.3	13.5	33.8	MODERATE
581		Platanus racemosa	34.0	47	25	30		X	X	5	4	4.5	M-G	4.3	17	42.5	HIGH
582		Platanus racemosa	34.0	60	26	40		X	X	5	4	4.5	M-G	4.3	17	42.5	HIGH
583		Platanus racemosa	36.0	45	30	27		X	X	4	3	3.5	M-G	3.8	18	45.0	HIGH
584		Calocedrus decurrens	7.0	26	10	12		EXEMPT		4	4	4.0	M	3.5	3.5	8.8	HIGH
585		Platanus racemosa	7.0	40	15	12		EXEMPT		4	3	3.5	M-G	3.8	3.5	8.8	HIGH
586		Platanus racemosa	31.0	50	40	40	Leaning Tree	X	X	4	3	3.5	M-G	3.8	15.5	38.8	HIGH
587		Quercus lobata	23.0	65	38	36	Dead Wood	X		4	4	4.0	M	3.5	11.5	28.8	HIGH
588		Sequoia sempervirens	5.0	30	18	18		EXEMPT		5	4	4.5	G	4.8	2.5	6.3	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
589		Quercus agrifolia	4.0	18	12	10		EXEMPT		5	4	4.5	G	4.8	2	5.0	HIGH
590		Washingtonia robusta	22.0	40	10	10		X		5	4	4.5	G	4.8	11	27.5	HIGH
591		Prunus dulcis	7.0	20	10	6	Dead Wood	EXEMPT		2	2	2.0	P-M	2.0	3.5	8.8	LOW
592	1	Quercus agrifolia	13.0	28	28	30		X		5	4	4.5	G	4.8	6.5	16.3	HIGH
593	2	Quercus agrifolia	9.0	26	15	20		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
594	349	Quercus agrifolia	16.0	28	22	26		X		5	4	4.5	G	4.8	8	20.0	HIGH
595	350	Quercus agrifolia	12.0	27	17	21		X		5	4	4.5	G	4.8	6	15.0	HIGH
596	351	Quercus agrifolia	15.0	27	20	24		X		5	4	4.5	G	4.8	7.5	18.8	HIGH
597	567	Quercus agrifolia	21.0	42	33	37		X		4	4	4.0	G	4.5	10.5	26.3	HIGH
598	566	Quercus lobata	22.0	25	16	32	Crowded Growing Conditions	X		3	2	2.5	M	2.8	11	27.5	MODERATE
599	565	Quercus agrifolia	20.0	47	34	32		X		5	4	4.5	G	4.8	10	25.0	HIGH
600	564	Quercus agrifolia	22.0	42	35	33	Dead Limbs	X		4	4	4.0	G	4.5	11	27.5	HIGH
601	563	Quercus agrifolia	27.0	30	28	26			X	5	4	4.5	G	4.8	13.5	33.8	HIGH
602	562	Quercus agrifolia	18.0	30	30	27		X		5	4	4.5	G	4.8	9	22.5	HIGH
603		Quercus agrifolia	9.0	16	10	8		X		5	4	4.5	G	4.8	4.5	11.3	HIGH
604		Pyrus calleryana	5.0	7	10	5	Severe Decline	EXEMPT		2	2	2.0	M	2.5	2.5	6.3	LOW
605		Olea europaea	3.0	7	10	6		EXEMPT		5	4	4.5	M	3.8	1.5	3.8	HIGH
606	109	Quercus agrifolia	21.0	31	35	33		X		5	5	5.0	G	5.0	10.5	26.3	HIGH
607		Quercus agrifolia	4.0	16	10	10	Severe Decline	EXEMPT		1	2	1.5	G	3.3	2	5.0	MODERATE
608		Quercus agrifolia	4.0	16	10	10	Severe Decline	EXEMPT		1	2	1.5	G	3.3	2	5.0	MODERATE
609		Quercus agrifolia	5.0	16	10	10	Severe Decline	EXEMPT		1	2	1.5	G	3.3	2.5	6.3	MODERATE
610		Quercus douglasii	21.0	36	28	25	Dead Wood	X		4	4	4.0	M-G	4.0	10.5	26.3	HIGH
611	111	Quercus agrifolia	21.0	32	37	33		X		5	4	4.5	G	4.8	10.5	26.3	HIGH
612		Quercus lobata	22.0	34	38	28	Dead Wood	X		4	3	3.5	M	3.3	11	27.5	MODERATE
613	560	Quercus douglasii	12.0	34	25	23	Dead Limbs	X		3	3	3.0	M-G	3.5	6	15.0	HIGH
614	559	Quercus agrifolia	19.0	34	27	23		X		5	4	4.5	G	4.8	9.5	23.8	HIGH
615	555	Quercus agrifolia	12.0	28	12	10		X		4	4	4.0	G	4.5	6	15.0	HIGH
616	557	Quercus agrifolia	7.0	27	5	4		EXEMPT		4	3	3.5	G	4.3	3.5	8.8	HIGH
617	556	Quercus agrifolia	9.0	25	6	8	Crowded Growing Conditions	X		4	4	4.0	G	4.5	4.5	11.3	HIGH
618		Quercus agrifolia	18.0	37	22	24	Co-Dominant Lead	X		4	4	4.0	G	4.5	9	22.5	HIGH
619		Quercus agrifolia	18.0	30	20	40		X		4	3	3.5	G	4.3	9	22.5	HIGH
620	553	Quercus agrifolia	14.0	38	22	23		X		4	4	4.0	G	4.5	7	17.5	HIGH
621		Quercus agrifolia	6.0	35	10	8		EXEMPT		4	4	4.0	G	4.5	3	7.5	HIGH
622		Quercus agrifolia	4.0	14	10	10	Dead	EXEMPT		1	3	2.0	G	3.5	2	5.0	HIGH
623	552	Quercus agrifolia	24.0	34	30	28			X	5	4	4.5	G	4.8	12	30.0	HIGH
624		Olea europaea	4.0	20	10	15		EXEMPT		4	3	3.5	M	3.3	2	5.0	MODERATE
625	551	Quercus agrifolia	19.0	36	25	23		X		5	4	4.5	G	4.8	9.5	23.8	HIGH
626	550	Quercus douglasii	25.0	40	28	37			X	4	3	3.5	M-G	3.8	12.5	31.3	HIGH
627		Quercus agrifolia	12.0	30	12	12		X		4	3	3.5	G	4.3	6	15.0	HIGH
628		Quercus agrifolia	6.0	13	8	8		EXEMPT		5	5	5.0	G	5.0	3	7.5	HIGH
629		Quercus agrifolia	12.0	16	10	13		X		5	5	5.0	G	5.0	6	15.0	HIGH
630		Quercus agrifolia	8.0	13	7	8		X		5	5	5.0	G	5.0	4	10.0	HIGH

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
631	548	Quercus agrifolia	17.0	32	30	33		X		5	5	5.0	G	5.0	8.5	21.3	HIGH
632	134	Quercus lobata	39.0	45	48	33	Dead Limbs		X	4	3	3.5	M	3.3	19.5	48.8	MODERATE
633	382	Quercus lobata	9.0	27	8	5	Multiple Leaders	X		3	3	3.0	M	3.0	4.5	11.3	MODERATE
634		Quercus agrifolia	7.0	18	16	20		EXEMPT		5	5	5.0	G	5.0	3.5	8.8	HIGH
635	136	Quercus lobata	12.0	27	23	16		X		4	4	4.0	M	3.5	6	15.0	HIGH
636		Prunus domestica	5.0	10	12	4	Severe Decline	EXEMPT		1	2	1.5	P-M	1.8	2.5	6.3	LOW
637		Prunus domestica	4.0	8	8	4	Severe Decline	EXEMPT		1	1	1.0	P-M	1.5	2	5.0	LOW
638		Olea europaea	5.0	15	12	15		EXEMPT		5	5	5.0	M	4.0	2.5	6.3	HIGH
639		Prunus domestica	4.0	6	4	3	Canker	EXEMPT		1	1	1.0	P-M	1.5	2	5.0	LOW
640		Prunus domestica	3.0	5	8	8	Dead	EXEMPT		1	1	1.0	P-M	1.5	1.5	3.8	LOW
641		Prunus domestica	3.0	5	8	2	Dead	EXEMPT		1	1	1.0	P-M	1.5	1.5	3.8	LOW
642		Prunus domestica	3.0	8	6	4	Drought Stress	EXEMPT		2	1	1.5	P-M	1.8	1.5	3.8	LOW
643	142	Prunus domestica	4.0	7	4	4	Canker	EXEMPT		2	1	1.5	P-M	1.8	2	5.0	LOW
644		Quercus agrifolia	14.0	15	17	22		X		5	5	5.0	G	5.0	7	17.5	HIGH
645		Prunus domestica	5.0	16	8	20	Dead	EXEMPT		1	2	1.5	P-M	1.8	2.5	6.3	LOW
646		Quercus agrifolia	8.0	15	13	20		X		5	5	5.0	G	5.0	4	10.0	HIGH
647		Prunus dulcis	9.0	16	15	13	Dead	EXEMPT		1	1	1.0	P-M	1.5	4.5	11.3	LOW
648		Phoenix dactylifera	44.0	24	20	25		X	X	5	5	5.0	M-G	4.5	22	55.0	HIGH
649	572	Juniperus chinensis	23.0	24	22	21		X		5	4	4.5	G	4.8	11.5	28.8	HIGH
650	299	Quercus agrifolia	28.0	62	60	40			X	5	5	5.0	G	5.0	14	35.0	HIGH
651		Quercus agrifolia	17.0	26	30	28		X		5	4	4.5	G	4.8	8.5	21.3	HIGH
652		Quercus lobata	15.0	26	15	15		X		3	2	2.5	M	2.8	7.5	18.8	MODERATE
653		Stump	9.0	1	0	0	Possible PG&E removal	EXEMPT		1	1	1.0	0	#VALUE!	4.5	11.3	#VALUE!
654	59	Stump	6.0	1	0	0	Possible PG&E removal	EXEMPT		1	1	1.0	0	#VALUE!	3	7.5	#VALUE!
655	53	Stump	6.0	1	0	0	Possible PG&E removal	EXEMPT		1	1	1.0	0	#VALUE!	3	7.5	#VALUE!
656	60	Stump	6.0	1	0	0	Possible PG&E removal	EXEMPT		1	1	1.0	0	#VALUE!	3	7.5	#VALUE!
657	57	Stump	15.0	1	0	0	Possible PG&E removal	X		1	1	1.0	0	#VALUE!	7.5	18.8	#VALUE!
658	578	Stump	11.0	1	0	0	Possible PG&E removal	EXEMPT		1	1	1.0	0	#VALUE!	5.5	13.8	#VALUE!
659		Stump	17.0	1	0	0	Possible PG&E removal	X		1	1	1.0	0	#VALUE!	8.5	21.3	#VALUE!
660		Quercus agrifolia	20.0	50	35	35		X		4	4	4.0	G	4.5	10	25.0	HIGH
661		Quercus agrifolia	20.0	40	30	30		X		4	4	4.0	G	4.5	10	25.0	HIGH
662		Quercus agrifolia	22.0	68	30	25	Leaning Tree	X		4	3	3.5	G	4.3	11	27.5	HIGH
663		Aesculus californica	7.0	28	30	15		EXEMPT		4	3	3.5	G	4.3	3.5	8.8	HIGH
664		Quercus lobata	45.0	73	62	65	Dead Limbs		X	3	3	3.0	M	3.0	22.5	56.3	MODERATE
665		Quercus agrifolia	24.0	68	40	40			X	4	4	4.0	G	4.5	12	30.0	HIGH
666		Quercus agrifolia	16.0	50	35	35		X		4	4	4.0	G	4.5	8	20.0	HIGH
667		Magnolia grandiflora	7.0	17	10	13	City Street Tree	EXEMPT		2	2	2.0	M-G	3.0	3.5	8.8	MODERATE
668		Quercus lobata	6.0	24	8	15		EXEMPT		3	3	3.0	M	3.0	3	7.5	MODERATE
669		Quercus agrifolia	10.0	25	16	20		X		4	4	4.0	G	4.5	5	12.5	HIGH
670	590	Pinus radiata	50.0	50	36	36	Dead Limbs, Severed roots on Project		X	2	3	2.5	M-G	3.3	25	62.5	MODERATE
671		Quercus agrifolia	9.0	19	15	15		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
672		Eucalyptus globulus	25.0	45	15	33	Severe Decline	X	X	1	3	2.0	M	2.5	12.5	31.3	LOW

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
HMH Engineers
1570 Oakland Road, San Jose, CA 95131

Surrey Farms, Project #4185.10

Tree-ID	Existing Tree Tag Numbe	SPP	DBH_IN	HEIGHT_FT	SPREAD N/S_FT	SPREAD E/W_FT	NOTE	PROTECTED	LARGE PROTECTED	HEALTH RATING	STRUCTURE RATING	COND OVRL RATING	Tolerance Rate To Const Impact	COND OVRL w Const Impact	CRZ_FT_RADIUS	TPZ_FT_ RADIUS DBH x15	RETENTION RATING
673		Quercus agrifolia	9.0	17	15	16		X		4	4	4.0	G	4.5	4.5	11.3	HIGH
674		Quercus lobata	6.0	17	10	12		EXEMPT		3	3	3.0	M	3.0	3	7.5	MODERATE
675		Quercus agrifolia	30.0	32	30	50	Leaning Tree		X	4	3	3.5	G	4.3	15	37.5	HIGH
676	598	Quercus agrifolia	34.0	36	50	50			X	4	4	4.0	G	4.5	17	42.5	HIGH
677		Quercus lobata	40.0	50	50	40	Dead Limbs		X	3	3	3.0	M	3.0	20	50.0	MODERATE

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Arc
HMH Engineers
1570 Oakland Road, San Jose, CA 9

Site

Surrey Farms, Project #4185.10

TREE COUNT

BOTANICAL NAME	COMMON NAME	COUNT	% of Tree Inv
Aesculus californica	California Buckeye	2	0.3%
Calocedrus decurrens	Incense Cedar	53	7.8%
Cupressus macrocarpa	Monterey Cypress	1	0.1%
Eucalyptus globulus	Blue Gum	1	0.1%
Heteromeles arbutifolia	Toyon	1	0.1%
Juglans hindsii	California Black Walnut	1	0.1%
Juglans regia	English Walnut	1	0.1%
Juniperus chinensis	Chinese Juniper	1	0.1%
Ligustrum japonicum	Japanese Privet	1	0.1%
Magnolia grandiflora	Southern Magnolia	1	0.1%
Not Used		4	0.6%
Olea europaea	Olive	24	3.5%
Phoenix dactylifera	Date Palm	1	0.1%
Pinus brutia var. eldarica	Afghan Pine	28	4.1%
Pinus halepensis	Aleppo Pine	12	1.8%
Pinus radiata	Monterey Pine	1	0.1%
Platanus racemosa	California Sycamore	6	0.9%
Prunus domestica	Plum	9	1.3%
Prunus dulcis	Almond	3	0.4%
Pyrus calleryana	Ornamental Pear	2	0.3%
Quercus agrifolia	Coast Live Oak	254	37.5%
Quercus douglasii	Blue Oak	49	7.2%
Quercus lobata	Valley Oak	204	30.1%
Sambucus neomexicana	Blue Elderberry	2	0.3%
Sequoia sempervirens	Coast Redwood	1	0.1%
Snag		5	0.7%
Stump		7	1.0%
Umbellularia californica	California Bay	1	0.1%
Washingtonia robusta	Mexican Fan Palm	1	0.1%
	Total	**677**	**100.0%**

Cerro Vista Ct
Cerro Vista Ct
Twin Oaks Dr
Twin Oaks Dr
Twin Oaks Dr

DeltaCad DEMO

*Figure not OCR Compatible.

DeltaCad DEMO

*Figure not OCR Compatible.

DeltaCad DEMO

*Figure not OCR Compatible.

C

DeltaCad DEMO

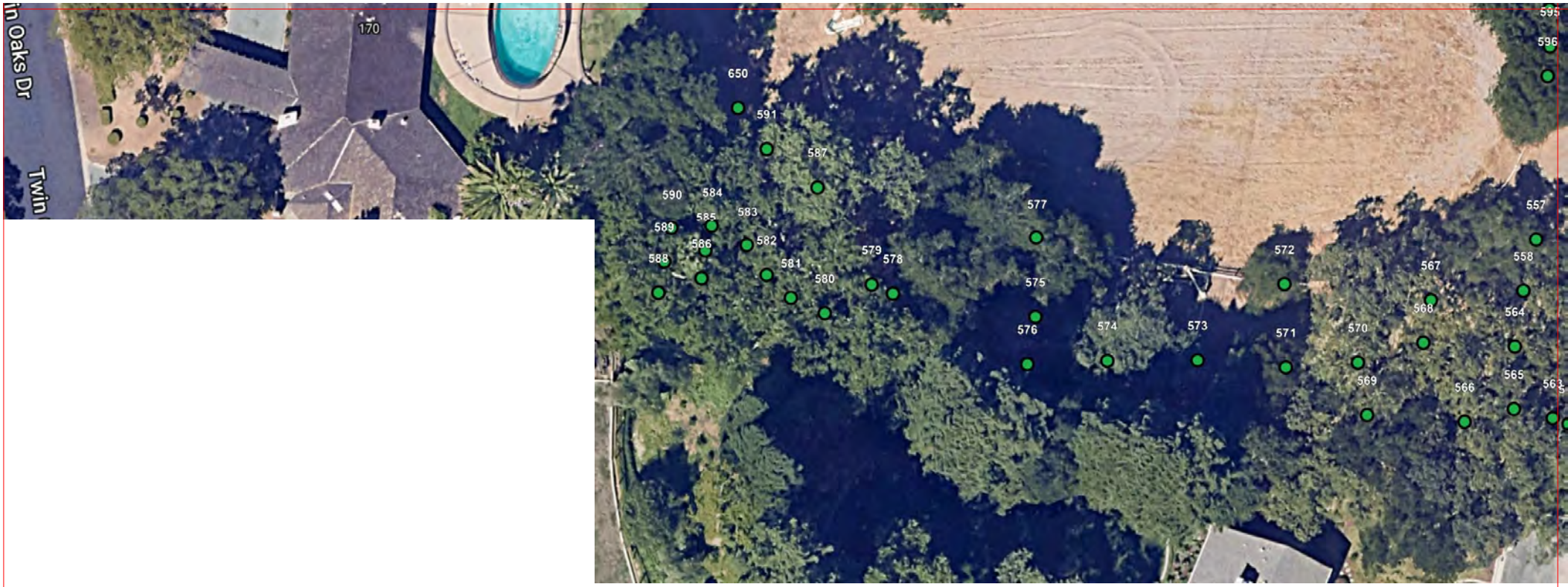
*Figure not OCR Compatible.

DeltaCad DEMO

*Figure not OCR Compatible.

DeltaCad DEMO

*Figure not OCR Compatible.



F

Arborist Report, Tree Preservation Plan, Surrey Farms, Project #4185.10, Los Gatos, CA 95032 December 15, 2024

DeltaCad DEMO

*Figure not OCR Compatible.

G

DeltaCad DEMO

*Figure not OCR Compatible.

DeltaCad DEMO

Arborist Report Tree Preservation Plan
Shawn Taylor, HMH Landscape Architect
Surrey Farms, Project #4185.10

LEGEND OF ABBREVIATIONS

BBS	- Bark Beetle Strike	**EP**	- Environmental Impact	**PTA**	- Poor Tree Architecture
CBL	- Cable Installed	**FB**	- Fire blight	**PTS**	- Poor Tree Structure
CDL	- Co-Dominant Leaders	**FC**	- Fungal Conk	**RDC**	- Reduce
CGC	- Crowded Growing Conditions	**FRP**	- Future Root Problems	**RI**	- Root Impact
CHL	- Chlorotic	**GR**	- Girdling Root	**RMV**	- Remove Tree
CNK	- Canker	**IBK**	- Imbedded Bark	**RTB**	- Red Turpentine Beetle
CRK	- Crack	**IN**	- Install New Tree	**SC**	- Soil Compaction
CRP	- Current Root Problems	**ITP**	- Inventory Tag Present (from others)	**SD**	- Severe Decline
CRS	- Crown Restoration	**LIA**	- Liability Exposure	**SDR**	- Severed Roots
CST	- City Street Tree	**LN**	- Leaning Tree	**SJS**	- San Jose Scale
DBR	- Damaged Buttress Roots	**LT**	- Lion's Tailed	**SOD**	- Sites of Decay
DC	- Decay	**MCH**	- Mulch	**SR**	- Surface Roots
DD	- Dead	**MD**	- Mower Damage to stem an/or roots	**SRD**	- Surface Root Damage
DL	- Dead Limbs	**ML**	- Multiple Leaders	**STD**	- Stem Damage
DS	- Drought Stress	**NC**	- New Concrete	**STR**	- Structure
DW	- Dead Wood	**NIT**	- Newly Installed Tree	**VD**	- Vehicle Damage
EC	- Expansion Cracks	**PH**	- Previously Headed	**VW**	- Verticillium Wilt
EI	- Excessive Irrigation	**PLF**	- Previous Limb Failure	**WBU**	- Weak Branch Union
ELW	- Excessive Limb Weight	**PPT**	- Poor Pruning Technique	**WC**	- Weak Crotch
EF	- Entomosporium Fungus causing the spots				

DBH "DBH" is defined as the measurement of the diameter of a tree trunk measured at breast height (4.5 feet or 54"-inches from ground).

CRZ Critical Root Zone "CRZ" is 6 times radially the diameter of the DBH. Damage to roots or cutting roots within this area is more likely to compromise stability. This area shall not be entered in to by anyone without Project Arborist approval.

TPZ Tree Protection Zone "TPZ" is 15 times radially the diameter of the DBH.This area shall be the primary tree protection zone for each tree that has roots or canopy in the work zone.

Unassigned This is an indication that there was no observation made on the trees health or structure

Health		**Structure**		**Construction Impact Rating**	
5	Healthy, vigorous tree, reasonably free of disease and pests.	**5**	Best structure and form typical of the species.	**P**	Poor ability to withstand construction impact
				M	Moderate ability to withstand construction
				G	impact Good ability to withstand construction
4	Tree with slight decline in vigor, small amount of twig dieback.	**4**	Minor structural defects that could be corrected.	**P-G**	Poor-Good ability to withstand construction impact
				M-G	Moderate-Good ability to withstand construction impact
3	Moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color.	**3**	Moderate structural defects that may or that might be mitigated with care.	**P-M**	Poor- Moderate ability to withstand construction impact
2	In decline, epicormic growth, extensive dieback of medium to large branches.	**2**	Significant structural defects that cannot be abated.		
1	Dead or severe decline, dieback scaffold branches and or trunk, mostly epicormic growth.	**1**	Structural defects that cannot be abated or dead.		

Arborist Report Tree Preservation Plan

Shawn Taylor, HMH Landscape Architect
Surrey Farms, Project #4185.10

PRESERVATION ASSESMENT

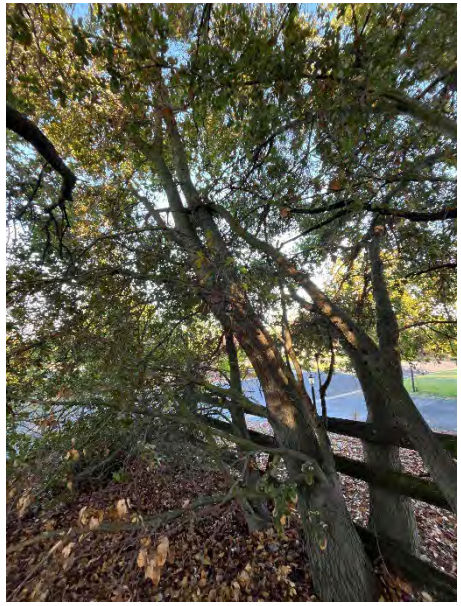
Preservation Assessments evaluate a tree's viability for retention based on combined ratings for Health (biological condition), Structure (stability and integrity), and Species Tolerance to Construction Impact (ability to withstand construction-related stress). These scores are averaged to guide decisions, aligning with arborist recommendations and local tree protection ordinances.

Tree Overall Rating	Design considerations	Health description	Structure description	Count	% of Inventory	Retention Ratring
4 to 5	Worthy of preservation, condition warrants long-term preservation.	Healthy, vigorous tree, reasonably free of disease and pests. Tree with slight decline in vigor, small amount of twig dieback.	Best structure and form typical of the species or minor structural defects that could be corrected.	**365**	**54%**	**HIGH**
3 to 3.9	Possibly worthy of preserve with addressing some current conditions where possible. Not worthy of extensive project redesign to retain. Addressing curent conditions through maintenance is recommended. Remove due to conflict with construction, most trees not a viable candidate for transplant.	Moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color.	Moderate structural defects that may or that might be mitigated with care.	**227**	**34%**	**MODERATE**
1 to 2.9	Remove due to existing condition, or remove due to conflict with construction; not a viable candidate for transplant.	In decline, epicormic growth, extensive dieback of medium to large branches. Dead or severe decline, dieback scaffold branches and or trunk, mostly epicormic growth.	Significant structural defects that cannot be abated. Structural defects that cannot be abated or dead.	**69**	**10%**	**LOW**
			Trees that are not rated due to condition.	**16**	**2%**	**N/A**
			Total	**677**	**100%**	

Tree 1

Tree 2

Tree 3



Tree 4

Not Used

Tree 5

Tree 6

Tree 7

Tree 8

Tree 9

Tree 10

Tree 11

Tree 12

Tree 13

Tree 14

Tree 15

Tree 16

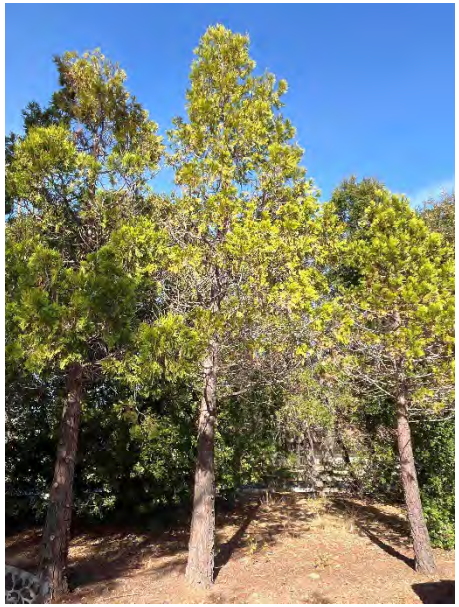
Tree 17

Tree 18

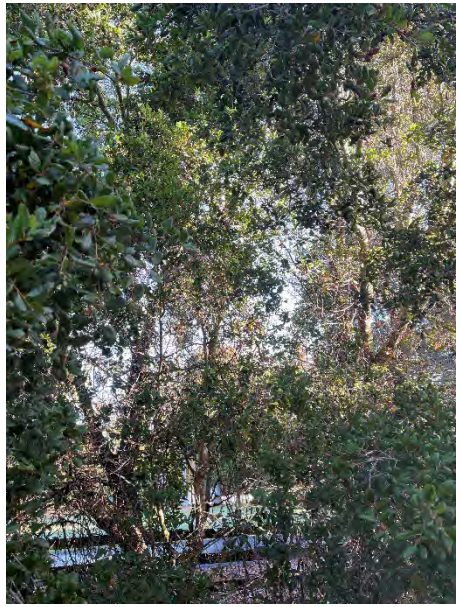
Tree 19

Tree 20

Tree 21


Tree 22

Tree 23


Tree 24

Tree 25

Tree 26

Tree 27

Tree 28

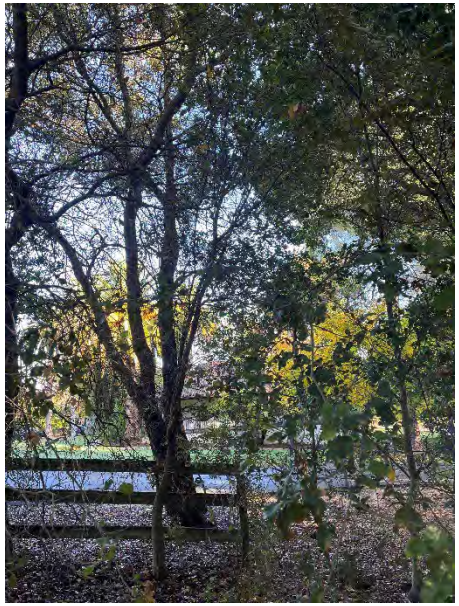
Tree 29

Tree 30

Tree 31

Tree 32

Tree 33


Tree 34

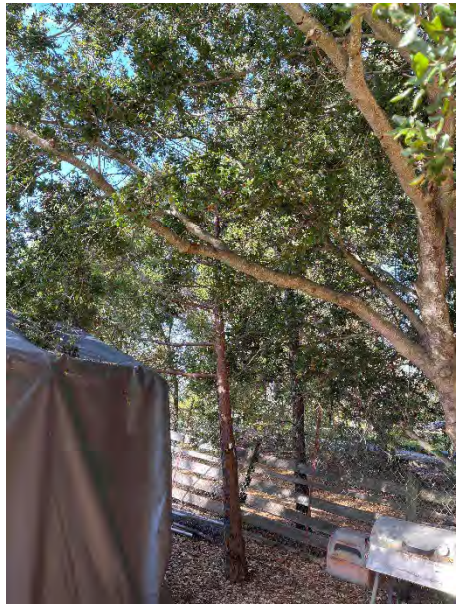
Tree 35

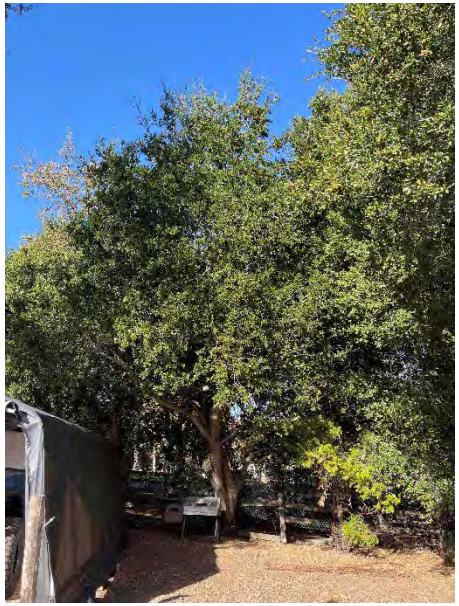
Tree 36

Tree 37

Tree 38

Tree 39


Tree 40

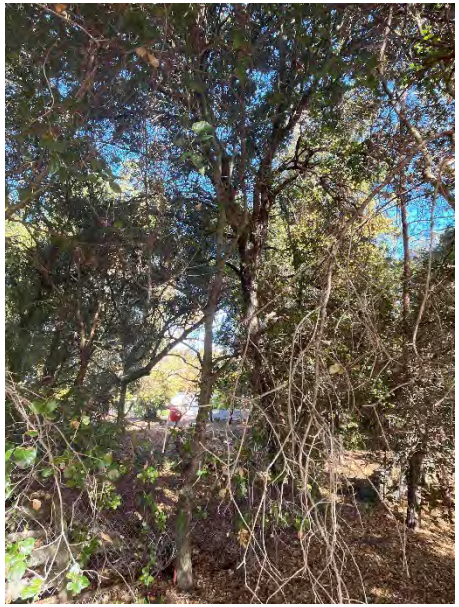

Tree 41

Tree 42

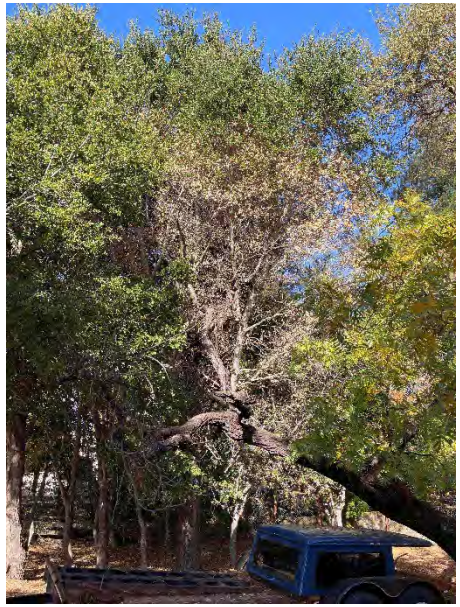
Tree 43

Tree 44

Tree 45


Tree 46

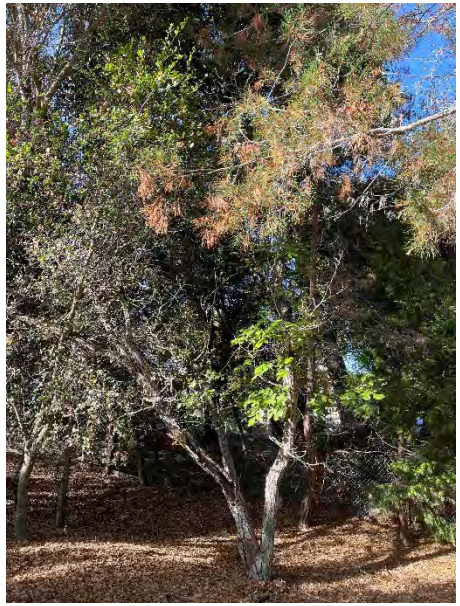
Tree 47


Tree 48

Tree 49

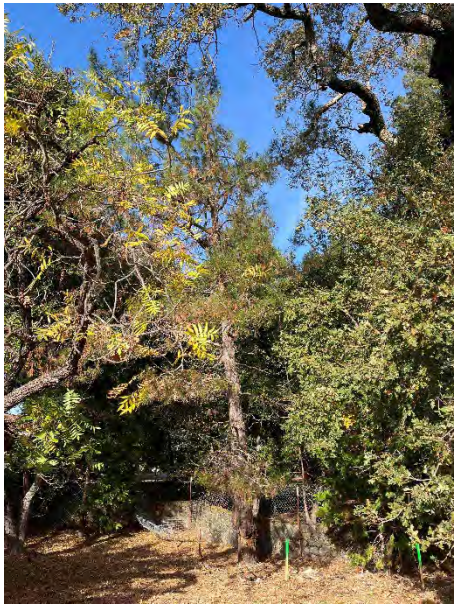
Tree 50

Tree 51



Tree 52

Tree 52



Tree 54

Tree 55

Tree 56

Tree 57

Tree 58

Tree 59

Tree 60

Tree 61

Tree 62

Tree 63

Tree 64

Tree 65

Tree 66

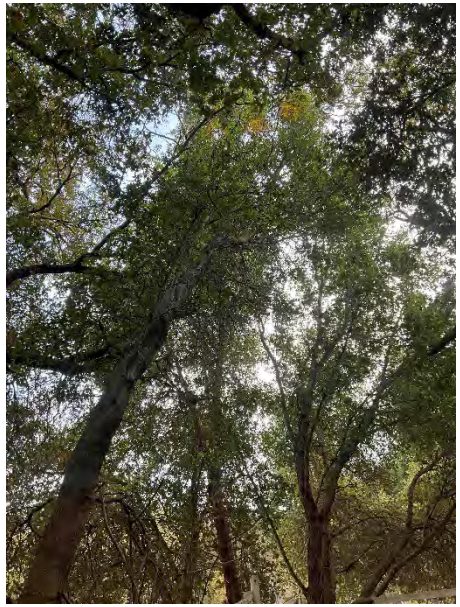
Tree 67

Tree 68

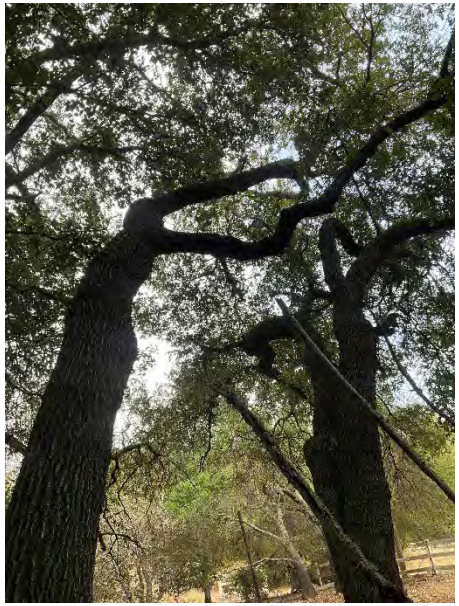
Tree 69

Tree 70

Tree 71


Tree 72

Tree 73


Tree 74

Tree 75

Tree 76

Tree 77

Tree 78

Tree 79

Tree 80

Tree 81

Tree 82

Tree 83

Tree 84

Tree 85

Tree 86

Tree 87

Tree 88

Tree 89

Tree 90

Tree 91

Tree 92

Tree 93

Tree 94

Tree 95

Tree 96

Tree 97

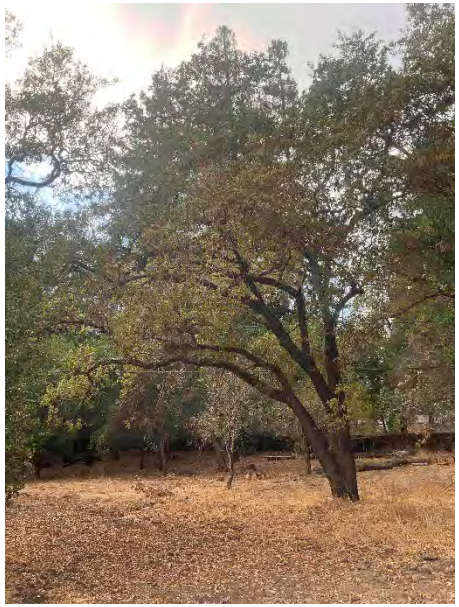
Tree 98

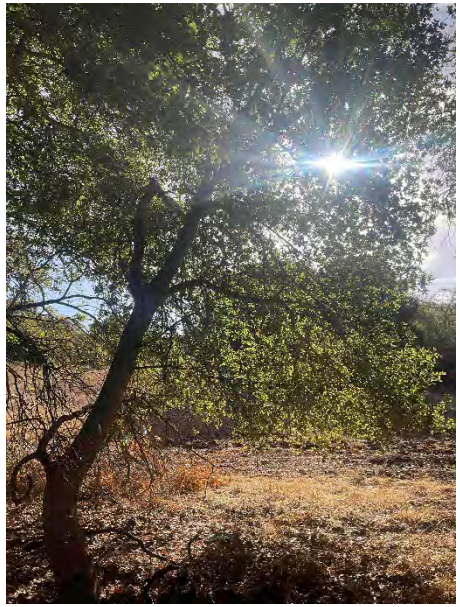
Tree 99

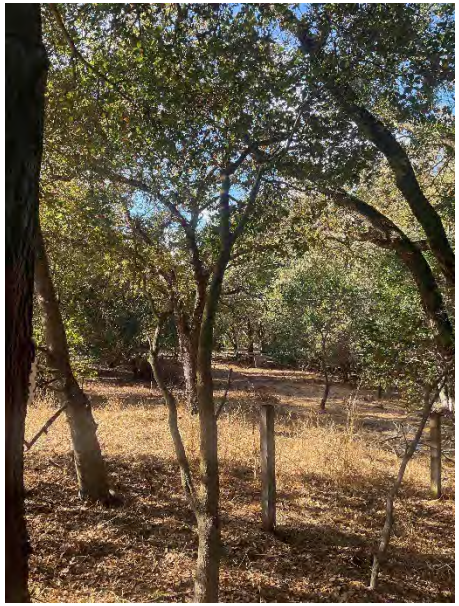
Tree 100

Tree 101

Tree 102


Tree 103


Tree 104


Tree 105

Tree 106

Tree 107

Tree 108

Tree 109

Tree 110

Tree 111

Tree 112

Tree 113

Tree 114

Tree 115

Tree 116

Tree 117

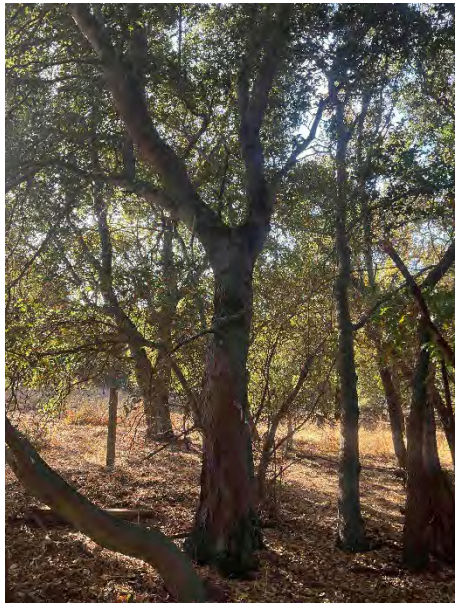
Tree 118

Tree 119

Tree 120

Tree 121

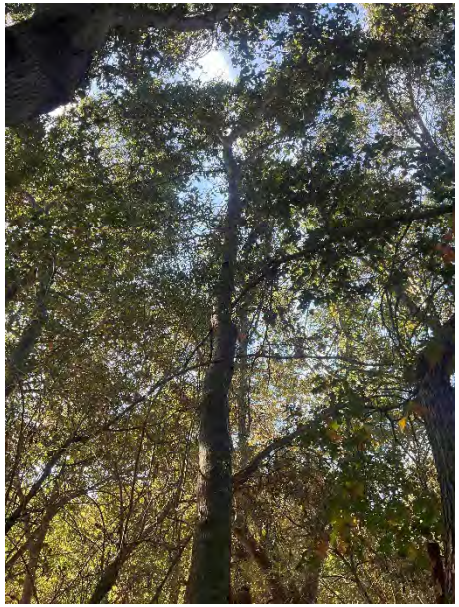
Tree 122


Tree 123

Tree 124

Tree 125

Tree 126


Tree 127

Tree 128

Tree 129

Tree 130

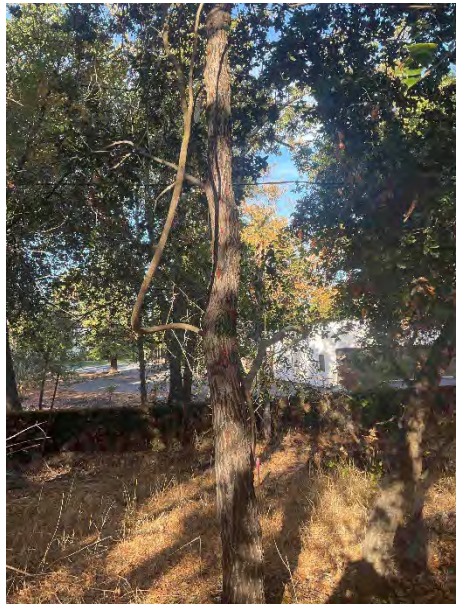
Tree 131

Tree 132

Tree 133

Tree 134

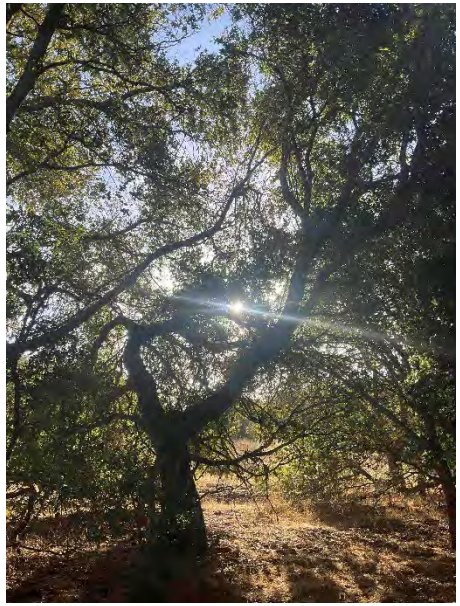
Tree 135


Tree 136

Tree 137

Tree 138

Tree 139


Tree 140

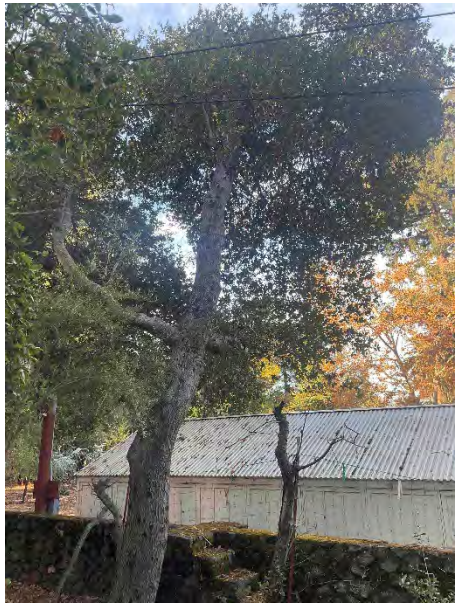
Tree 141

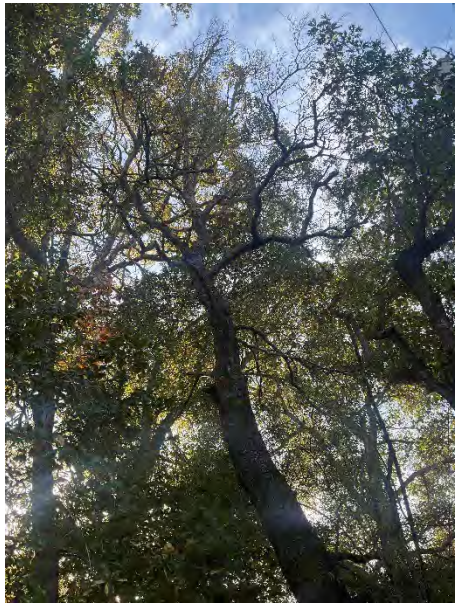
Tree 142

Tree 143

Tree 144

Tree 145


Tree 146


Tree 147

Tree 148

Tree 149

Tree 150

Tree 151

Tree 152

Tree 153

Tree 154

Tree 155

Tree 156

Tree 157

Tree 158

Tree 159

Tree 160

Tree 161

Tree 162

Tree 163

Tree 164

Tree 165

Tree 166

Tree 167

Tree 168

Tree 169

Tree 170

Tree 171

Tree 172

Tree 173

Tree 174

Tree 175

Tree 176

Tree 177

Tree 178

Tree 179

Tree 180

Tree 181

Tree 182

Tree 183

Tree 184

Tree 185

Tree 186

Tree 187

Tree 188

Tree 189

Tree 190

Tree 191

Tree 192

Tree 193

Tree 194

Tree 195

Tree 196

Tree 197

No Image

Tree 198

Tree 199

Tree 200

No Image

Tree 201

202 2

Tree 203

Tree 204

Tree 205

Tree 206

Tree 207

Tree 208

Tree 209

Tree 210

Tree 211

Tree 212

Tree 213

Tree 214

Tree 215

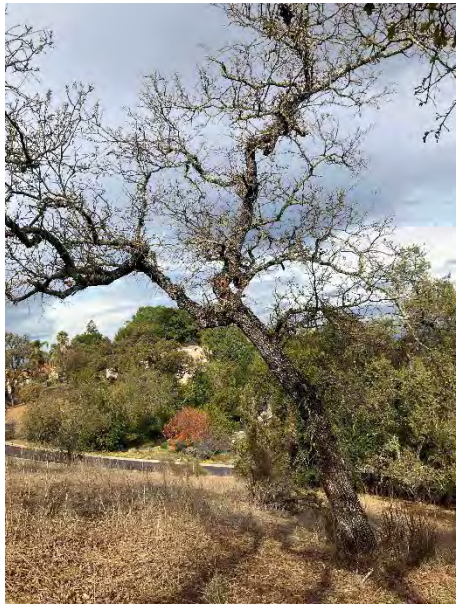
Tree 216

Tree 217

Tree 218

Tree 219

Tree 220


Tree 221

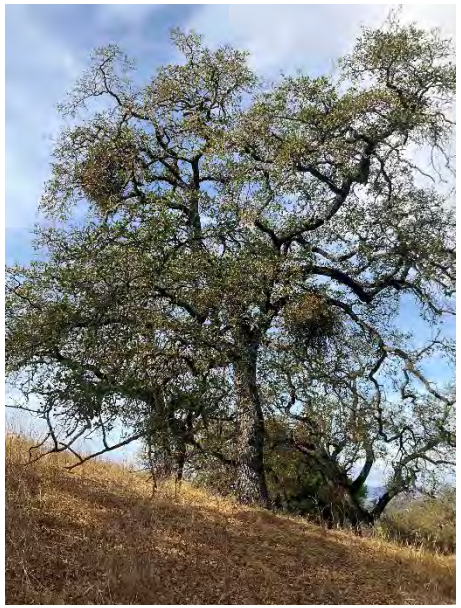
Tree 222

Tree 223

Tree 224

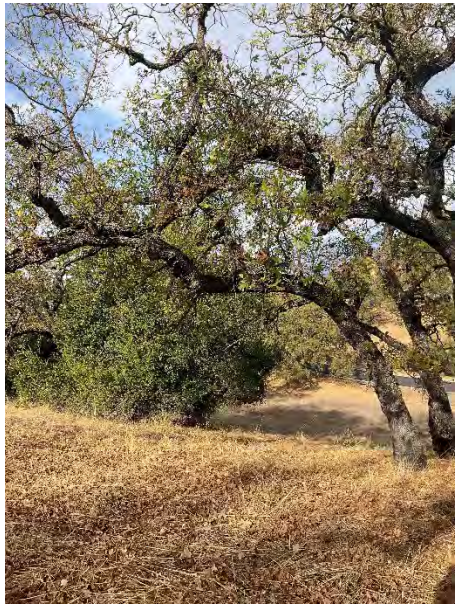
Tree 225

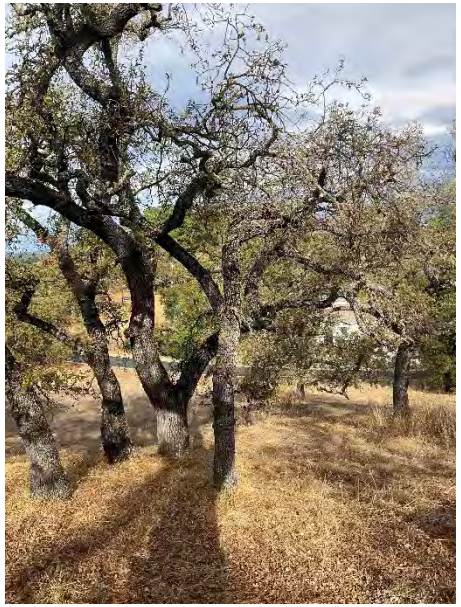
Tree 226

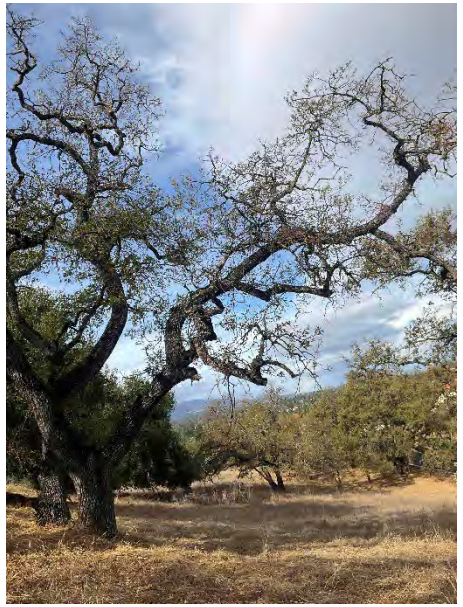

Tree 227

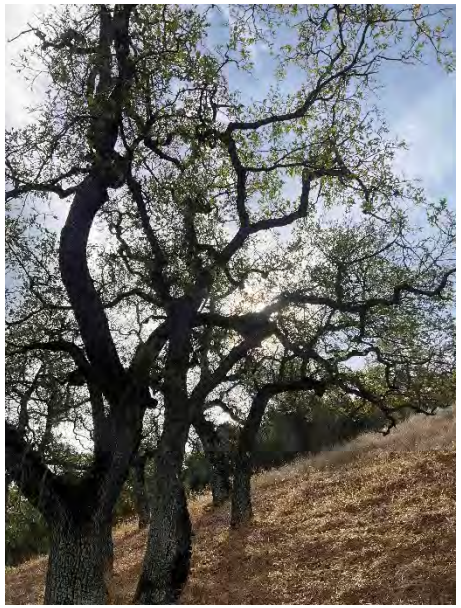
Tree 228

Tree 229


Tree 230

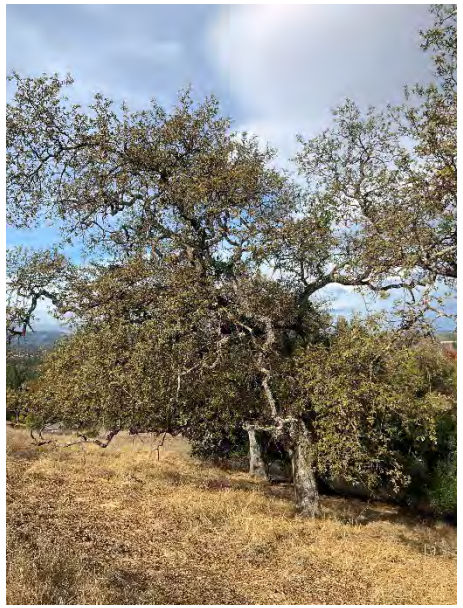

Tree 231


Tree 232


Tree 233

Tree 234

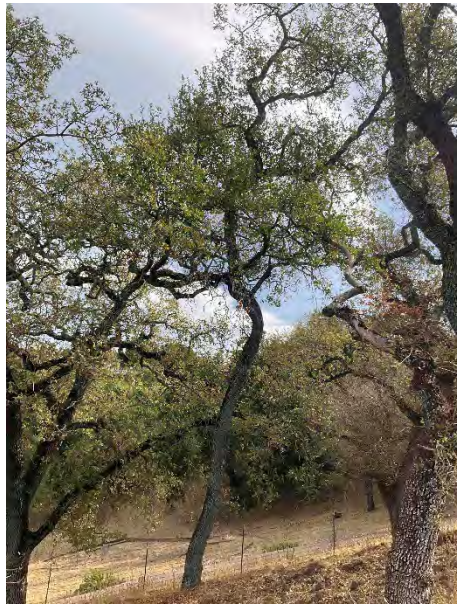
Tree 235

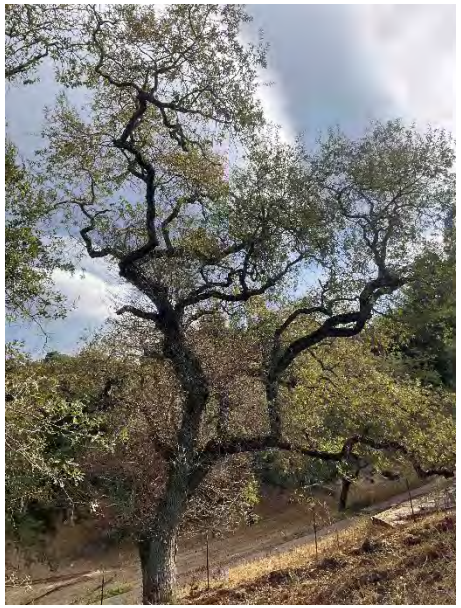

Tree 236

Tree 237

Tree 238

Tree 239


Tree 240

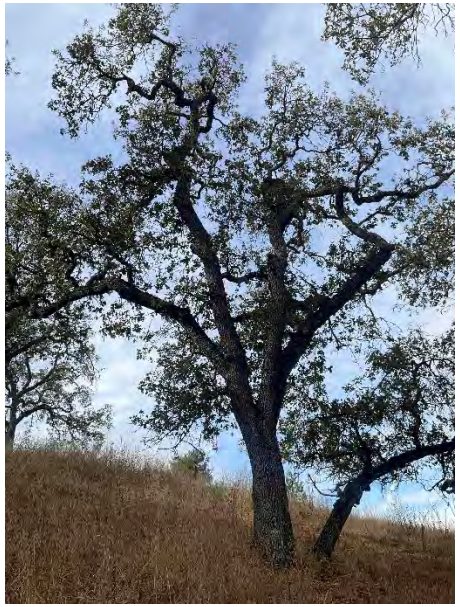

Tree 241

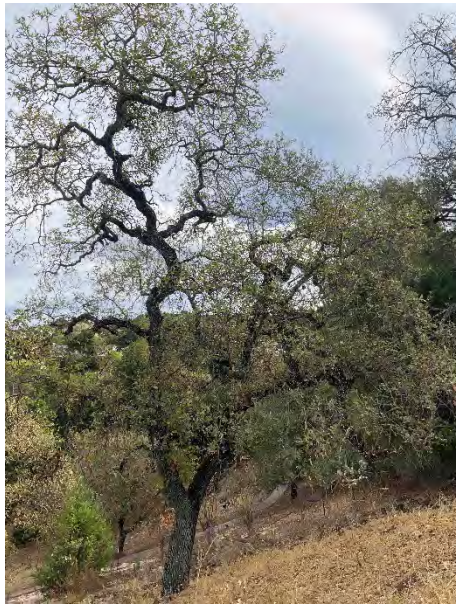
Tree 242

Tree 243

Tree 244

Tree 245


Tree 246


Tree 247

Tree 248

Tree 249

Tree 250

Tree 251

Tree 252

Tree 253

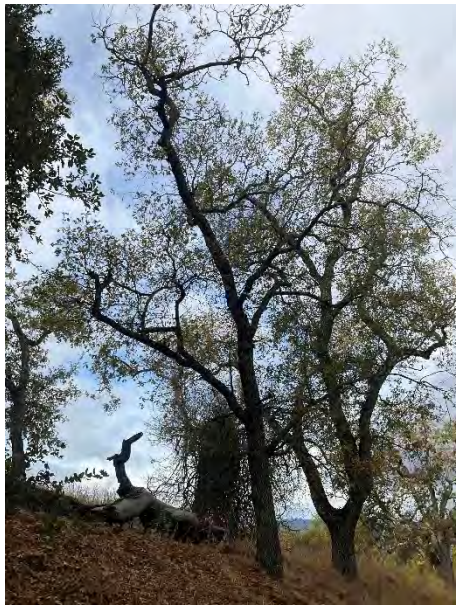
Tree 254

Tree 255

Tree 256

Tree 257

Tree 258

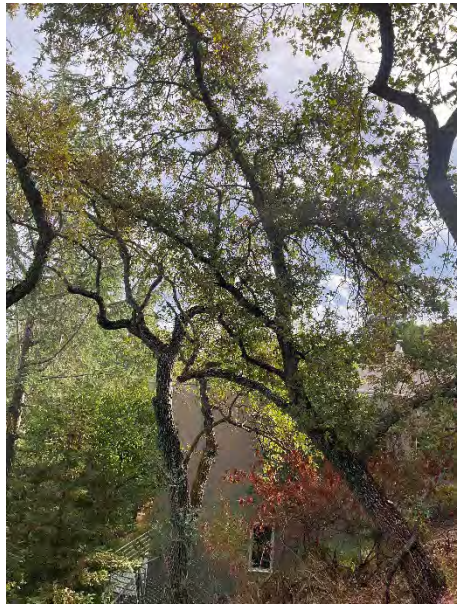

Tree 259

Tree 260

Tree 261

Tree 262

Tree 263


Tree 264

Tree 265

Tree 266

Tree 267

Tree 268

Tree 269

Tree 270

Tree 271

Tree 272

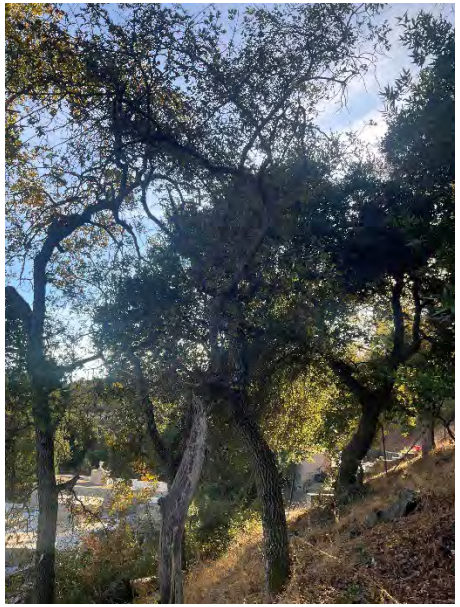
Tree 273

Tree 274

Tree 275

Tree 276

Tree 278


Tree 279

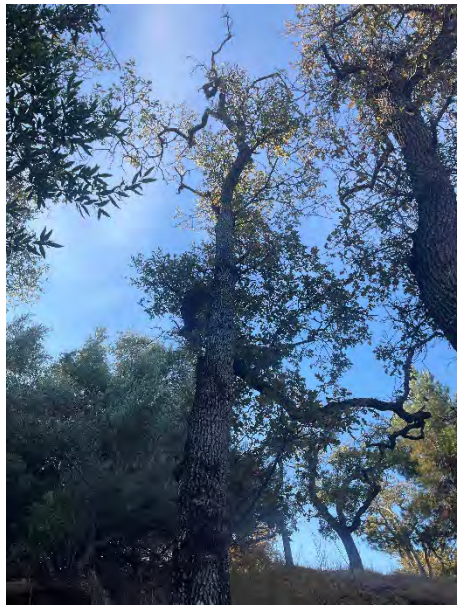
Tree 280

Tree 281

Tree 282

Tree 283

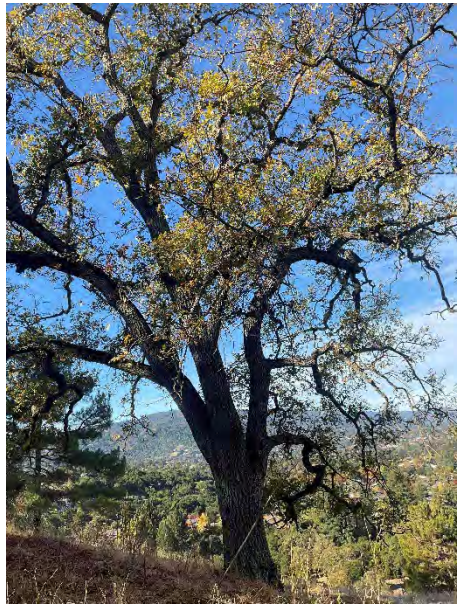
Tree 284


Tree 285

Tree 286

Tree 287

Tree 288


Tree 289

Tree 290

Tree 291

Tree 293

Tree 294

Tree 295

Tree 296

Tree 297

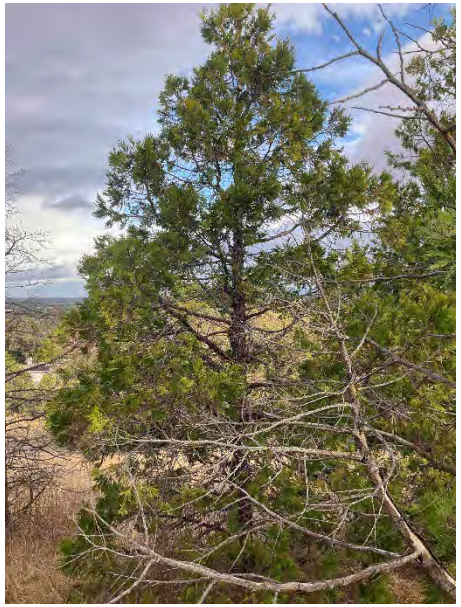
Tree 298

Tree 277

Tree 299

Tree 300

Tree 301


Tree 302

Tree 303

Tree 304

Tree 305

Tree 306

Tree 307

Tree 308

Tree 309

Tree 310

Tree 311

Tree 312

Tree 313

Tree 314

Tree 315

Tree 316

Tree 317

Tree 318

Tree 319

Tree 320

Tree 321

Tree 322

Tree 323

Tree 324

Tree 325

Tree 326

Tree 327

Tree 328

Tree 329

Tree 330

Tree 331

Tree 332

Tree 333

Tree 334

Tree 335

Tree 336

Tree 337

Tree 338

Tree 339

Tree 340

Tree 341

Tree 342

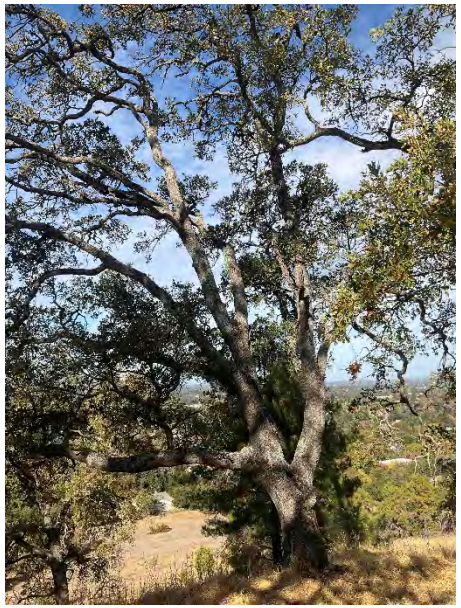
Tree 343

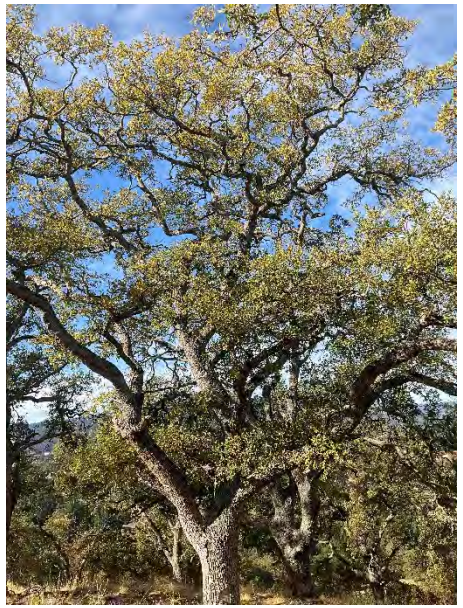
Tree 344

Tree 345

Tree 346

Tree 347


Tree 348


Tree 349

Tree 350

Tree 351

Tree 352

Tree 353

Tree 354

Tree 277

Tree

Tree

Tree

Tree

Tree

Tree

Tree 355

Tree 356

Tree 357

Tree 358

Tree 359

Tree 360

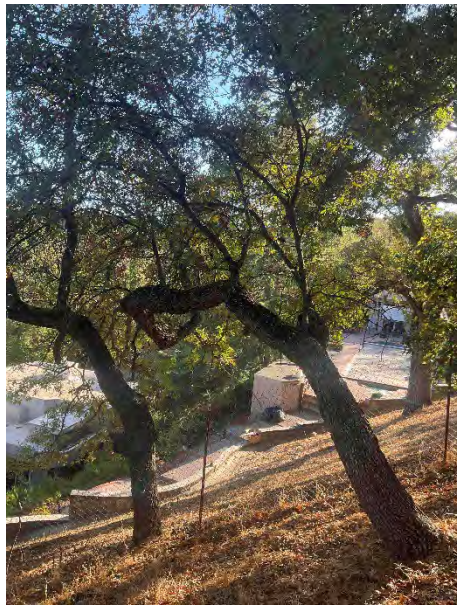
Tree 361

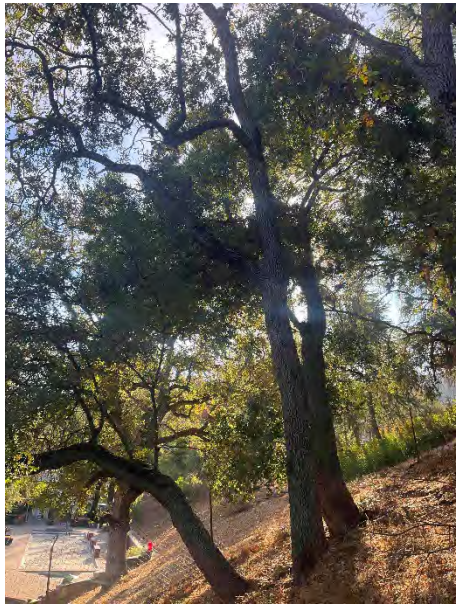
Tree 362

Tree 363

Tree 364

Tree 365


Tree 366

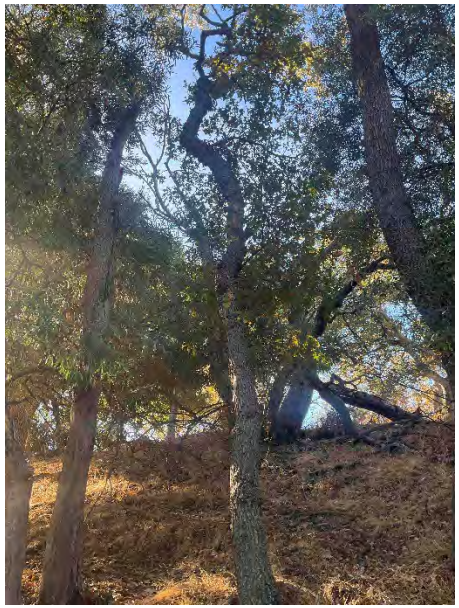

Tree 367

Tree 368

Tree 369

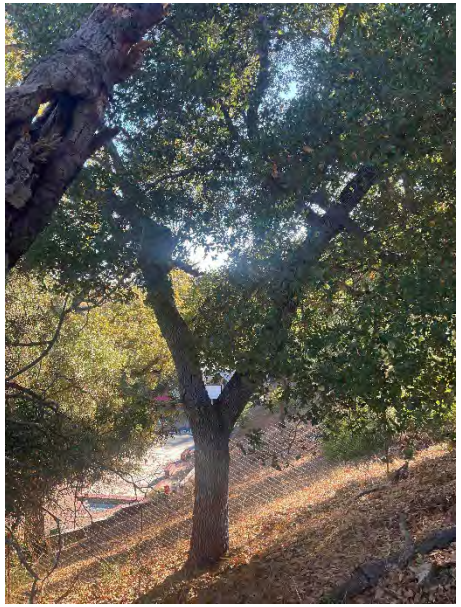
Tree 370

Tree 371


Tree 372

Tree 373

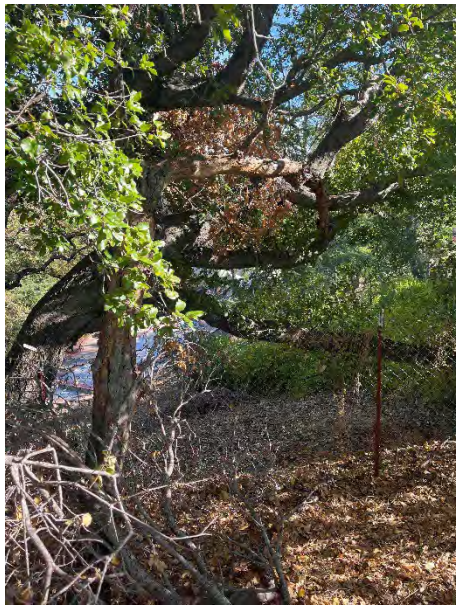
Tree 374


Tree 375

Tree 376

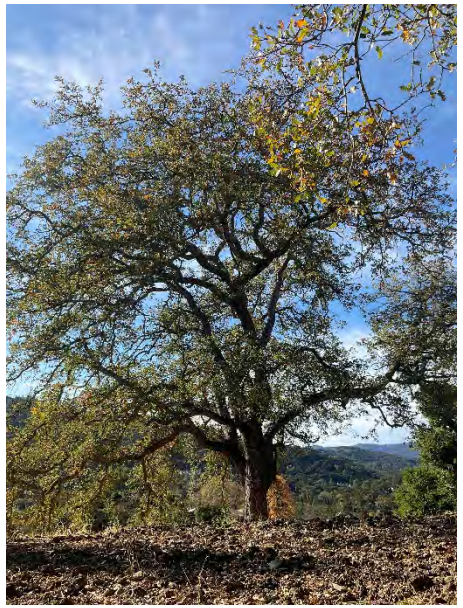
Tree 377

Tree 378


Tree 379

Tree 380

Tree 381


Tree 382

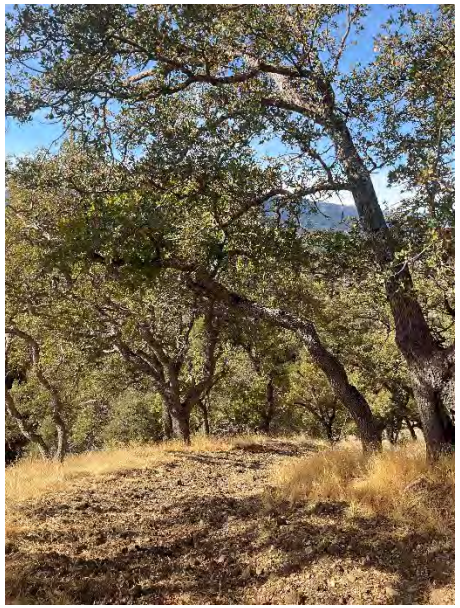
Tree 383

Tree 384

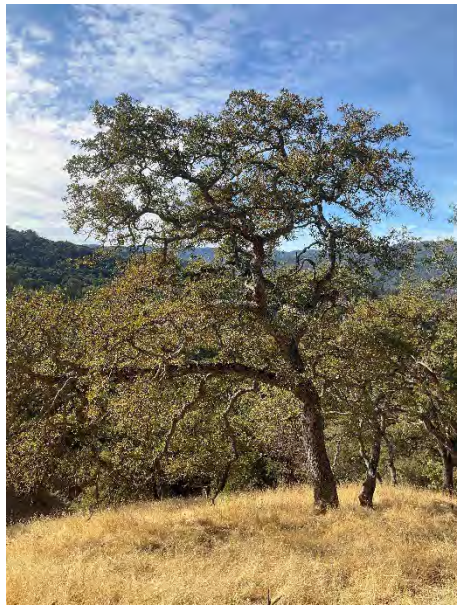
Tree 385

Tree 386

Tree 387


Tree 388

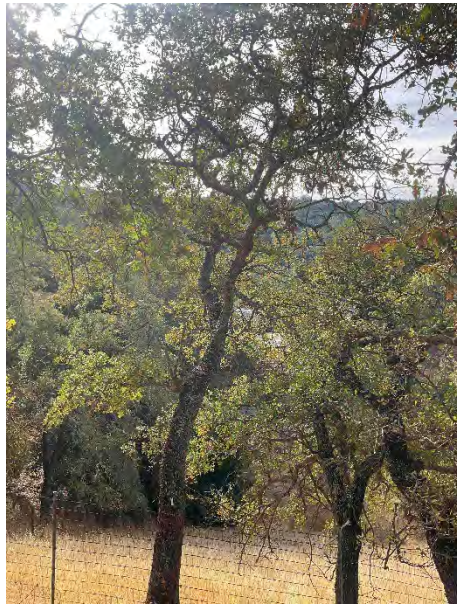
Tree 389

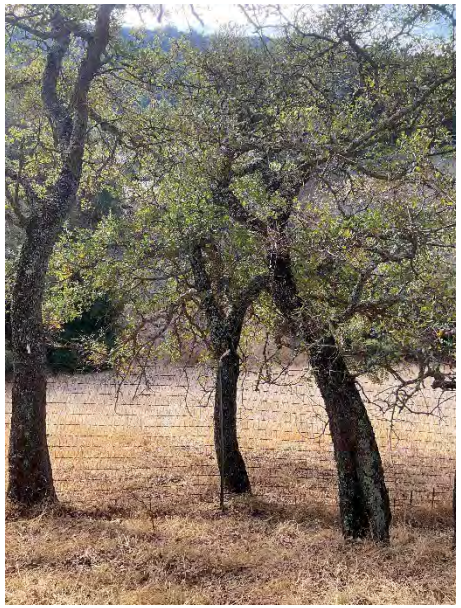

Tree 390

Tree 391

Tree 392

Tree 393


Tree 394


Tree 395

Tree 396

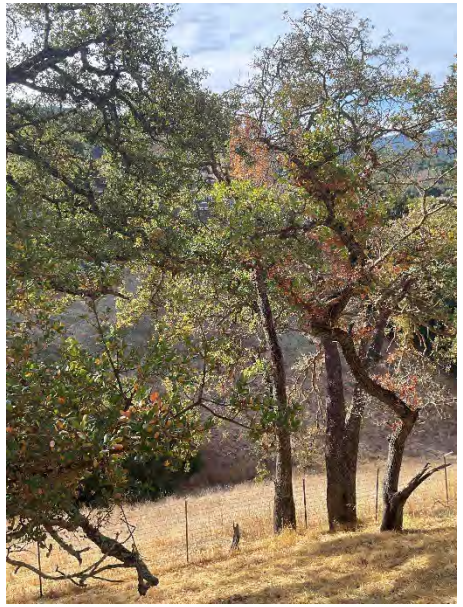
Tree 397

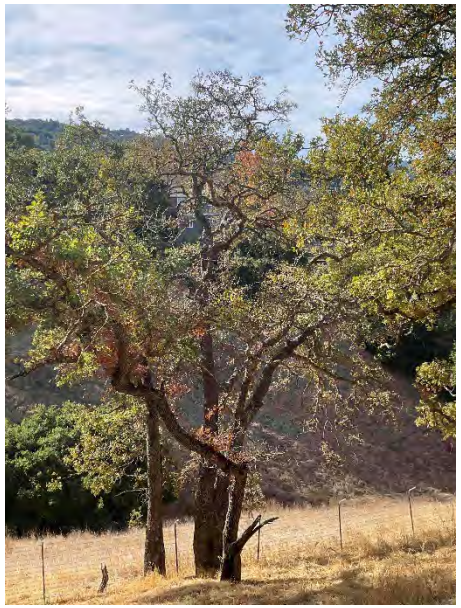
Tree 398

Tree 399

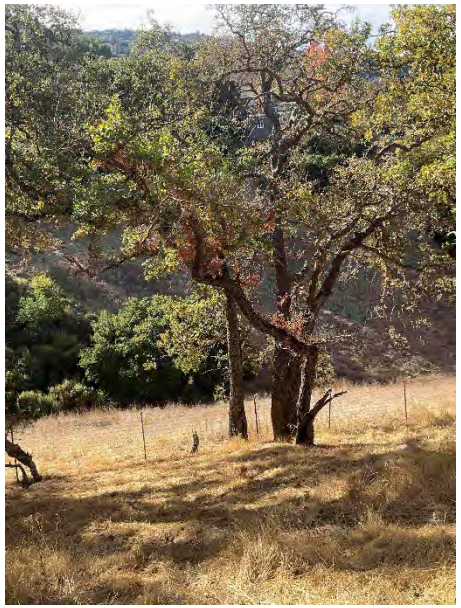
Tree 400

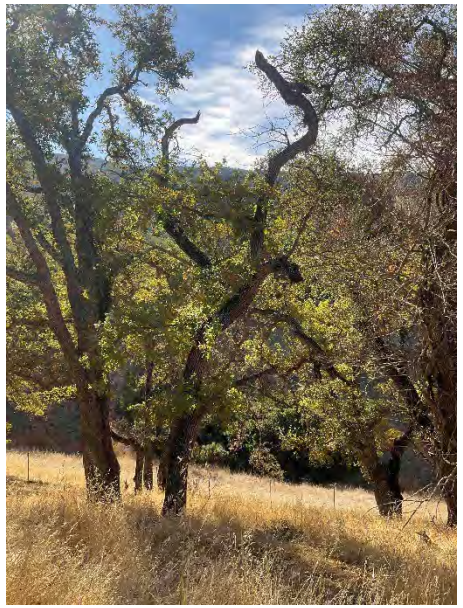
Tree 401


Tree 402

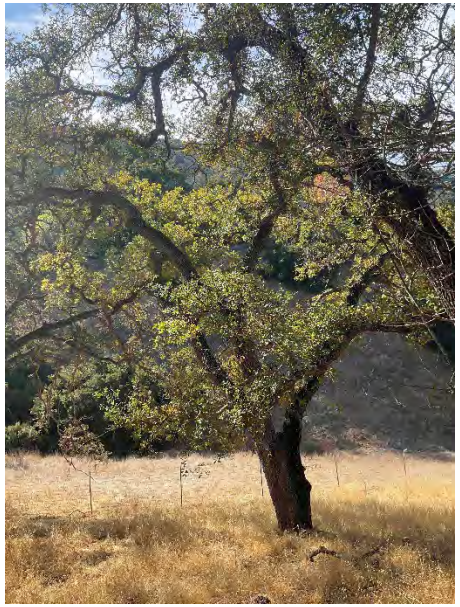

Tree 403

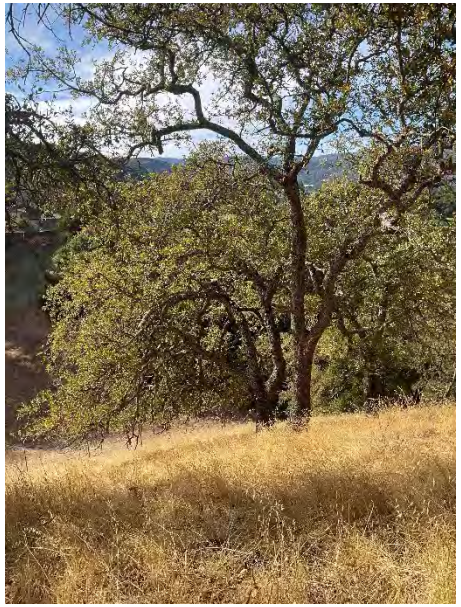
Tree 404

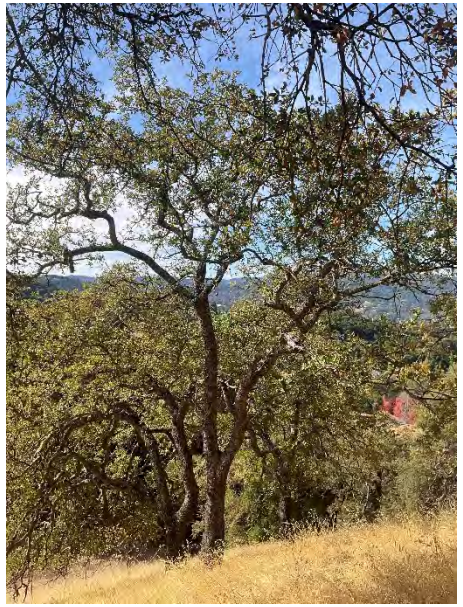

Tree 405


Tree 406

Tree 407

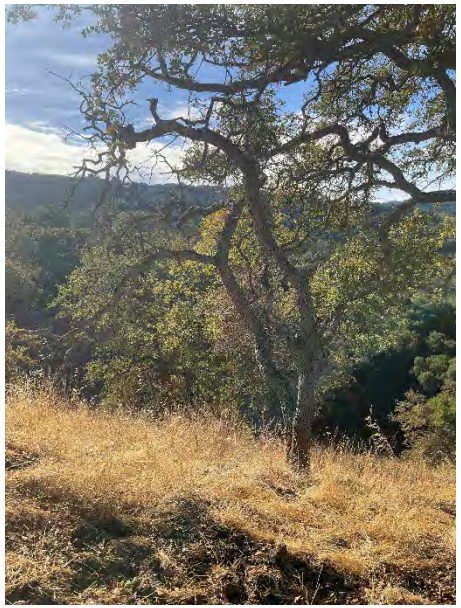

Tree 408


Tree 409


Tree 410

Tree 411

Tree 412


Tree 413

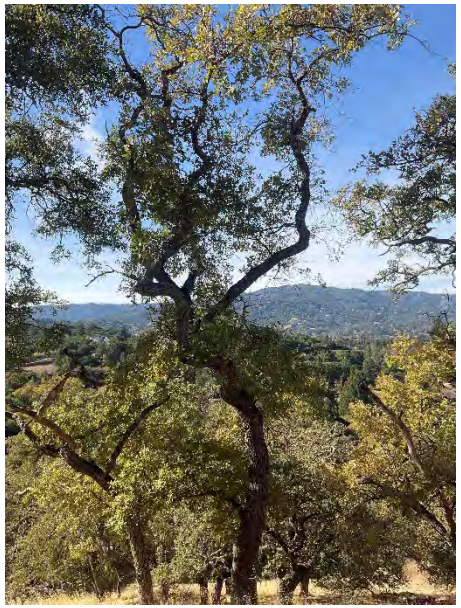
Tree 414

Tree 415

Tree 416

Tree 417

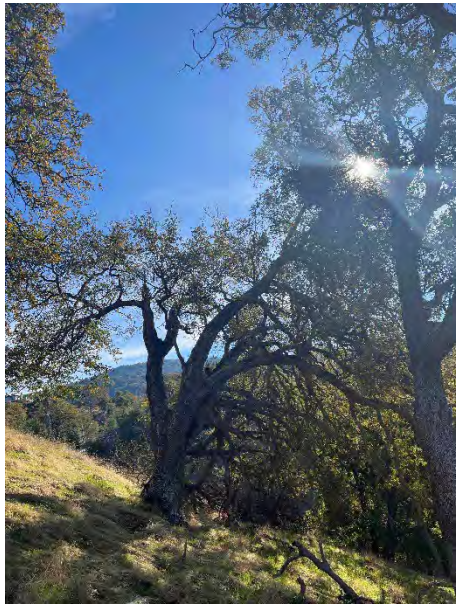
Tree 418


Tree 419

Tree 420

Tree 421

Tree 422


Tree 423

Tree 425

Tree

Tree 425

Tree 426

Tree 427

Tree 428

Tree 429

Tree 430

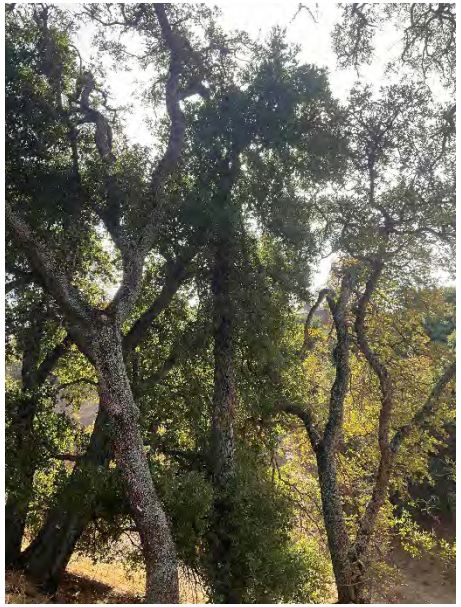
Tree 431

Tree 432

Tree 433

Tree 434

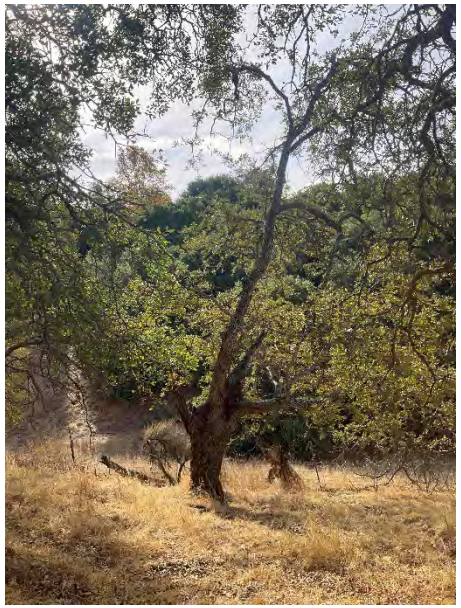
Tree 435


Tree 436

Tree 437

Tree 438

Tree 439


Tree 440

Tree 441

Tree 442

Tree 443

Tree 444

Tree 445

Tree 446

Tree 447

Tree 448

Tree 449

Tree 450

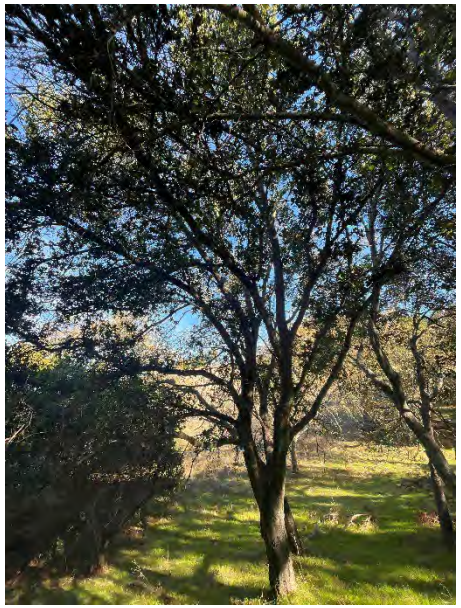
Tree 451

Tree 452

Tree 453

Tree 454

Tree 455


Tree 456

Tree 457

Tree 458

Tree 459

Tree 460

Tree 461

Tree 462

Tree 463

Tree 464

Tree 465

Tree 466

Tree 467

Tree 468

No Image

Tree 469

Tree 470

Tree 471

Tree 472

Tree 473

Tree 474

Tree 475

Tree 476

Tree 477

Tree 478

Tree 479

Tree 480

Tree 481

Tree 482

Tree 483

Tree 484

Tree 485

Tree 486

Tree 487

Tree 488

Tree 489

Tree 490

Tree 491

Tree 492

Tree 493

Tree 494

Tree 495

Tree 496

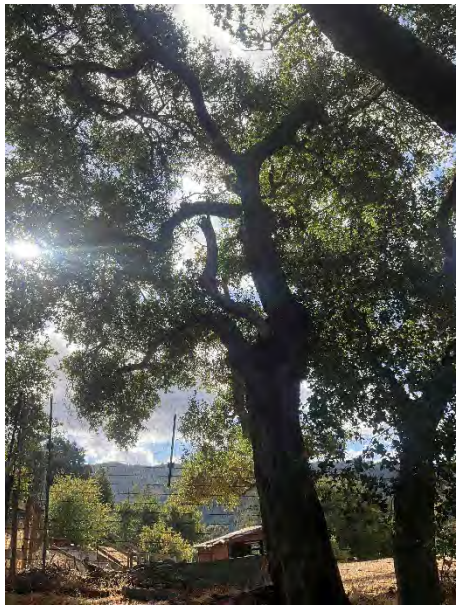
496 497

Tree 498

Tree 499

Tree 500

Tree 501


Tree 502

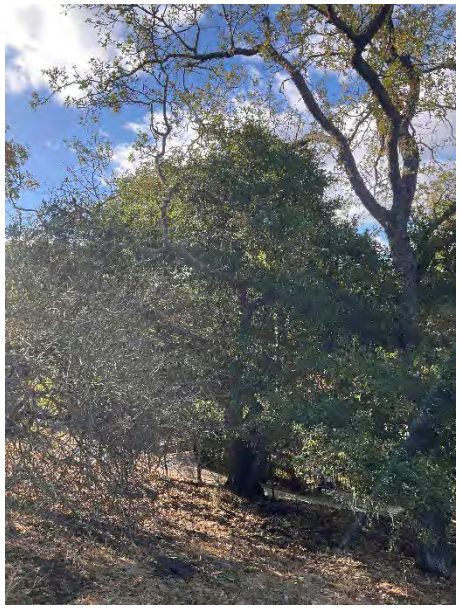
Tree 503

Tree 504

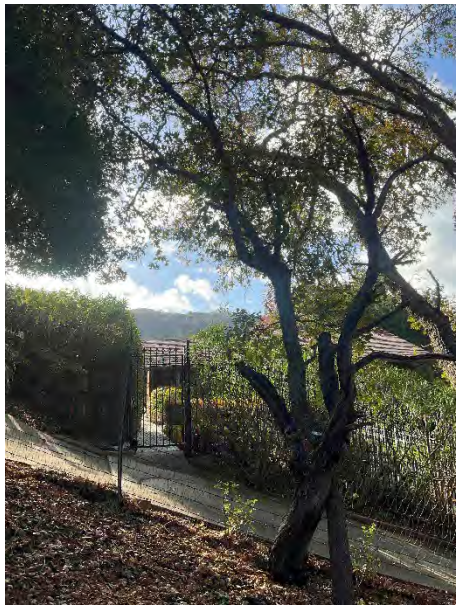
Tree 505

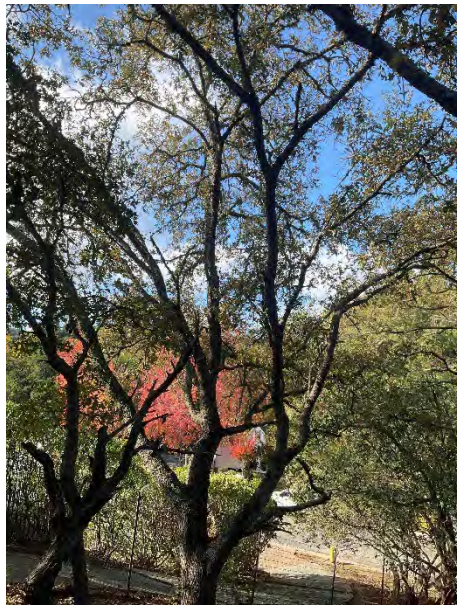
Tree 506

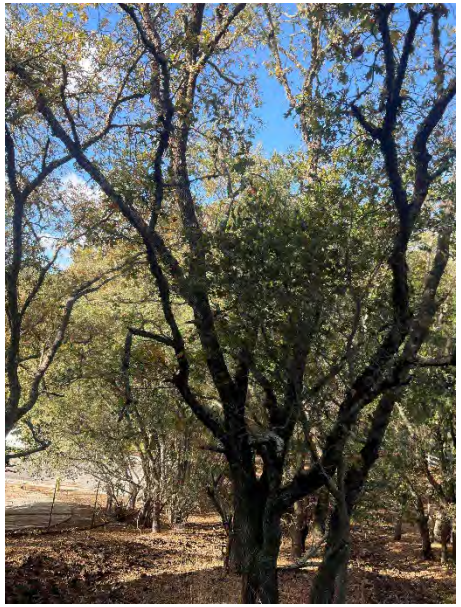
Tree 507

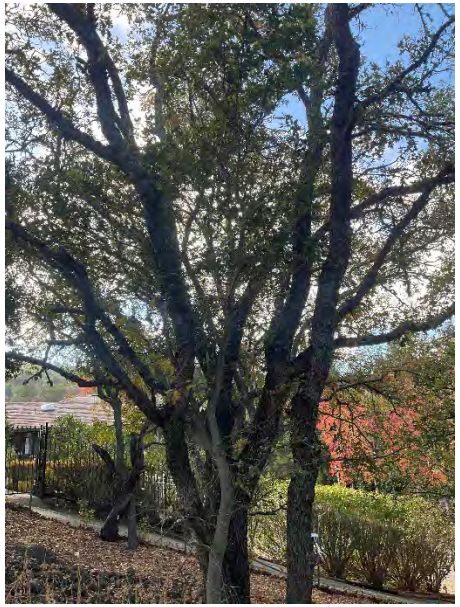

Tree 508

Tree 509


Tree 510


Tree 511


Tree 512


Tree 513

Tree 514

Tree 515

Tree 516

Tree 517

Tree 518

Tree 519

Tree 520

Tree 521

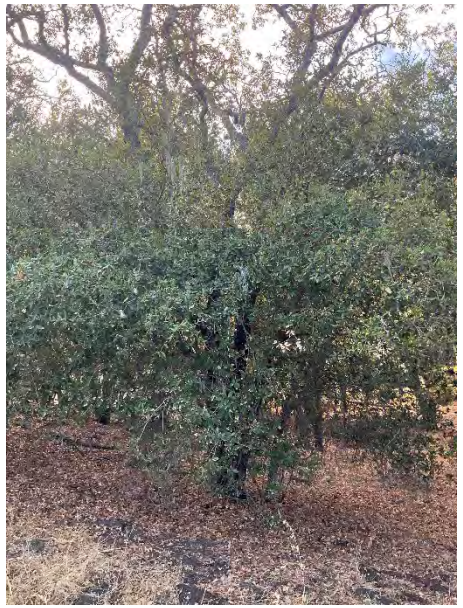
Tree 522

Tree 523

Tree 524

Tree 525

Tree 526


Tree 527

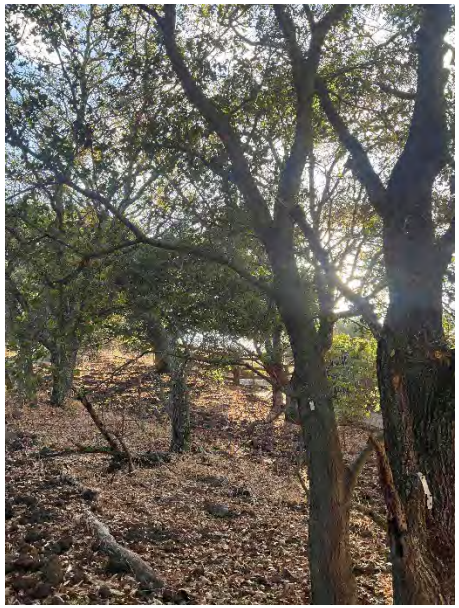
Tree 528

Tree 529

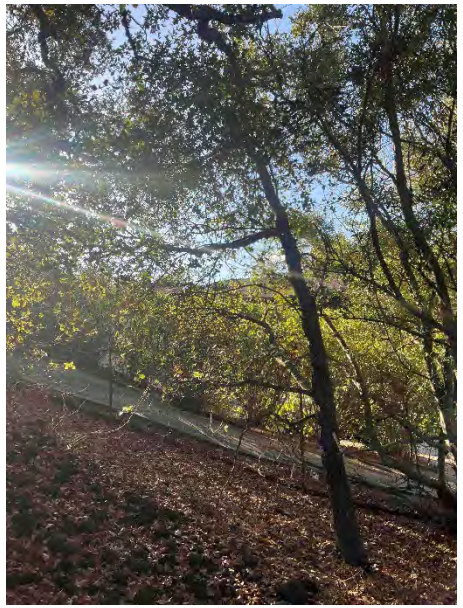
Tree 530

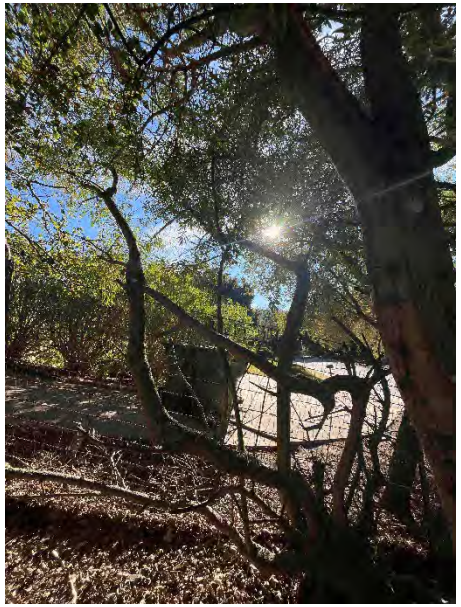
Tree 531

Tree 532


Tree 534

Tree 535


Tree 536


Tree 537

Tree 538

Tree 539

Tree 540

Tree 541

Tree 542

Tree 543

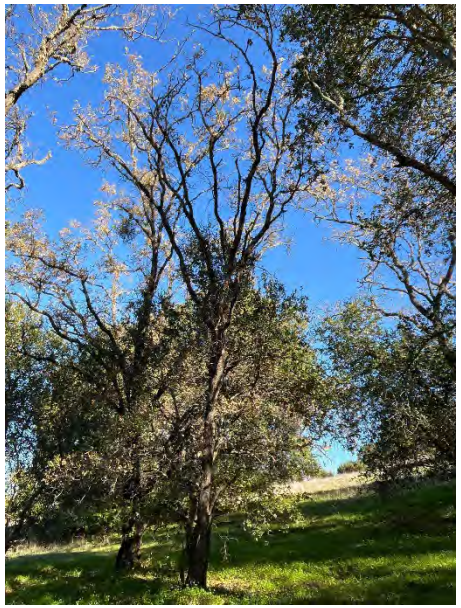
Tree 544

Tree 545

Tree 546

Tree 547

Tree 548


Tree 549

Tree 550

Tree 551

Tree 552

Tree 553

Tree 554

Tree 555

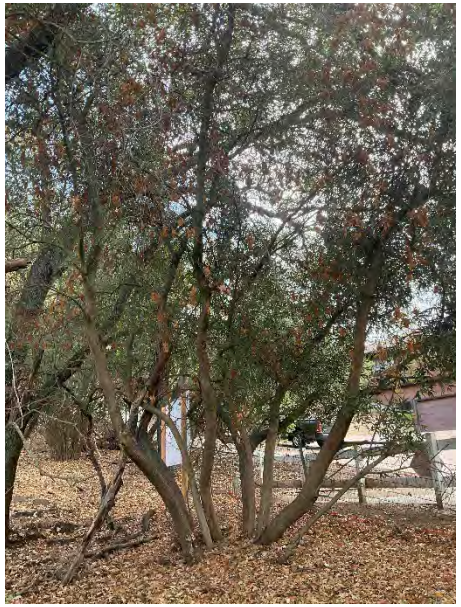
Tree 556

Tree 557

Tree 558

Tree 559

Tree 560


Tree 561

Tree 562

Tree 563

Tree 564

Tree 565

Tree 566

Tree 567

Tree 568

Tree 569

Tree 570

Tree 571

Tree 572

Tree 573

Tree 574

Tree 575

Tree 576

Tree 578

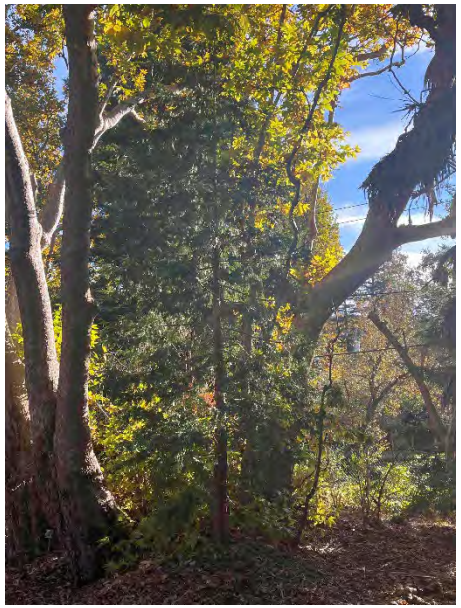
Tree 579

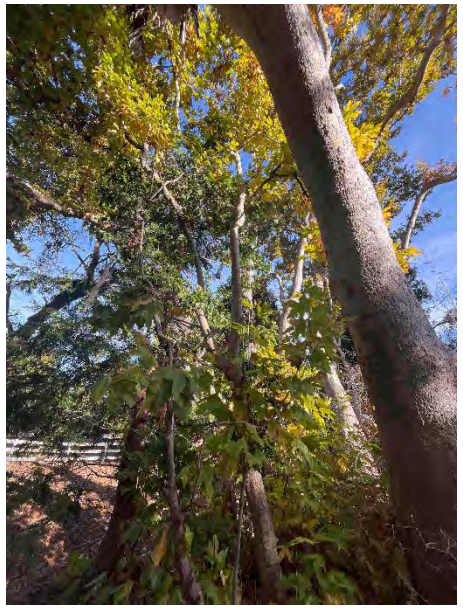
Tree 580

Tree 581

Tree 582

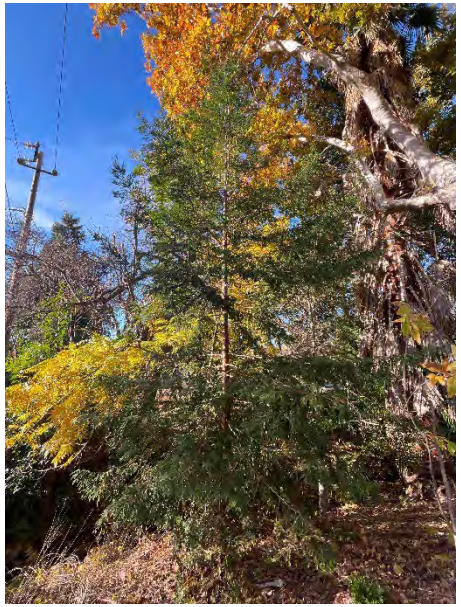
Tree 583

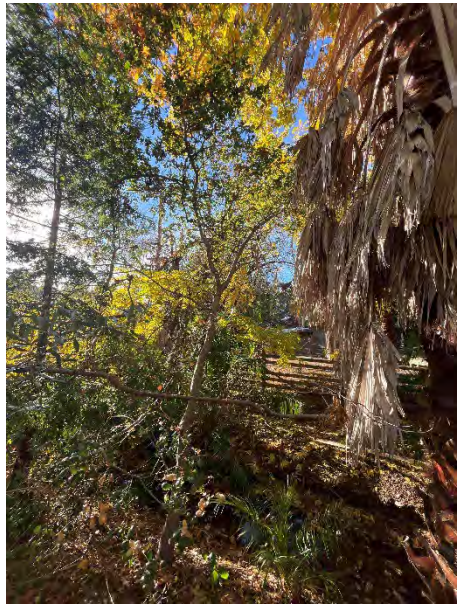

Tree 584

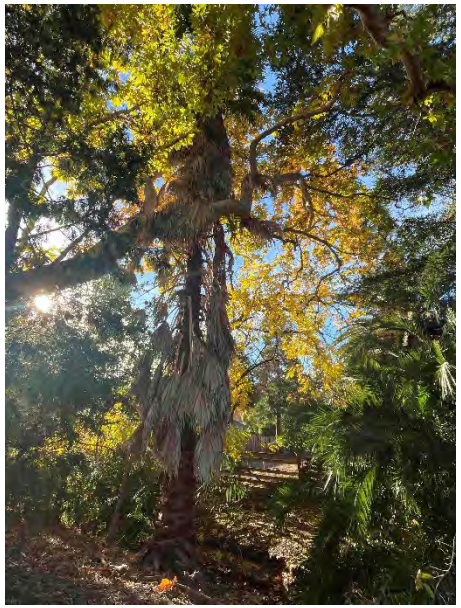

Tree 585

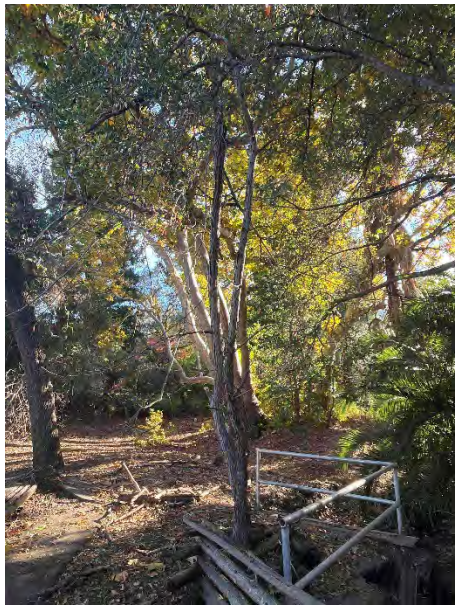
Tree 586

Tree 587


Tree 588


Tree 589


Tree 590


Tree 591

Tree 592

Tree 593

Tree 594

Tree 595

Tree 596

Tree

Tree 597

Tree 598

Tree 599

Tree 600

Tree 601

Tree 602

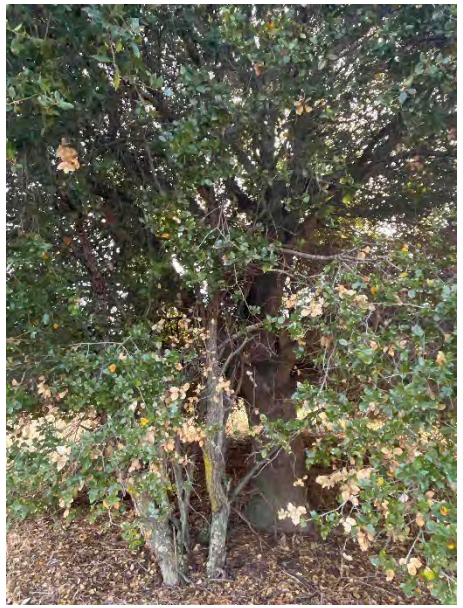
Tree 603

Tree 604

Tree 605

Tree 606

Tree 607


Tree 608

Tree 609

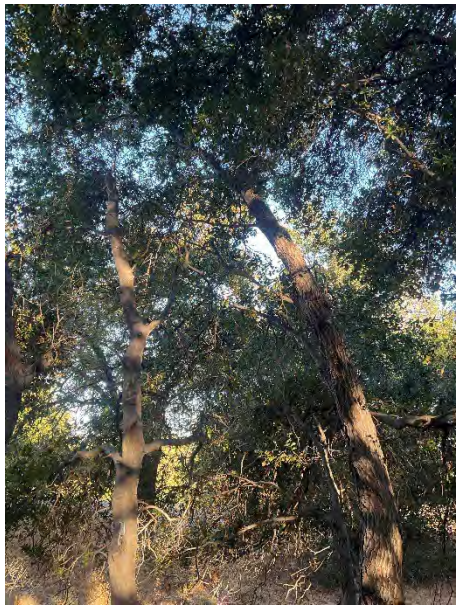
Tree 610

Tree 611

Tree 612

Tree 613

Tree 614

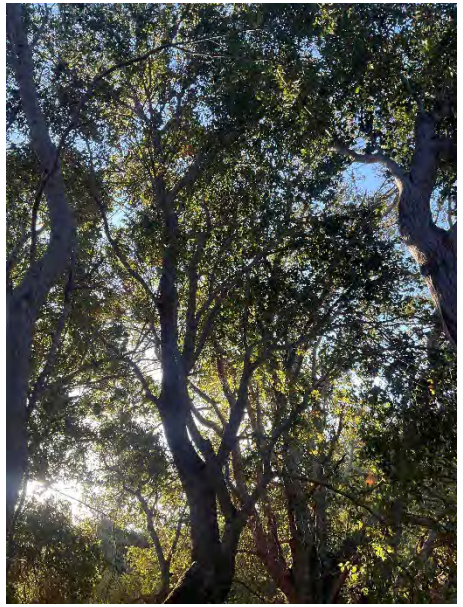

Tree 615

Tree 616

Tree 617

Tree 618

Tree 619


Tree 620

Tree 621

Tree 622

Tree 623

Tree 624

Tree 625

Tree 626

Tree 627

Tree 628

Tree 629

Tree 630

Tree 631

Tree 632

Tree 633

Tree 634

Tree 635

Tree 636

Tree 637

Tree 638

Tree 639

Tree 640

Tree 641

Tree 642

Tree 643

Tree 644

Tree 645

Tree 646

Tree 647

Tree 648

Tree 649

Tree 650

Tree 651

Tree 652

Tree 653

Tree 654

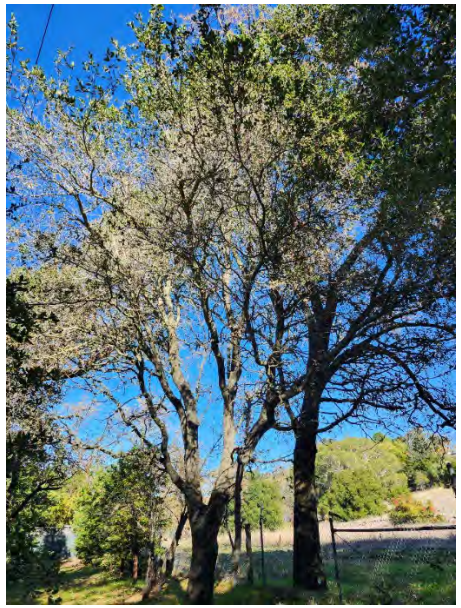
Tree 655

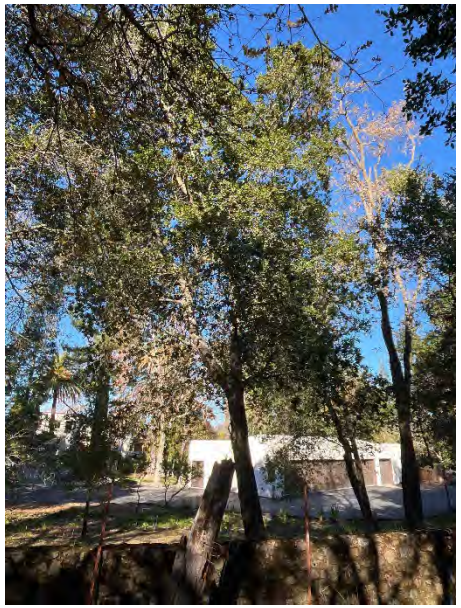
Tree 656

Tree 657

Tree 658

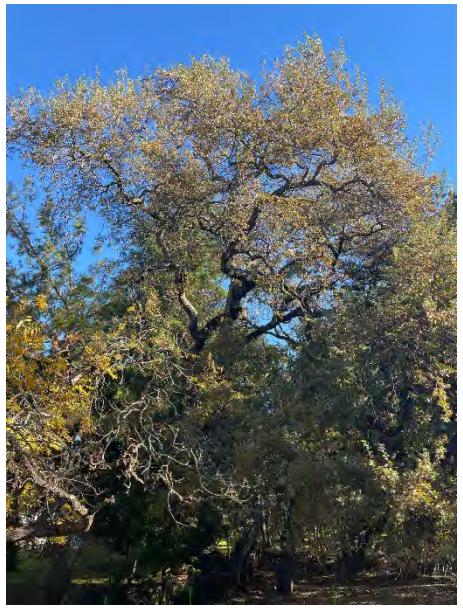
Tree 659

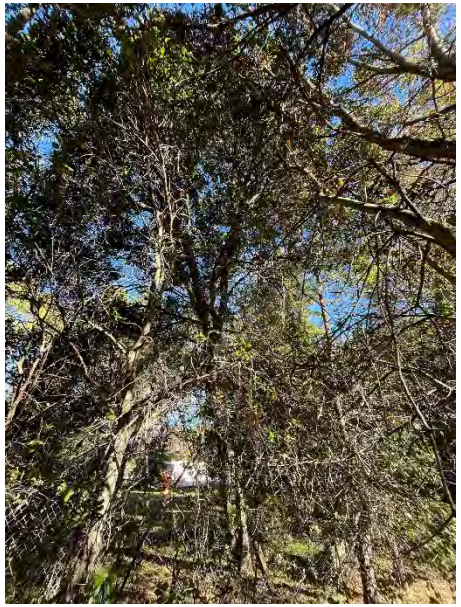

Tree 660


Tree 661

Tree 662

Tree 663


Tree 664


Tree 665

Tree 666

Tree 667

Tree 668

Tree 669

Tree 670

Tree 671

Tree 672

Tree 673

Tree 674

Tree 675

Tree 676

Tree 677

RECOMMENDED ACTIONS

The contractor should have a copy of this report on-site at all times of operation for the referral.
Specific tree recommendations are listed in the Summary Findings and the Inventory pages.

ADDITIONAL TREE PROTECTION SPECIFICATIONS

1. A 6” layer of coarse mulch or woodchips is to be placed beneath the dripline (TPZ Tree Protection Zone) of the protected trees. Mulch is to be kept 12” from the trunk.

2. A protective barrier of 6’ chain link fencing shall be installed around the dripline (TPZ) of the protected tree(s). The fencing can be moved within the dripline (TPZ) if authorized by the Project Arborist or City Arborist but not closer than 2’ from the trunk of any tree. Fence posts shall be 1.5” in diameter and are to be driven 2’ into the ground. The distance between posts shall not be more than 10’. This enclosed area is the Tree Protection Zone (TPZ). Tree Protection Fencing will be placed at the edge of the TPZ and no fencing shall be closer than the Critical Root Zone (CRZ). All Tree Protection Zones (TPZ) and Critical Root Zones (CRZ) distances are listed for each tree on the inventory.

3. Where trees have been established in a landscape and established near hardscapes, such as parking lot surfaces, walkways, and sidewalks. Tree protection fencing may be placed on the hardscape or just inside the hardscape as long as no wood parts are damaged. No fencing will be allowed within the CRZ listed distance. In areas where minimal protection is required orange plastic fencing mounted on “T” Bar placed at the perimeter of the TPZ will be required. At any time should the focus of work change the tree protection requirements will be reassessed and changed to be the most effective.

4. Tree protection fencing will not be allowed to damage the tree canopy or any of its parts.

5. Movable barriers of chain link fencing secured to cement blocks can be substituted for “fixed” fencing if the Project Arborist and City Arborist agree that the fencing will have to be moved to accommodate certain phases of construction. The builder may not move the fence without authorization from the Project Arborist or City Arborist.

6. Where the ***Town or Project Arborist*** has determined that tree protection fencing will interfere with the safety of work crews, Tree Wrap may be used as an alternative form of tree protection but. Wooden slats at least one inch thick is to be bound securely, edge-to-edge, around the trunk. A single layer or more of orange plastic construction fencing is to be wrapped and secured around the outside of the wooden slats. Major scaffold limbs may require protection as determined by the City Arborist or Project Arborist. Straw waddle may also be used as a trunk wrap by coiling the waddle around the trunk up to a minimum height of six feet from grade. A single layer or more of orange plastic construction fencing is to be wrapped and secured around the straw waddle.

ADDITIONAL TREE PROTECTION SPECIFICATIONS – Continued.

7. Avoid the following conditions. DO NOT:

a. Allow run off of spillage of damaging materials into the area below any tree canopy.
b. Store materials, stockpile soil, or park or drive vehicles within the TPZ.
c. Cut, break, skin, or bruise roots, branches, or trunks without first obtaining authorization from the Project/Town Arborist.
d. Allow fires or high heat under and adjacent to trees.
e. Discharge exhaust into the foliage.
f. Secure cable, chain, or rope to trees or shrubs.
g. Trench, dig, or otherwise excavate within the dripline or TPZ of the tree(s) without first obtaining authorization from the Project or Town Arborist.
h. Apply soil sterilants under pavement near existing trees.

8. Only excavation by hand or compressed air shall be allowed within the dripline (TPZ) of trees. Machine trenching shall not be allowed.

9. Avoid injury to tree roots. When a ditching machine, which is being used outside of the dripline (TPZ) of trees, encounters roots smaller than 2", the wall of the trench adjacent to the trees shall be hand-trimmed, making clear, clean cuts through the roots. All damaged, torn and cut roots shall be given a clean cut to remove ragged edges, which promote decay. Trenches shall be filled within 24 hours, but where this is not possible, the side of the trench adjacent to the trees shall be kept shaded with four layers of dampened, untreated burlap, wetted as frequently as necessary to keep the burlap wet. Roots 2" or larger, when encountered, shall be reported immediately to the Project Arborist, who will decide whether the Contractor may cut the root as mentioned above or shall excavate by hand or with compressed air under the root. The root is to be protected with a dampened burlap.

10. Route pipes outside of the area that is 10 times the diameter of a protected tree to avoid conflict with roots.

11. Where it is not possible to reroute pipes or trenches, the contractor shall bore beneath the dripline (TPZ) of the tree. The boring shall take place not less than 3' below the surface of the soil to avoid encountering "feeder" roots.

12. Trees that have been identified in the arborist's report as being in poor health and/or posing a health or safety risk, may be removed or pruned by more than one-third, subject to the approval of the required permit by the Sec. 29.10.0950 Town of Los Gatos. Pruning of existing limbs and roots shall only occur under the direction of the Town/Project Certified Arborist.

ADDITIONAL TREE PROTECTION SPECIFICATIONS – Continued.

13. Any damage due to construction activities shall be reported to the Project Arborist or Town Arborist within six hours so that remedial action can be taken.

14. Violation of any of the above provisions may result in sanctions or other disciplinary action.

MONTHLY INSPECTIONS

It is required that the site arborists provide periodic inspections during construction. Four-week intervals would be sufficient to access and monitor the effectiveness of the Tree Protection Plan and to provide recommendations for any additional care or treatment. An ISA Certified Arborist or ASCA Registered Consulting Arborist shall be retained as the Project Arborist to monitor the tree protection specifications. The Project Arborist shall be responsible for the preservation of the designated trees. Should the builder fail to follow the tree protection specifications, it shall be the responsibility of the Project Arborist to report the matter to the Town Arborist as an issue of non-compliance.

Trenching, Excavation and Equipment Use

Trenching, excavation or boring activity within the TPZ is restricted to the following activities, conditions, and requirements if approved by the Town or Project Arborist. Mitigating measures shall include prior notification to and direct supervision by the project arborist. Aftercare of trees that have had major roots (roots over 2”-inches in diameter) will be focused on rehydrating the tree and increasing nutrient uptake, wound sealing and the retention of photosynthetic tissue for the subsequent 5 seasons. During this period, each tree will be assessed separately.

Notification. The contractor shall notify the project arborist a minimum of 24 hours in advance of the activity in the TPZ.

Root Severance. Roots that are encountered shall be cut to sound wood and repaired. Roots LESS than 1”-inch in diameter may be severed without arborist supervision and staged at the tree for inspection by the arborist. Roots 1- inches and greater must remain injury-free.

Excavation. Any approved excavation, demolition or extraction of material shall be performed with equipment sitting outside the TPZ. Methods permitted are by hand digging; hydraulic or pneumatic air excavation technology. Avoid excavation within the TPZ during hot, dry weather. Low pressure (less than 100 PSI), hydro excavation is highly recommended in the tree protection zone (TPZ). Root preservation is the main focus of the TPZ.

If excavation or trenching for drainage, utilities, irrigation lines, etc., is required it is the duty of the contractor to tunnel under any roots 2-inches in diameter and greater.

Before excavation for foundation/footings/walls, grading or trenching within the TPZ, roots shall first be severed cleanly 1- foot outside the TPZ and to the depth of the future excavation. The trench must then be hand dug and roots pruned with a sharp saw, Sawzall, narrow trencher with sharp blades or other approved root pruning equipment.

Heavy Equipment. Use of backhoes, steel tread tractors or any heavy vehicles within the TPZ is prohibited unless approved by the Town Arborist. If allowed, a protective root buffer is required. The protective buffer shall consist of a base course of tree chips spread over the root area to a minimum of 6-inch depth, layered by 3/4-inch quarry gravel to stabilize 3/4-inch plywood on top. This buffer within the TPZ shall be maintained throughout the entire construction process.

ADDITIONAL TREE PROTECTION SPECIFICATIONS - Continued

Structural design. If an injurious activity or interference with roots greater than 2-inches will occur within the TPZ, plans shall specify a design of special foundation, footing, walls, concrete slab or pavement designs subject to Town Arborist approval. Discontinuous foundations such as concrete pier and structural grade beam must maintain natural grade (not to exceed a 4-inch cut), to minimize root loss and allow the tree to use the existing soil.

Alternative Base Course Materials

I'm recommending Cornell University CU-Structural Soil, Lyngso Essential Soil custom mixed with 1.5"-inch aggregate or equal for base rock substitute in the tree protection zone (TPZ) of all trees on areas requiring compaction. I believe that this will improve the growing conditions and help the trees to recover from this impact of construction. The desired compaction capabilities can be reached by adjusting the organic portions of the mix.

Irrigation

I suggest that irrigation be kept at the seasonal and species-specific rates that are established in the region. In circumstances where a tree has been or will be impacted by construction, the hydration levels in the tree should be proactively adjusted by months before the trees need. Soil analysis and laboratory recommendations should be implemented and trees continually monitored.

In establishing landscape irrigation amounts the Model Water Efficient Landscape Ordinance (MWELO) recommendations will be the guidelines for water use. In natural native settings, automated inline drip emitter irrigation will be established and maintained until the effects on construction development are no detectable. Inline emitter drip line will be placed to the outer 2/3rds of the Tree Protection Zone (TPZ) away from the stem or trunk.

GENERAL RECOMMENDATIONS

PROJECT ARBORIST

An ASCA/ISA Certified Arborist should be assigned to frequently inspect construction activities (a minimum of once per month is suggested) and continually provide findings and recommendations to sustain a reasonable assurance of tree survivability throughout the project.
Addition information and recommendations are available from McClintock Landscape Horticultural Services.

CONCLUDING REMARKS

All services recommended in this report should be performed under the supervision of an ASCA/ISA Certified Arborist per the standards established by the International Society of Arboriculture.

ASSUMPTIONS AND LIMITING CONDITIONS

1. All descriptions provided to the appraiser/consultant are assumed correct, and ownership/title are considered good and marketable. No responsibility is assumed for legal matters or title quality.
2. It is assumed the property complies with all applicable codes, ordinances, and regulations.
3. Information has been sourced from reliable channels and verified when possible. The appraiser/consultant cannot guarantee the accuracy of third-party data.
4. The appraiser/consultant is not required to testify or attend court unless prior arrangements and additional fees are agreed upon.
5. Loss or removal of any part of this report invalidates the entire appraisal.
6. Possession of this report does not imply publication or use rights without written consent from the appraiser/consultant.
7. This report and its contents are for the client's use only, and cannot be publicly shared or used for marketing without written approval.
8. The appraiser's/consultant's fee is independent of the final value or recommendations provided.
9. Visual aids (sketches, photos, etc.) are not to scale and should not be construed as engineering data.
10. This report follows accepted methods and standards from the International Society of Arboriculture.
11. The appraiser/consultant is not responsible for structural defects in trees not inspected by climbing or root collar excavation.

While trees vary in their responses to damage, previous experience indicates that any living organism works diligently to survive.
I believe the above information is accurate and best describes the likely outcome. As an ISA Certified Arborist practicing in the State of California, I state that the enclosed information is true and correct to the best of my ability.

Sincerely,

Michael Gladden

Michael Gladden
McClintock Landscape Horticultural Services
ISA Certified Arborist #WE-2205A

Warning

—Tree Protection Zone—

This fence shall not be removed and is subject to penalty according to Town Code 29.10.1025."

Advertencia

—Zona de Protección de Árboles—

Esta cerca no se retirará y está sujeta a penalización de acuerdo con el Código Municipal 29.10.1025.

IMAGE 2.15-1
Tree Protection Fence at the Dripline

IMAGE 2.15-2
Tree Protection Fence at the Dripline

- **Type I Tree Protection**

The fences shall enclose the entire area under the **canopy dripline or TPZ** of the tree(s) to be saved throughout the life of the project, or until final improvement work within the area is required, typically near the end of the project (*see Images 2.15-1 and 2.15-2*). Parking Areas: If the fencing must be located on paving or sidewalk that will not be demolished, the posts may be supported by an appropriate grade level concrete base.

APPENDIX E

~~VMT TECHNICAL MEMORANDUM~~ GEOTECHNICAL AND GEOLOGIC HAZARD INVESTIGATION

CORNERSTONE EARTH GROUP

TYPE OF SERVICES	Geotechnical and Geologic Hazard Investigation
PROJECT NAME	Twin Oaks Drive Subdivision
LOCATION	170 Twin Oaks Drive Los Gatos, California
CLIENT	JS California Development, LLC
PROJECT NUMBER	1530-1-1
DATE	October 1, 2024

CORNERSTONE EARTH GROUP

Type of Services	**Geotechnical & Geologic Hazard Investigation**
Project Name	**Twin Oaks Drive Subdivision**
Location	**170 Twin Oaks Drive** **Los Gatos, California**
Client	**JS California Development, LLC**
Client Address	**5303 Taft Drive** **San Jose, California**
Project Number	**1530-1-1**
Date	**October 1, 2024**

Prepared by

Bryan Cervantes Guzman
Senior Staff Engineer

Benjamin T. Moss, P.G.
Senior Staff Geologist

John R. Dye, P.E., G.E.
Senior Principal Engineer
Geotechnical Project Manager

1259 Oakmead Parkway | Sunnyvale, CA 94085
T 408 245 4600

3697 Mt. Diablo Boulevard, Suite 310 | Lafayette, CA 94549
T 925 988 9500

www.cornerstoneearth.com

CORNERSTONE EARTH GROUP

TABLE OF CONTENTS

SECTION 1: INTRODUCTION 1
1.1 Project Description 1
1.2 Scope of Services 2
1.3 Exploration Program 2
1.4 Laboratory Testing Program 2
1.5 Environmental Services 2
SECTION 2: REGIONAL SETTING 2
2.1 Geological Setting 2
2.1.1 Regional Geologic Setting 2
2.1.2 Local Geology 3
2.2 Regional Seismicity 4
Table 1: Approximate Fault Distances 4
SECTION 3: SITE CONDITIONS 4
3.1 Site Background 4
3.2 Surface Description 5
3.3 Subsurface Conditions 5
3.2.3 Plasticity/Expansion Potential 6
3.2.4 In-Situ Moisture Contents 7
3.4 Groundwater 7
SECTION 4: GEOLOGIC HAZARDS 7
4.1 Fault Surface Rupture 7
4.2 Estimated Ground Shaking 7
4.3 Liquefaction Potential 7
4.4 Lateral Spreading 8
4.5 Seismic Settlement/Unsaturated Sand Shaking 8
4.6 Landsliding 8
4.7 Tsunami/seiche 9
4.8 Flooding 10
SECTION 5: CONCLUSIONS 10
5.1 Summary 10
5.1.1 Differential Movement Due to Cut/Fill Transition Zones 10
5.1.2 Slope Stability 11
5.1.3 Presence of Undocumented Fill 11
5.1.4 Shallow Bedrock and Very Dense Soils 11
5.1.5 Presence of Moderately Expansive Soils 12
5.2 Plans and Specifications Review 12
5.3 Construction Observation and Testing 12
SECTION 6: EARTHWORK 13
6.1 Site Demolition 13

6.2 Site Clearing and Preparation----13
6.2.1 Site Stripping 13
6.2.2 Tree and Shrub Removal....13
6.3 Mitigation of Undocumented Fills/Loose Soils ----13
6.4 Cut/Fill Transition Over-Excavation----14
6.5 Temporary Cut and Fill Slopes ----14
6.6 Subgrade Preparation----14
6.7 Wet Soil Stabilization Guidelines----15
6.7.1 Scarification and Drying....15
6.7.2 Removal and Replacement 15
6.7.3 Chemical Treatment 15
6.8 Material for Fill ----15
6.8.1 Re-Use of On-site Soils 15
6.8.2 Potential Import Sources 16
6.9 Compaction Requirements ----16
6.9.1 Construction Moisture Conditioning....16
Table 2: Compaction Requirements....17
6.10 Trench Backfill ----17
6.11 Permanent Cut and Fill Slopes ----18
6.11.1 Keyways and Benches 18
6.11.2 Fill Drainage....18
6.11.3 Plan Review and Construction Monitoring....19
6.12 Site Drainage----19
6.12.1 Surface Drainage....19
6.12.2 Subsurface Drainage 20
6.13 Low-Impact Development (LID) Improvements----20
6.13.1 Storm Water Treatment Design Considerations 21
6.14 Permanent Erosion Control Measures----22
6.15 Landscape Considerations ----23
SECTION 7: 2022 CBC SEISMIC DESIGN CRITERIA 23
7.1 Seismic Design Criteria----23
Table 3: CBC Site Categorization and Site Coefficients 24
SECTION 8: FOUNDATIONS 24
8.1 Summary of Recommendations----24
8.2 Post-Tensioned Mats----24
Table 4: Post-Tensioned Mat Design Criteria 24
8.2.1 Mat Foundation Settlement....25
8.2.2 Lateral Loading 25
8.2.3 Mat Foundation Construction Considerations....25
8.2.4 Moisture Protection Considerations for Mat Foundations....25
8.3 Drilled Piers----26
8.3.1 Vertical and Lateral Capacity....26
Table 5: Summary of Drilled Pier Design Criteria....27
8.3.2 Drilled Pier Settlement 27
8.3.3 Passive Resistance against Pier Caps and Grade Beams....27

8.3.4 Construction Considerations....28
SECTION 9: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS....28
9.1 Interior Slabs-on-Grade----28
9.2 Interior Slabs Moisture Protection Considerations----28
9.3 Exterior Flatwork ----29
9.3.1 Pedestrian Concrete Flatwork 29
9.3.2 Pedestrian Pavers 30
SECTION 10: VEHICULAR PAVEMENTS....30
10.1 Asphalt Concrete----30
Table 6: Preliminary Asphalt Concrete Pavement Recommendations....30
10.2 Portland Cement Concrete ----31
Table 7: PCC Pavement Recommendations....31
10.3 Pavement Cutoff----31
SECTION 11: RETAINING WALLS....31
11.1 Static Lateral Earth Pressures ----31
Table 8: Recommended Lateral Earth Pressures 32
11.2 Seismic Lateral Earth Pressures ----32
11.2.1 Cantilevered Site Walls....32
11.2.2 Restrained Foundation Walls....32
11.3 Wall Drainage ----33
11.4 Backfill ----33
11.5 Foundations ----34
11.6 Segmented Walls ----34
Table 9: Recommended Soil Parameters – Segmented Walls 34
SECTION 12: LIMITATIONS....34
SECTION 13: REFERENCES....35

FIGURE 1: VICINITY MAP
FIGURE 2: SITE PLAN AND GEOLOGIC MAP
FIGURE 3: REGIONAL GEOLOGIC MAP
FIGURE 4: REGIONAL FAULT MAP
FIGURE 5: VICINITY FAULT HAZARD RUPTURE ZONES
FIGURE 6: SEISMIC HAZARD MAP
FIGURE 7: SLOPE STABILITY HAZARD MAP
FIGURE 8: GENERALIZED CROSS-SECTIONS 1, 2, 3
FIGURE 9: GRADING AND MITIGATION DETAILS

APPENDIX A: FIELD INVESTIGATION
APPENDIX B: LABORATORY TEST PROGRAM

CORNERSTONE EARTH GROUP

Type of Services	**Geotechnical & Geologic Hazard Investigation**
Project Name	**Twin Oaks Drive Subdivision**
Location	**170 Twin Oaks Drive** **Los Gatos, California**

SECTION 1: INTRODUCTION

This geotechnical and geologic hazard investigation report was prepared for the sole use of JS California Development, LLC for the Twin Oaks Subdivision in Los Gatos, California. The location of the site is shown on the Vicinity Map, Figure 1. For our use, we were provided with the following documents:

- A preliminary grading and drainage plan titled, "Surrey Farm Estates, Twin Oaks Drive, Los Gatos, CA" prepared by HMH Engineers dated May 31, 2024.
- A preliminary architectural illustrative site plan titled, "Surrey Farms, Los Gatos, CA" prepared by Platform dated "SB 330 Final Application Submittal – June 1, 2024".

1.1 PROJECT DESCRIPTION

The project consists of subdividing the existing site into 12 single-family residential lots. The planned lot sizes will range from about ½ to 5 ½ acres. The residential structures will likely be two-story and be of wood-frame construction. A main paved cul-de-sac will be built entering from Twin Oaks Drive. A separate driveway will be provided for one residential lot from Cerro Vista Court further up the hill. The riparian corridor located onsite will be left in place. Appurtenant parking and residential streets, utilities, and other improvements necessary for site development are also planned. Bioretention areas will be constructed near each lot to address stormwater runoff.

Structural loads are not currently known for the proposed structures; however, structural loads are expected to be typical of similar residential structures. Preliminary grading plans prepared by HMH dated May 31, 2024, indicate minor to moderate cuts and fills ranging up to 15 feet. Hillside grading and construction will likely be needed to create the planned level pads. Numerous tiered retaining walls are also planned to create level lots where feasible, with a maximum wall height of 5 feet for each tier.

1.2 SCOPE OF SERVICES

Our scope of services was presented in our proposal dated August 12, 2024, and consisted of a geologic reconnaissance, field and laboratory programs to evaluate physical and engineering properties of the subsurface soils, engineering analysis to prepare recommendations for site work and mass grading, building foundations, flatwork, retaining walls, and pavements, and preparation of this report. Brief descriptions of our exploration and laboratory programs are presented below.

1.3 EXPLORATION PROGRAM

Field exploration consisted of six borings drilled on August 29, 2024, with truck-mounted, hollow-stem auger drilling equipment. The borings were drilled to depths ranging from 10 to 20 feet. The borings were backfilled with cement grout in accordance with Valley Water requirements; exploration permits were not required as the exploration depths were shallower than 45 feet per Valley Water guidelines.

As a supplement to our drilling program, six test pits were excavated by tracked excavator to depths of 4½ to 5¼ feet. The pits were loosely backfilled and the loose fills will need to be re-worked during site grading unless the pits are outside the limits of sensitive improvements.

The approximate locations of our exploratory borings are shown on the Site Plan and Geologic Map, Figure 2. Details regarding our field program are included in Appendix A.

1.4 LABORATORY TESTING PROGRAM

In addition to visual classification of samples, the laboratory program focused on obtaining data for foundation design and grading recommendations. Testing included moisture contents, dry densities, washed sieve analyses, Plasticity Index tests, and triaxial compression tests. Details regarding our laboratory program are included in Appendix B.

1.5 ENVIRONMENTAL SERVICES

Environmental services were not requested for this project. If environmental concerns are determined to be present during future evaluations, the project environmental consultant should review our geotechnical recommendations for compatibility with the environmental concerns.

SECTION 2: REGIONAL SETTING

2.1 GEOLOGICAL SETTING

2.1.1 Regional Geologic Setting

The site is located on the northeast flank of the Santa Cruz Mountains, within the Coast Ranges geomorphic province of California, that stretches from the Oregon border nearly to Point Conception. In the San Francisco Bay area, most of the Coast Ranges has developed on a basement of tectonically mixed Cretaceous- and Jurassic-age (70- to 200-million years old) rocks of the Franciscan Complex. Younger sedimentary and volcanic units locally cap these

basement rocks. Still younger surficial deposits that reflect geologic conditions of the last million years or so cover most of the Coast Ranges.

Movement on the many splays of the San Andreas Fault system has produced the dominant northwest-oriented structural and topographic trend seen throughout the Coast Ranges today. This trend reflects the boundary between two of the Earth's major tectonic plates: the North American plate to the east and the Pacific plate to the west. The San Andreas Fault system extends from the San Gregorio Fault near the coastline to the Coast Ranges-Central Valley blind thrust at the western edge of the Great Central Valley, as shown on the Regional Fault Map, Figure 3. The San Andreas Fault is the dominant structure in the system, nearly spanning the length of California, and capable of producing the highest magnitude earthquakes. Many other subparallel or branch faults within the San Andreas system are equally active and nearly as capable of generating large earthquakes. Right-lateral movement dominates on these faults but an increasingly large amount of thrust faulting resulting from compression across the system is now being identified also.

Bedrock exposed in the Los Gatos Quadrangle is characterized by two basement assemblages that have been juxtaposed by the San Andreas Fault (McLaughlin and others, 2001). Southwest of the San Andreas Fault is the Salinian Terrane, a basement assemblage of granitic to gabbroic intrusive rocks with roof pendants of high-temperature metamorphic rocks. Northeast of the San Andreas Fault is a composite Mesozoic basement assemblage consisting of the Franciscan Complex, the Coast Range Ophiolite, and the Great Valley Sequence. McLaughlin et al. (2001) further subdivides bedrock sequences in the area into individual fault-bound bedrock structural blocks based on contrasting stratigraphic sequences and geologic histories of the basement assemblages and overlying Tertiary rocks. McLaughlin and others (2001) suggest that these faults are attenuation faults that developed within the older Coast Range Fault system during uplift and unroofing of the underlying Franciscan Complex. These bounding faults, which include the Aldercroft, Soda Springs and Sierra Azul faults, partially extend into the interior of the Sierra Azul Block as well as into the adjacent New Almaden Block.

2.1.2 Local Geology

The site is in an area within the south bay region where Quaternary age alluvium shed from the Santa Cruz Mountains on the south and has created a gentle, southwest-sloping alluvial plain adjacent to the southern portion of the bay. Interfluvial basin deposits of Holocene age (last 11,000 years) and Pleistocene age (11,000 to 2 million years before present), consisting of coalescing alluvial fans and fluvial terraces, are mapped throughout this area. Published regional scale geologic maps covering the general area of the site include those of; Bailey and Everhart (1964); Dibblee (1978); McLaughlin et al. (1991); Wentworth et al, (1999); Knudsen et al. (2000); McLaughlin et al., (2001); Helley et al. (2004); the California Geological Survey (“CGS”, 2002); and The Dibblee Foundation (2005). A more local scale (1” = 200’) was compiled by Nolan and Associates as part of the Town of Los Gatos General Plan Update (Nolan and Associates, 1999).

The CGS indicates the lowest elevation ground surface that comprises the western portion of the site is underlain by Late Pleistocene alluvial fan deposits (Qpf) the Nolan & Associates map generally agree with CGS but use a slightly different name and description of Pleistocene alluvial fan deposits (Qfo). Our interpretation is that the nearly flat lying portion of the site

(which comprises western portion the site is underlain in the shallow subsurface by alluvial deposits (Qpf) and the sloping side of the site (on east) is underlain by the Santa Clara Formation (QTsc), Monterey Shale Formation (Tms), and an unnamed sandstone (Tus) as shown on Figure 3, Vicinity Geologic Map.

2.2 REGIONAL SEISMICITY

While seismologists cannot predict earthquake events, geologists from the U.S. Geological Survey have recently updated (in 2015) earlier estimates from their 2014 Uniform California Earthquake Rupture Forecast (Version 3; UCERF3) publication. The estimated probability of one or more magnitude 6.7 earthquakes (the size of the destructive 1994 Northridge earthquake) expected to occur somewhere in the San Francisco Bay Area has been revised (increased) to 72 percent for the period 2014 to 2043 (Aagaard et al., 2016). The faults in the region with the highest estimated probability of generating damaging earthquakes between 2014 and 2043 are the Hayward (33%), Calaveras (26%), and San Andreas Faults (22%). In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 22 percent along the San Andreas Fault and 33 percent for the Hayward Fault.

The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The table below presents the State-considered active faults within 25 kilometers of the site.

Table 1: Approximate Fault Distances

Fault Name	Distance	
	(miles)	(kilometers)
Monte Vista-Shannon	0.06	0.1
San Andreas (1906)	3.1	5.0
Sargent	4.8	7.8
Zayante-Vergeles	9.5	15.3
Hayward (Southeast Extension)	12.6	20.3

A regional fault map is presented as Figure 4, illustrating the relative distances of the site to significant fault zones.

SECTION 3: SITE CONDITIONS

3.1 SITE BACKGROUND

The nearly rectangular parcel is situated in a residential neighborhood. To access the site, an easement runs parallel to and north of the driveway at 170 Twin Oaks Boulevard. The western portion of the site is generally flat laying, but the eastern portion of the site is on a hillside that is bisected by an ephemeral drainage channel. Aerial photos were reviewed spanning a period from 1948 to 2024. In the 1948 photo, the residence to the north had already been constructed, and the surrounding land was undeveloped. By 1968, many of the residences in the surrounding neighborhood had been constructed. The current residence at 170 Twin Oaks and the horse

corral was built by 1980. Photos taken after 1980 indicate the site has remained essentially unchanged since that time.

3.2 SURFACE DESCRIPTION

The site consists of mainly undeveloped open space. The western end of the site consists of flatter terrain with some rolling/sloping grade. The easement leading into the site off Twin Oaks Drive consists of a paved asphalt driveway with landscaping consisting of grass, shrubs, and several large trees. An accessory dwelling unit (ADU) is located adjacent to the main residence of 170 Twin Oaks Drive. Behind the main residence, further into the site past the easement, the site opens up to an existing corral. The corral was not in use at the time of our exploration. The existing surface of the corral appeared as loose, dry clay chunks from recent tilling operations. Past the corral structure, the site consists of open hillside space. Hillside grades are moderately steep and get steeper farther up the hill. A trail or path appears to have been cut into the hillside. Multiple fire break lines were tilled along the edges of the property. A riparian corridor consisting of denser greenery and a seasonal drainage channel was observed trending in approximately a north-south direction. The corridor limits are generally outlined on the preliminary grading plan provided by the project civil engineer.

Site grades along the western edge of the site (flatter, less steep portion) range from approximately Elevation 420 to 425 feet (Datum unknown) to approximately Elevation 410 to 425 feet on the northern/western section of the site. Hillside grades vary widely from approximately Elevation 425 to 435 feet elevation along the toe of the hill and rise about Elevation 495 feet for the southern knob and up to about Elevation 645 feet near the crest of the hill located in the east/southeast section of the site.

Slopes for the hillside vary widely from approximately 8:1 (Horizontal:Vertical) to 2:1 (Horizontal:Vertical). The steeper slopes are present further up the hill. The proposed grading for the drive aisle will likely consist of cut and fills near or slightly into the hillside near the toe of the hill. Most of the drive aisle will likely be open cut/fill grading with fills needing to be keyed and benched into the sloping terrain. Grading for residential pads on the west side of the proposed cul-de-sac appear to primarily consist of fill pads while lots to the east appear to consist of large cuts into the hillside. We anticipate that restrained foundation retaining walls might be needed for split cut lots.

3.3 SUBSURFACE CONDITIONS

Our exploratory borings generally encountered older, stiffer alluvial soils in the lower, flatter portions of the site to the maximum depth explored. Some explorations encountered artificial fill or stream terrace deposits laid on top of the older alluvial soils. The alluvial soils appear to be underlain by Santa Clara Formation as well. Our test pit explorations on the hillside encountered colluvial soils over sandstone bedrock or very dense Santa Clara Formation materials. A more detailed description of the subsurface conditions is presented in the following sections.

3.2.1 Alluvium Soils, Stream Terrace Deposits, Undocumented Fills

Below the surface grades, our exploratory borings generally encountered approximately 10 to 20 feet of older, Pleistocene-aged, alluvial soils. Some exploratory borings encountered undocumented fill or stream terrace deposits laid over the older, stiffer alluvial soils. The undocumented fill was mainly encountered in the former corral area and consisted of about 3 feet of dense clayey sand with gravel in Boring EB-4 and about 2½ feet of hard sandy lean clay in Boring EB-6. Additional loose fill was also observed onsite that consisted of tilled soils from creating fire break lines. These tilled soils are likely 1-foot-thick or less.

Stream terrace deposits consisting of dense silty, clayey sands were observed in Borings EB-1, EB-2, EB-3, and EB-5, ranging from about 2 to 4 feet in thickness. Below the artificial fill and stream terrace deposits, the Pleistocene-aged alluvial soils consisted of hard, lean clay with sand to hard, sandy lean clay to depths ranging from about 5 to 15 feet depth. Below this clayey layer, a granular layer consisting medium dense to very dense clayey sand with gravel was encountered to depths ranging from about 14½ to 17 feet depth. This granular layer represents the Santa Clara Formation that is mapped locally. Boring EB-1 encountered another interbedded layer of sandy lean clay followed by dense clayey sand with gravel to a depth of 20 feet, the maximum feet explored.

3.2.2 Hillside Soils and Bedrock

Our test pits generally encountered hillside soil consisting of either colluvium or stream terrace deposits overlying relatively shallow bedrock or Santa Clara Formation. The colluvium consisted of medium dense silty sand with some gravel. Colluvium thickness varied between 1 to 2 feet in thickness at each test pit location. Where encountered, observed stream terrace deposits consisted of a hard sandy lean clay to dense clayey sand and ranged between about 1- to 3-feet-thick. Below the colluvium and stream terrace deposits, test pits TP-1 to TP-4 encountered very dense Santa Clara Formation consisting of clayey sand to clayey sand with gravel. Test pits TP-5 and TP-6 encountered sandstone bedrock that was observed to be friable, weak and of low-hardness. We could not perform a test pit in the riparian corridor due to steep site slopes, but we anticipate a thicker layer of colluvium is present within the riparian corridor that is about 5-feet-thick or thicker.

A more detailed description of the subsurface conditions is presented on the boring logs in Appendix A. Generalized cross sections through some of the proposed residential lots are presented graphically in Figure 8.

3.2.3 Plasticity/Expansion Potential

We performed three Plasticity Index (PI) tests on representative samples. Test results were used to evaluate expansion potential of surficial soils. The results of the surficial PI tests indicated PIs ranging from 16 to 21, indicating low to moderate expansion potential to wetting and drying cycles.

3.2.4 In-Situ Moisture Contents

Laboratory testing indicated that the in-situ moisture contents within the upper 15 feet of our exploratory borings range from 2 percent under to 6 percent over the estimated laboratory optimum moisture.

3.4 GROUNDWATER

Groundwater was encountered in Boring EB-3 at a depth of approximately 13 feet below surface grades. The remaining exploratory borings did not encounter groundwater. All measurements were taken at the time of drilling and may not represent the stabilized levels that can be higher than the initial levels encountered.

The historic groundwater levels in the immediate vicinity (as compiled by the CGS, 2001) have been approximately 20 feet below the valley bottom (ground surface). At an adjacent site, Hillbrook School, one boring encountered groundwater at 8 feet depth, but was deemed to be perched.

Based on the above, we consider the groundwater encountered at a depth of 13 feet to also be perched but should be considered as design groundwater level for planning purposes. Fluctuations in groundwater levels occur due to many factors including seasonal fluctuation, underground drainage patterns, regional fluctuations, and other factors.

SECTION 4: GEOLOGIC HAZARDS

4.1 FAULT SURFACE RUPTURE

As discussed above several significant faults are located within 25 kilometers of the site. The site is not located within a State-designated Alquist Priolo Earthquake Fault Zone, or a Santa Clara County Fault Hazard Zone. As shown in Figure 4, Regional Fault Map, no known surface expression of fault traces is thought to cross the site; therefore, fault surface rupture hazard is not a significant geologic hazard at the site. In addition, as shown in Figure 5, Vicinity Fault Hazard Rupture Zones, mapping for the Town of Los Gatos by Nolan Associates indicates the project site is located in a zone designated as having a “low” fault rupture hazard potential and considered outside recognized fault zones.

4.2 ESTIMATED GROUND SHAKING

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. A peak ground acceleration (PGA) was estimated for analysis using a value equal to F_{PGA}*PGA, as allowed in the 2022 edition of the California Building Code when an exception has been taken per ASCE 7-16, Section 11.4.8. For our analysis we used a PGA_M of 1.26g.

4.3 LIQUEFACTION POTENTIAL

The site is not located within a State-designated Liquefaction Hazard Zone (CGS, Los Gatos Quadrangle, 2002) or a Santa Clara County Liquefaction Hazard Zone (Santa Clara County,

2002). However, we screened the site for liquefaction during our site exploration by retrieving samples from the site, performing visual classification on sampled materials, and performing various tests to further classify the soil properties.

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998). Limited field and laboratory data is available regarding ground deformation due to settlement; however, in clean sand layers settlement on the order of 2 to 3 percent of the liquefied layer thickness can occur. Soils most susceptible to liquefaction are loose, non-cohesive soils that are saturated and are bedded with poor drainage, such as sand and silt layers bedded with a cohesive cap.

As discussed in the "Subsurface" section above, we primarily encountered stiff cohesive and dense granular soils underlain by bedrock. In addition, the design groundwater level is anticipated to be below any granular soils. Based on the above, our screening of the site for liquefaction indicates a low potential for liquefaction.

4.4 LATERAL SPREADING

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. As failure tends to propagate as block failures, it is difficult to analyze and estimate where the first tension crack will form.

The current ephemeral drainage channel bisects the proposed site. The channel bottom is approximately ½ to 1 feet below adjacent grades. Therefore, in our opinion, the potential for lateral spreading to impact the project is relatively low provided reasonable setbacks are established for the development.

4.5 SEISMIC SETTLEMENT/UNSATURATED SAND SHAKING

Loose unsaturated sandy soils can settle during strong seismic shaking. As the soils encountered at the site were predominantly stiff to very stiff clays and medium dense to dense sands, in our opinion, the potential for significant differential seismic settlement affecting the proposed improvements is low.

4.6 LANDSLIDING

The proposed development is located on a moderately sloping to flat parcel within a hillside setting with grades sloping generally down from the east to the west. The site has been evaluated by the CGS as part of their landslide hazard zone mapping program and all or a portion of the site lies within a landslide hazard area. Additionally, the USGS (1997) conducted relative landslide mapping of many quadrangles within the San Francisco Bay Area. Their evaluation determined that there were "Many Landslides" in the area containing the project site.

Hazard mapping by Santa Clara County (2002) indicates the eastern half of the site is within a county landslide hazard zone.

During the excavation of test pits TP-1 to TP-6, we did not observe evidence of either shallow or deep-seated landslide deposits. Most active landslides have been observed to the south as shown on Figure 6 as well as on the State of California Landslide Inventory (CGS).

As shown on Figure 7, geologic mapping for the Town of Los Gatos by Nolan and Associates (Nolan and Associates, 1999) does not show the project site to be within an area of active landslide hazard. Additionally, we did not observe any field features during our site reconnaissance indicative of slope failure and instability. It is our opinion that the underlying slopes are relatively stable and therefore the landslide hazard is considered low to moderate. Our experience in Santa Clara County indicates that most slopes steeper than 3:1 (horizontal:vertical) may experience some soil creep or localized shallow soil movement within colluvial soils that mantle the hillsides during periods of heavy rainfall. Further discussion of recommended hillside grading requirements is presented in the "Conclusions" section of this report.

4.7 TSUNAMI/SEICHE

The terms tsunami or seiche are described as ocean waves or similar waves usually created by undersea fault movement or by a coastal or submerged landslide. Tsunamis may be generated at great distance from shore (far field events) or nearby (near field events). Waves are formed, as the displaced water moves to regain equilibrium, and radiates across the open water, similar to ripples from a rock being thrown into a pond. When the waveform reaches the coastline, it quickly raises the water level, with water velocities as high as 15 to 20 knots. The water mass, as well as vessels, vehicles, or other objects in its path create tremendous forces as they impact coastal structures.

Tsunamis have affected the coastline along the Pacific Northwest during historic times. The Fort Point tide gauge in San Francisco recorded approximately 21 tsunamis between 1854 and 1964. The 1964 Alaska earthquake generated a recorded wave height of 7.4 feet and drowned eleven people in Crescent City, California. For the case of a far-field event, the Bay area would have hours of warning; for a near field event, there may be only a few minutes of warning, if any.

A tsunami or seiche originating in the Pacific Ocean would lose much of its energy passing through San Francisco Bay. Based on the mapping of tsunami inundation potential for the San Francisco Bay Area by CGS (conservation.ca.gov/cgs/tsunami/maps), areas most likely to be inundated are marshlands, tidal flats, and former bay margin lands that are now artificially filled, but are still at or below sea level, and are generally within 1½ miles of the shoreline. The site is approximately 13½ miles inland from the San Francisco Bay shoreline and is approximately 410 feet to 645 feet above mean sea level (based on preliminary grading and drainage plan). Therefore, the potential for inundation due to tsunami or seiche is considered to be low.

4.8 FLOODING

Based on our internet search of the Federal Emergency Management Agency (FEMA) flood map public database, the site is located within Zone X 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile. We recommend the project civil engineer be retained to confirm this information and verify the base flood elevation, if appropriate.

The Department of Water Resources (DWR), Division of Safety of Dams (DSOD) compiled a database of Dam Failure Inundation Hazard Maps (DSOD, 2015). The generalized hazard maps were prepared by dam owners as required by the State Office of Emergency Services; they are intended for planning purposes only. Based on our review of these maps, the site is not located within a dam failure inundation area.

SECTION 5: CONCLUSIONS

5.1 SUMMARY

From a geotechnical viewpoint, the project is feasible provided the concerns listed below are addressed in the project design. Descriptions of each concern with brief outlines of our recommendations follow the listed concerns.

- Differential movement due to cut/fill transition zones
- Potential for slope instability of graded slopes
- Presence of undocumented fill
- Presence of shallow bedrock and dense soils
- Presence of moderately expansive surficial soils

5.1.1 Differential Movement Due to Cut/Fill Transition Zones

Material transitions occur when two or more materials with differing geotechnical characteristics interface in a small area, such as within a single residential lot or pavement area. The materials that comprise these transitions can include bedrock, surficial soils, or engineered fill. Because the geotechnical characteristics of the materials are different, the long-term performance of the materials will also be different.

For instance, even well compacted fill materials are typically more compressible than bedrock materials, and as a result, will usually experience a greater amount of settlement under various loading conditions. The differences in the amount of settlement or expansion between fill and bedrock materials can cause distress to residential foundations and other site improvements. Such distress will often either add to the long-term maintenance costs or reduce the design life of the structure.

Based on our review of the preliminary grading plans, the planned residential lots will require cuts and fills to grade level or tiered building pads. If shallow foundations are preferred, cut/fill and material transitions should be over-excavated and rebuilt with engineered fill to reduce the potential for differential movement beneath structures. Otherwise, structures can be supported

on drilled, cast-in-place friction piers that derive support from underlying bedrock materials. Recommendations addressing these concerns are presented in the "Earthwork" and "Foundation" sections of this report.

5.1.2 Slope Stability

Due to the existing moderate to steep slopes, new fill placed for the planned structures and streets on existing inclined slopes will need to be adequately keyed and benched into the existing hillside to mitigate the potential for slope instability. Recommendations addressing this concern are presented in the following sections. Additional items that will need to be address in the project design and construction include the following:

- ✓ Retaining walls that abut existing natural slopes should be designed with adequate free-board and surface drainage to collect surface water runoff and to prevent minor seasonal erosion over new retaining walls.
- ✓ Aggressive erosion control should be used for all graded cut or fill slopes.
- ✓ Cut and fill slopes should not exceed 2:1 (horizontal:vertical) inclination.
- ✓ Subsurface drainage improvements, such as subdrains and/or trench drains, will be required for all new fills and at the upslope side of the structures to reduce the potential for slope instability and to direct subsurface water away from structures to suitable discharge locations.

Due to the steep hillside conditions, new residential structures on the east side of the new cul-de-sac should be supported by deep foundations that are adequately embedded into the underlying bedrock. Depending on the type of retaining walls considered for the project, some walls supporting fill could possibly be supported on shallow footings provided the fills are adequately keyed and benched into the hillside. Detailed recommendations are presented in the following sections of this report.

5.1.3 Presence of Undocumented Fill

As discussed above, approximately 2½ to 3 feet of undocumented fill was encountered in Borings EB-4 and EB-5 near the southwestern section of site (former corral area). These fills might have been placed from prior grading operations for the horse corral. The presence of these fills within future residential pads or drive aisles could cause differential settlement due to the variable nature and consistency of undocumented fills. Therefore, we recommend undocumented fills be over-excavated and re-compacted within planned residential lots prior to placing new engineered fill. Provided undocumented fills are mitigated by re-compaction as engineered fill, the potential impact due to undocumented fill should be low. Additional recommendations are presented in the "Earthwork" section below.

5.1.4 Shallow Bedrock and Very Dense Soils

As discussed, shallow bedrock or very dense formation soils (Santa Clara Formation) will be encountered during building pad grading on the hillside and also during utility trench

excavations in cut areas. Materials encountered in the recent test pits indicate conventional construction equipment should be capable of ripping and excavating the upper 5 feet of bedrock and formation soils. There is a possibility to encounter larger cobbles in the Santa Clara Formation during grading. If fresh, competent bedrock is encountered below these depths, or in areas where resistant sandstone beds outcrop near the surface, then excavation with conventional grading equipment may be difficult. Our experience in the vicinity indicates that these resistant sandstone beds may require ripping with larger equipment. Hydraulic jacking may be necessary if hard rock areas are not rippable using conventional grading equipment. Drilled piers in deeper bedrock may require rock augers or coring barrel equipment to complete some piers. Recommendations for bedrock excavation and further discussion of rippability and reuse of materials are presented in the “Earthwork" section of this report.

5.1.5 Presence of Moderately Expansive Soils

Moderately expansive surficial soils generally blanket the site. Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wetted. To reduce the potential for damage to the planned structures, slabs-on-grade should have sufficient reinforcement and be supported on a layer of non-expansive fill; footings should extend below the zone of seasonal moisture fluctuation. In addition, it is important to limit moisture changes in the surficial soils by using positive drainage away from buildings as well as limiting landscaping watering. Evaluation of potential import sources for the site should consider the acceptable range of plasticity, especially in the upper 3 to 5 feet of fill. Detailed grading and foundation recommendations addressing this concern are presented in the following sections.

5.2 PLANS AND SPECIFICATIONS REVIEW

We recommend that we be retained to review the geotechnical aspects of the project structural, civil, and landscape plans and specifications, allowing sufficient time to provide the design team with any comments prior to issuing the plans for construction.

5.3 CONSTRUCTION OBSERVATION AND TESTING

As site conditions may vary significantly between the small-diameter borings performed during this investigation, we also recommend that a Cornerstone representative be present to provide geotechnical observation and testing during earthwork and foundation construction. This will allow us to form an opinion and prepare a letter at the end of construction regarding contractor compliance with project plans and specifications, and with the recommendations in our report. We will also be allowed to evaluate any conditions differing from those encountered during our investigation and provide supplemental recommendations as necessary. For these reasons, the recommendations in this report are contingent of Cornerstone providing observation and testing during construction. Contractors should provide at least 48-hour notice when scheduling our field personnel.

SECTION 6: EARTHWORK

6.1 SITE DEMOLITION

All existing improvements not to be reused for the current development, including all foundations, flatwork, pavements, utilities, and other improvements should be demolished and removed from the site. Recommendations in this section apply to the removal of these improvements, which are present on the site (near easement entrance and in the vicinity of the horse coral, prior to the start of mass grading or the construction of new improvements for the project.

Cornerstone should be notified prior to the start of demolition and should be present on at least a part-time basis during all backfill and mass grading as a result of demolition. Occasionally, other types of buried structures (wells, cisterns, debris pits, etc.) can be found on sites with prior development. If encountered, Cornerstone should be contacted to address these types of structures on a case-by-case basis.

6.2 SITE CLEARING AND PREPARATION

6.2.1 Site Stripping

The site should be stripped of all surface vegetation, and surface and subsurface improvements to be removed within the proposed development area. Demolition of existing improvements is discussed in the prior paragraphs. A detailed discussion of mitigation of existing fills is provided later in this report. Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material greater than 3 percent organic content by weight. Based on our site observations, surficial stripping should extend about 4 to 6 inches below existing grade in vegetated areas.

6.2.2 Tree and Shrub Removal

Trees and shrubs designated for removal should have the root balls and any roots greater than ½-inch diameter removed completely. Mature trees are estimated to have root balls extending to depths of 2 to 4 feet, depending on the tree size. Significant root zones are anticipated to extend to the diameter of the tree canopy. Grade depressions resulting from root ball removal should be cleaned of loose material and backfilled in accordance with the recommendations in the “Compaction” section of this report.

6.3 MITIGATION OF UNDOCUMENTED FILLS/LOOSE SOILS

As discussed above, undocumented fills were encountered in our explorations EB-4 and EB-6. In addition, loose, disturbed soils were observed at the western edge of the site consisting of tilled soils acting as firebreak lines. Additional localized fill or loose soil areas may also be encountered in other areas of the site; however, the lateral extent of potential fill areas is not known at this time. All fills or loose soils should be over-excavated and re-compacted within future building areas and to a lateral distance of at least 5 feet beyond the building footprint or to a lateral distance equal to fill depth below the perimeter footing, whichever is greater. Provided the fills meet the “Material for Fill” requirements below, the fills may be reused when backfilling

excavations. If materials are encountered that do not meet the requirements, such as debris, wood, or trash, those materials should be screened out of the remaining material and be removed from the site. Backfill of excavations should be placed in lifts and compacted in accordance with the "Compaction" section below.

Undocumented fills extending into planned pavement and flatwork areas may be left in place provided they are determined to be a low risk for future differential settlement and that the upper 12 to 18 inches of fill below pavement subgrade is re-worked and compacted as discussed in the "Compaction" section below.

6.4 CUT/FILL TRANSITION OVER-EXCAVATION

Where shallow foundations are planned on flat lots, we recommend that cut/fill transitions be over-excavated to provide a relatively uniform fill thickness beneath the building footprint. The depth of over-excavation below pad grade should be equal to the maximum fill thickness on the pad but need not exceed 3 feet, as shown on Figure 9, Detail 2. Over-excavation depth will depend on the type of material exposed and should be determined during mass grading.

In general, over-excavation should extend to at least 5 feet beyond the building footprint or street improvements. Adjustments to the depth and lateral limits of over-excavation may need to be made at the time of construction depending on actual conditions encountered during grading.

6.5 TEMPORARY CUT AND FILL SLOPES

The contractor is responsible for maintaining all temporary slopes and providing temporary shoring where required. Temporary shoring, bracing, and cuts/fills should be performed in accordance with the strictest government safety standards. On a preliminary basis, the upper 15 feet at the site may be classified as OSHA Soil Type C materials in alluvial soil areas. In sloping areas to the east of the planned cul-de-sac, the upper colluvial soils should be classified as Type C materials and underlying bedrock or Santa Clara Formation materials can likely be classified as Type B materials.

Excavations performed during site demolition and fill removal should be sloped at 2:1 (horizontal:vertical) within the upper 5 feet below building subgrade. Actual excavation inclinations should be reviewed in the field during construction, as needed. Excavations below building subgrade and excavations in pavement and flatwork areas should be sloped in accordance with OSHA soil classification requirements.

6.6 SUBGRADE PREPARATION

After site clearing and demolition is complete, and prior to backfilling any excavations resulting from fill removal or demolition, the excavation subgrade and subgrade within areas to receive additional site fills, slabs-on-grade and/or pavements should be scarified to a depth of 12 inches, moisture conditioned and compacted in accordance with the "Compaction" section below.

6.7 WET SOIL STABILIZATION GUIDELINES

Native soil and fill materials, especially soils with high fines contents such as clays and silty soils, can become unstable due to high moisture content, whether from high in-situ moisture contents or from winter rains. As the moisture content increases over the laboratory optimum, it becomes more likely the materials will be subject to softening and yielding (pumping) from construction loading or become unworkable during placement and compaction.

There are several methods to address potential unstable soil conditions and facilitate fill placement and trench backfill. Some of the methods are briefly discussed below. Implementation of the appropriate stabilization measures should be evaluated on a case-by-case basis according to the project construction goals and the site conditions.

6.7.1 Scarification and Drying

The subgrade may be scarified to a depth of 6 to 12 inches and allowed to dry to near optimum conditions, if sufficient dry weather is anticipated to allow sufficient drying. More than one round of scarification may be needed to break up the soil clods.

6.7.2 Removal and Replacement

As an alternative to scarification, the contractor may choose to over-excavate the unstable soils and replace them with dry on-site or import materials. A Cornerstone representative should be present to provide recommendations regarding the appropriate depth of over-excavation, whether a geosynthetic (stabilization fabric or geogrid) is recommended, and what materials are recommended for backfill.

6.7.3 Chemical Treatment

Where the unstable area exceeds about 5,000 to 10,000 square feet and/or site winterization is desired, chemical treatment with quicklime (CaO), kiln-dust, or cement may be more cost-effective than removal and replacement. Recommended chemical treatment depths will typically range from 12 to 18 inches depending on the magnitude of the instability.

6.8 MATERIAL FOR FILL

6.8.1 Re-Use of On-site Soils

On-site soils with an organic content less than 3 percent by weight may be reused as general fill. General fill should not have lumps, clods or cobble pieces larger than 6 inches in diameter; 85 percent of the fill should be smaller than 2½ inches in diameter. Minor amounts of oversized material (smaller than 12 inches in diameter) may be allowed provided the oversized pieces are not allowed to nest together and the compaction method will allow for loosely placed lifts not exceeding 12 inches.

Due to the shallow sandstone and granular Santa Clara Formation that may be exposed on some cut slopes, consideration should be given to reusing some of the native topsoil to provide soil cover for finished graded fill slopes to aid in re-vegetating finished slopes for erosion control.

Topsoil should be spread thinly over a section of on-site materials, moisture conditioned and thoroughly blended or track-walked. The necessary topsoil layer thickness will depend on the stripping organic content and the feasibility of stockpiling topsoil materials during site grading.

6.8.2 Potential Import Sources

Non-expansive material should be inorganic with a Plasticity Index (PI) of 15 or less, and not contain recycled asphalt concrete where it will be used within the habitable building areas. Imported soil for use as general fill material should be inorganic with a Plasticity Index (PI) of 20 or less, and not contain recycled asphalt concrete where it will be used within the habitable building areas. To prevent significant caving during trenching or foundation construction, imported material should have sufficient fines. Samples of potential import sources should be delivered to our office at least 10 days prior to the desired import start date. Information regarding the import source should be provided, such as any site geotechnical reports. If the material will be derived from an excavation rather than a stockpile, potholes will likely be required to collect samples from throughout the depth of the planned cut that will be imported. At a minimum, laboratory testing will include PI tests. Material data sheets for select fill materials (Class 2 aggregate base, ¾-inch crushed rock, quarry fines, etc.) listing current laboratory testing data (not older than 6 months from the import date) may be provided for our review without providing a sample. If current data is not available, specification testing will need to be completed prior to approval.

Environmental and soil corrosion characterization should also be considered by the project team prior to acceptance. Suitable environmental laboratory data to the planned import quantity should be provided to the project environmental consultant; additional laboratory testing may be required based on the project environmental consultant's review. The potential import source should also not be more corrosive than the on-site soils, based on pH, saturated resistivity, and soluble sulfate and chloride testing.

6.9 COMPACTION REQUIREMENTS

All fills, and subgrade areas where fill, slabs-on-grade, and pavements are planned, should be placed in loose lifts 8 inches thick or less and compacted in accordance with ASTM D1557 (latest version) requirements as shown in the following table. In general, clayey soils should be compacted with sheepsfoot equipment and sandy/gravelly soils with vibratory equipment; open-graded materials such as crushed rock should be placed in lifts no thicker than 18 inches and consolidated in place with vibratory equipment. Each lift of fill and all subgrade should be firm and unyielding under construction equipment loading in addition to meeting the compaction requirements to be approved. The contractor (with input from a Cornerstone representative) should evaluate the in-situ moisture conditions, as the use of vibratory equipment on soils with high moistures can cause unstable conditions. General recommendations for soil stabilization are provided in the "Wet Soil Stabilization Guidelines" section of this report. Where the soil's PI is 20 or greater, the expansive soil criteria should be used.

6.9.1 Construction Moisture Conditioning

Expansive soils can undergo significant volume change when dried then wetted. The contractor should keep all exposed expansive soil subgrade (and also trench excavation side walls) moist

until protected by overlying improvements (or trenches are backfilled). If expansive soils are allowed to dry out significantly, re-moisture conditioning may require several days of re-wetting (flooding is not recommended), or deep scarification, moisture conditioning, and re-compaction.

Table 2: Compaction Requirements

Description	Material Description	Minimum Relative[1] Compaction (percent)	Moisture[2] Content (percent)
General Fill (within upper 5 feet)	On-Site Expansive Soils	87 – 92	>3
	Low Expansion Soils	90	>1
General Fill (below a depth of 5 feet)	On-Site Expansive Soils	92	>3
	Low Expansion Soils	95	>1
Retaining Wall Backfill	Without Surface Improvements	90	>1
	With Surface Improvements	95[4]	>1
Trench Backfill	On-Site Expansive Soils	87 – 92	>3
	Low Expansion Soils	90	>1
Trench Backfill (upper 6 inches of subgrade)	On-Site Low Expansion Soils	95	>1
Crushed Rock Fill	¾-inch Clean Crushed Rock	Consolidate In-Place	NA
Non-Expansive Fill	Imported Non-Expansive Fill	90	Optimum
Flatwork Subgrade	On-Site Expansive Soils	87 - 92	>3
	Low Expansion Soils	90	>1
Flatwork Aggregate Base	Class 2 Aggregate Base[3]	90	Optimum
Pavement Subgrade	On-Site Expansive Soils	87 - 92	>3
	Low Expansion Soils	95	>1
Pavement Aggregate Base	Class 2 Aggregate Base[3]	95	Optimum
Asphalt Concrete	Asphalt Concrete	95 (Marshall)	NA

1 – Relative compaction based on maximum density determined by ASTM D1557 (latest version)
2 – Moisture content based on optimum moisture content determined by ASTM D1557 (latest version)
3 – Class 2 aggregate base shall conform to Caltrans Standard Specifications, latest edition, except that the relative compaction should be determined by ASTM D1557 (latest version)
4 – Using light-weight compaction or walls should be braced

6.10 TRENCH BACKFILL

Utility lines constructed within public right-of-way should be trenched, bedded and shaded, and backfilled in accordance with the local or governing jurisdictional requirements. Utility lines in private improvement areas should be constructed in accordance with the following requirements unless superseded by other governing requirements.

All utility lines should be bedded and shaded to at least 6 inches over the top of the lines with crushed rock (⅜-inch-diameter or greater) or well-graded sand and gravel materials conforming to the pipe manufacturer's requirements. Open-graded shading materials should be consolidated in place with vibratory equipment and well-graded materials should be compacted

to at least 90 percent relative compaction with vibratory equipment prior to placing subsequent backfill materials.

General backfill over shading materials may consist of on-site native materials provided they meet the requirements in the “Material for Fill” section, and are moisture conditioned and compacted in accordance with the requirements in the “Compaction” section.

Where utility lines will cross perpendicular to strip footings, the footing should be deepened to encase the utility line, providing sleeves or flexible cushions to protect the pipes from anticipated foundation settlement, or the utility lines should be backfilled to the bottom of footing with sand-cement slurry or lean concrete. Where utility lines will parallel footings and will extend below the “foundation plane of influence,” an imaginary 1:1 plane projected down from the bottom edge of the footing, either the footing will need to be deepened so that the pipe is above the foundation plane of influence or the utility trench will need to be backfilled with sand-cement slurry or lean concrete within the influence zone. Sand-cement slurry used within foundation influence zones should have a minimum compressive strength of 75 psi.

6.11 PERMANENT CUT AND FILL SLOPES

All permanent fill slopes should have a maximum inclination of 2:1 (horizontal:vertical) for slopes up to 10 feet high; fill slopes greater than 10 feet should be inclined at no greater than 2.5:1. All permanent cut slopes in shallow surficial soils should have a maximum inclination of 3:1, while cuts in bedrock should have a maximum inclination of 2:1. A Cornerstone geologist should observe cut slopes in bedrock during site grading to determine whether cuts expose sheared or weak rock materials that may require flatter slope inclinations. Fill slopes should be overbuilt and trimmed back, exposing engineered fill when complete. Refer to the “Erosion Control” section of this report for a discussion regarding protection of slope surfaces.

6.11.1 Keyways and Benches

Fill placed on existing ground inclined at 6:1 or greater should be benched into the existing slope and a keyway constructed at the toe of the fill. Benches should be angled slightly into the slope and be spaced vertically at no greater than 4 feet between benches and be at least 6 to 10 feet wide. Depending on the thickness of any colluvial soil layer that blankets the bedrock, the benches may need to be widened beyond the minimum width to extend into competent bedrock. The keyway should also be angled slightly into the slope (minimum 2 percent inclination), extend at least 3 to 5 feet into competent soil or bedrock, and be at least 15 feet wide. If a CAT 815 compactor is used, the keyway should be at least 18 feet wide. A typical keyway and bench detail is depicted in Figure 9 – Detail 1.

6.11.2 Fill Drainage

A permanent subsurface drainage system consisting of a series of perforated gravity pipes or drainage strips should be constructed between engineered fill placed against a bedrock slope and within all keyways. This system is intended to intercept perched water flowing through the bedrock and transmit it to suitable outlet structures and reduce the potential for hydrostatic pressures building up behind the fills and causing slope instability. The drain lines should be

placed at the back of the keyways and benches. Bench drains should be spaced vertically at no greater than 10 feet.

The drainage system should be constructed at the back of keyways or benches, as needed and as shown in Figure 9, and will consist of a minimum 4-inch-diameter perforated SDR 35 (perforations placed downward), bedded and shaded in Caltrans Class 2 Permeable Material (latest version) or ¾-inch crushed rock; if crushed rock is used, the rock should be encapsulated in filter fabric (Mirafi 140N or equivalent). The bedding should be at least 2 inches, and the trench should be at least 8 inches in width and depth. Alternatively, geocomposite strip drains may be used. All drainage lines should slope towards suitable outlet structures at an inclination of at least 0.5 percent. Suitable outlet structures may consist of connecting the drainage lines to a storm drain system, with a sump if required; if the drain lines will outlet overland at the toe of the slope, an appropriate rock spill pad should be provided; the drain lines should not outlet onto the slope. Vertical cleanouts should be provided at all upslope ends of the drainage lines and at all 90-degree bends.

6.11.3 Plan Review and Construction Monitoring

A Cornerstone representative should be on site during keyway and fill slope construction. Field modifications to the planned keyway and benching may be required based on encountered field conditions. In addition, it has been our experience that cut slopes in the Lafayette area are prone to localized weak zones and sloughing along bedding planes. We recommend that a Cornerstone engineering geologist observe the condition of all cut slopes and evaluate the potential for localized adverse materials or bedding orientation.

We recommend that the project civil engineer or land surveyor be retained to survey in place all keyways, sub-drainage lines, solid pipes, and cleanouts, and create an as-built plan. This plan will be of use for any future maintenance or repair work.

6.12 SITE DRAINAGE

6.12.1 Surface Drainage

Surface runoff should not be allowed to flow over the top of or pond at the top or toe of engineered slopes or retaining walls. Ponding should also not be allowed on or adjacent to building foundations, slabs-on-grade, or pavements. Hardscape surfaces should slope at least 2 percent towards suitable discharge facilities; landscape areas should slope at least 3 percent towards suitable discharge facilities. Roof runoff should be directed away from building areas in closed conduits, to approved infiltration facilities, or on to hardscaped surfaces that drain to suitable facilities. Retention, detention or infiltration facilities should be spaced at least 10 feet from buildings, and preferably at least 5 feet from slabs-on-grade or pavements. These facilities are not recommended where stormwater infiltration may affect slopes at lower elevations on or adjacent to the site. However, if slopes are not present at lower elevations that could potentially be affected, and if retention, detention or infiltration facilities are located within these zones, we recommend that these treatment facilities meet the requirements in the Storm Water Treatment Design Considerations section of this report.

Lined v-ditches should be included at the top of slopes and intermediate benches, and at the toe of slopes or behind retaining walls adjacent to planned or existing development. All v-ditches and drain inlets should be sized to accommodate the design storm events for the upslope tributary area. Concrete-lined v-ditches should be reinforced as required and have adequate control and construction joints and should be constructed neat in excavations; backfill around formed ditches should not be allowed.

Upslope sources of water should be evaluated. If upslope irrigation is present or planned, additional surface and subsurface drainage, or construction of drained buttress fills may be needed to protect site improvements. We should be consulted if this issue will affect the project.

6.12.2 Subsurface Drainage

As discussed in the "Permanent Cut and Fill Slopes" section, subsurface drainage improvements should be installed as part of earthwork for fill construction. These improvements should include positive surface gradients for keyways and benches and the installation of a subdrain system consisting of perforated pipe and permeable gravel or drain rock. If drain rock is used, the rock and pipe should be entirely wrapped with a permeable geotextile fabric. Subdrains should also be installed at the toe of any proposed cut slopes depending on the actual conditions observed during construction. In addition, a subsurface drain should be placed on the uphill side of the basement retaining wall to prevent the pad fill from becoming saturated. As previously discussed, a conceptual subdrain plan should be prepared once grading plans are finalized. The actual location of subdrains should be determined in the field at the time of construction.

6.13 LOW-IMPACT DEVELOPMENT (LID) IMPROVEMENTS

The Municipal Regional Permit (MRP) requires regulated projects to treat 100 percent of the amount of runoff identified in Provision C.3.d from a regulated project's drainage area with low impact development (LID) treatment measures onsite or at a joint stormwater treatment facility. LID treatment measures are defined as rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment. A biotreatment system may only be used if it is infeasible to implement harvesting and use, infiltration, or evapotranspiration at a project site.

Technical infeasibility of infiltration may result from site conditions that restrict the operability of infiltration measures and devices. Various factors affecting the feasibility of infiltration treatment may create an environmental risk, structural stability risk, or physically restrict infiltration. The presence of any of these limiting factors may render infiltration technically infeasible for a proposed project. To aid in determining if infiltration may be feasible at the site, we provide the following site information regarding factors that may aid in determining the feasibility of infiltration facilities at the site.

- The near-surface soils at the site are clayey, and categorized as Hydrologic Soil Group D, and are expected to have infiltration rates of less than 0.2 inches per hour. In our opinion, these clayey soils will significantly limit the infiltration of stormwater.

- Locally, seasonal high ground water is estimated to be at a depth of 13 feet or greater in the lower (western) portion of the site and greater than 20 feet in the hillside portion of

the site, and therefore is expected to be at least 10 feet below the base of the infiltration measure.

- The site has a known geotechnical hazard consisting of steep slopes, and areas with landslide potential; therefore, stormwater infiltration facilities may not be feasible above the proposed building area.

- In our opinion, infiltration locations within 10 feet of the buildings would create a geotechnical hazard.

6.13.1 Storm Water Treatment Design Considerations

If storm water treatment improvements, such as shallow bio-retention swales, basins or pervious pavements, are required as part of the site improvements to satisfy Storm Water Quality (C.3) requirements, we recommend the following items be considered for design and construction.

6.13.1.1 General Bioswale Design Guidelines

- If possible, avoid placing bioswales or basins within 10 feet of the building perimeter or within 5 feet of exterior flatwork or pavements. If bioswales must be constructed within these setbacks, the side(s) and bottom of the trench excavation should be lined with 10-mil visqueen to reduce water infiltration into the surrounding expansive clay.

- Bioswales constructed within 3 feet of proposed buildings may be within the foundation zone of influence for perimeter wall loads. Therefore, where bioswales will parallel foundations and will extend below the "foundation plane of influence," an imaginary 1:1 plane projected down from the bottom edge of the foundation, the foundation will need to be deepened so that the bottom edge of the bioswale filter material is above the foundation plane of influence.

- The bottom of bioswale or detention areas should include a perforated drain placed at a low point, such as a shallow trench or sloped bottom, to reduce water infiltration into the surrounding soils near structural improvements, and to address the low infiltration capacity of the on-site clay soils.

6.13.1.2 Bioswale Infiltration Material

- Gradation specifications for bioswale filter material, if required, should be specified on the grading and improvement plans.

- If bioswales are to be vegetated, the landscape architect should select planting materials that do not reduce or inhibit the water infiltration rate, such as covering the bioswale with grass sod containing a clayey soil base.

- If required by governing agencies, field infiltration testing should be specified on the grading and improvement plans. The appropriate infiltration test method, duration and frequency of testing should be specified in accordance with local requirements.

- Due to the relatively loose consistency and/or high organic content of many bioswale filter materials, long-term settlement of the bioswale medium should be anticipated. To reduce initial volume loss, bioswale filter material should be wetted in 12-inch lifts during placement to pre-consolidate the material. Mechanical compaction should not be allowed, unless specified on the grading and improvement plans, since this could significantly decrease the infiltration rate of the bioswale materials.

- It should be noted that the volume of bioswale filter material may decrease over time depending on the organic content of the material. Additional filter material may need to be added to bioswales after the initial exposure to winter rains and periodically over the life of the bioswale areas, as needed.

6.13.1.3 Bioswale Construction Adjacent to Pavements

If bio-infiltration swales or basins are considered adjacent to proposed parking lots or exterior flatwork, we recommend that mitigative measures be considered in the design and construction of these facilities to reduce potential impacts to flatwork or pavements. Exterior flatwork, concrete curbs, and pavements located directly adjacent to bio-swales may be susceptible to settlement or lateral movement, depending on the configuration of the bioswale and the setback between the improvements and edge of the swale. To reduce the potential for distress to these improvements due to vertical or lateral movement, the following options should be considered by the project civil engineer:

- Improvements should be setback from the vertical edge of a bioswale such that there is at least 1 foot of horizontal distance between the edge of improvements and the top edge of the bioswale excavation for every 1 foot of vertical bioswale depth, or

- Concrete curbs for pavements, or lateral restraint for exterior flatwork, located directly adjacent to a vertical bioswale cut should be designed to resist lateral earth pressures in accordance with the recommendations in the “Retaining Walls” section of this report, or concrete curbs or edge restraint should be adequately keyed into the native soil or engineered to reduce the potential for rotation or lateral movement of the curbs.

6.14 PERMANENT EROSION CONTROL MEASURES

Hillside grading will require periodic maintenance after construction to reduce the potential for erosion and sloughing. At a minimum, all slopes should be vegetated by hydroseeding or other landscape ground cover. The establishment of vegetation will help reduce runoff velocities, allow some infiltration and transpiration, trap sediment within runoff, and protect the soil from raindrop impact. Depending on the exposed material type and the slope inclination, more aggressive erosion control measures may be needed to protect slopes for one or more winter seasons while vegetation is being established. For slopes with inclinations of 2:1 (horizontal:vertical)flatter, erosion control may consist of jute netting, straw matting, or erosion control blankets used in combination with hydroseeding.

Both construction and post-construction Storm Water Pollution Prevention Plans (SWPPPs) should be prepared for the project-specific requirements. We recommend that final grading plans be provided for our review.

6.15 LANDSCAPE CONSIDERATIONS

Since the near-surface soils are moderately expansive, we recommend greatly reducing the amount of surface water infiltrating these soils near foundations and exterior slabs-on-grade. This can typically be achieved by:

- Using drip irrigation
- Avoiding open planting within 3 feet of the building perimeter or near the top of existing slopes
- Regulating the amount of water distributed to lawns or planter areas by using irrigation timers
- Selecting landscaping that requires little or no watering, especially near foundations.

We recommend that the landscape architect consider these items when developing landscaping plans.

SECTION 7: 2022 CBC SEISMIC DESIGN CRITERIA

7.1 SEISMIC DESIGN CRITERIA

We understand that the project structural design will be based on the 2022 California Building Code (CBC), which provides criteria for the seismic design of buildings in Chapter 16. The "Seismic Coefficients" used to design buildings are established based on a series of tables and figures addressing different site factors, including the time-weighted average shear wave velocity of the top approximately 100 feet (30 meters) of the soil profile (V_{S30})/soil profile in the upper 100 feet below grade and mapped spectral acceleration parameters based on distance to the controlling seismic source/fault system.

Based on our exploration and review of local geology, the site is underlain by shallow soils underlain by bedrock or very dense formation soils with typical SPT "N" values above 50 blows per foot below an average depth of 10 feet. Therefore, we have classified the site as Soil Classification C. The mapped spectral acceleration parameters S_s and S_1 were calculated using the web-based program ATC Hazards by Locations, located at https://hazards.atcouncil.org/, based on the site coordinates presented below and the site classification. Recommended values in the following table may only be used for design if in the judgement of the project structural engineer an exception can be taken per ASCE 7-16 Section 11.4.8. The table below lists the various factors used to determine the seismic coefficients and other parameters.

Table 3: CBC Site Categorization and Site Coefficients

Classification/Coefficient	Design Value
Site Class	C
Site Latitude	37.225246°
Site Longitude	-121.952328°
0.2-second Period Mapped Spectral Acceleration[1], S_S	2.468g
1-second Period Mapped Spectral Acceleration[1], S_1	0.897g
Short-Period Site Coefficient – Fa	1.2
Long-Period Site Coefficient – Fv	1.4
0.2-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects - S_{MS}	2.961g
1-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects – S_{M1}	1.256g
0.2-second Period, Design Earthquake Spectral Response Acceleration – S_{DS}	1.974g
1-second Period, Design Earthquake Spectral Response Acceleration – S_{D1}	0.837g
Site Amplification Factor at PGA – F_{PGA}	1.2
Site Modified Peak Ground Acceleration – PGA_M	1.263

SECTION 8: FOUNDATIONS

8.1 SUMMARY OF RECOMMENDATIONS

In our opinion, due to potential cut/fill transitions and to reduce potential differential settlement, the proposed residential structures can be supported on post-tensioned concrete mat foundations only if the recommendations in the "Earthwork" section are followed. For residential structures located on cut/fill transition pads or on tiered hillside lots, the structure should be supported on deep foundations consisting of drilled, cast-in-place friction piers. Design recommendations are presented in the following sections.

8.2 POST-TENSIONED MATS

Where cut/fill transitions have been adequately mitigated on flat lots, residential structures can be supported on post-tensioned (PT) concrete mat foundations designed in accordance with the parameters in the table below based on procedures developed by the Post-Tensioning Institute (latest edition) and the 2022 California Building Code.

Table 4: Post-Tensioned Mat Design Criteria

Differential Movement Condition	Center Lift	Edge Lift
Edge Moisture Variation (feet)	8.1	4.2
Differential Soil Movement (inches)	0.6	1.0

To reduce potential differential movement, all mats should be designed for a maximum average allowable bearing pressure of 500 psf for dead plus live loads; at column or wall loading, the maximum localized bearing pressure should be limited to 2,000 psf. When evaluating wind and seismic conditions, allowable bearing pressures may be increased by one-third. These pressures are net values; the weight of the mat may be neglected for the portion of the mat extending below grade. Top and bottom mats of reinforcing steel should be included as required to help span irregularities and differential settlement.

8.2.1 Mat Foundation Settlement

Provided cut/fill transitions are mitigated during site grading in accordance with the "Earthwork" section, we estimate differential static settlements of ½-inch or less across the mat area for reinforced concrete mats and the differential movement listed in the table above for PT-mats.

8.2.2 Lateral Loading

Lateral loads may be resisted by friction between the bottom of mat foundation and the supporting subgrade, and also by passive pressures generated against deepened mat edges. An ultimate frictional resistance of 0.40 applied to the mat dead load, and an ultimate passive pressure based on an equivalent fluid pressure of 400 pcf may be used in design. The structural engineer should apply an appropriate factor of safety (such as 1.5) to the ultimate values above. The upper 12 inches of soil should be neglected when determining passive pressure capacity.

8.2.3 Mat Foundation Construction Considerations

Due to the presence of moderately expansive soils, mat subgrade areas should be kept moist until concrete placement by regular sprinkling to prevent desiccation. If deep drying is allowed to occur, several days of moisture conditioning (flooding of the pads is not recommended) may be required to allow the moisture to re-penetrate the subgrade. If severe drying occurs, reworking and moisture conditioning of the pad may be required. Prior to placement of any vapor retarder and mat construction, the subgrade should be proof-rolled and visually observed by a Cornerstone representative to confirm stable subgrade conditions. The pad moisture should also be checked at least 24 hours prior to vapor barrier or mat reinforcement placement to confirm that the soil has a moisture content of at least 1 percent over optimum in the upper 12 inches.

8.2.4 Moisture Protection Considerations for Mat Foundations

The following general guidelines for concrete mat construction where floor coverings are planned are presented for consideration by the developer, design team, and contractor. These guidelines are based on information obtained from a variety of sources, including the American Concrete Institute (ACI) and are intended to reduce the potential for moisture-related problems causing floor covering failures, and may be supplemented as necessary based on project-specific requirements. The application of these guidelines or not will not affect the geotechnical aspects of the mat foundation performance.

- Place a 15-mil vapor retarder conforming to ASTM E 1745, Class C requirements or better directly below the concrete mat; the vapor retarder should extend to within 12 to 18 inches from the mat edges and be sealed at all seams and penetrations in accordance with manufacturer's recommendations and ASTM E 1643 requirements. A 4-inch-thick capillary break, consisting of crushed rock should be placed below the vapor retarder and consolidated in place with vibratory equipment. The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by laboratory sieves will conform to the following gradation:

Sieve Size	Percentage Passing Sieve
1"	100
¾"	90 – 100
No. 4	0 – 10
No. 200	0 – 5

- The concrete water:cement ratio should be 0.45 or less. Mid-range plasticizers may be used to increase concrete workability and facilitate pumping and placement.

- Water should not be added after initial batching unless the slump is less than specified and/or the resulting water:cement ratio will not exceed 0.45.

- Where floor coverings are planned, all concrete surfaces should be properly cured.

- Water vapor emission levels and concrete pH should be determined in accordance with ASTM F1869-98 and F710-98 requirements and evaluated against the floor covering manufacturer's requirements prior to installation.

8.3 DRILLED PIERS

To reduce the potential for differential settlement where it is not feasible to mitigate cut/fill transitions or for structures to be constructed on sloping ground, the proposed residential structures or retaining walls should be supported on drilled, cast-in-place, straight-shaft friction piers. The piers should have a minimum diameter of 16 inches. Minimum pier depths should be at least 10 feet, or at least 5 feet into undisturbed bedrock, whichever is greater. Pier depths should be measured from the bottom of the grade beams or lowest adjacent grade, whichever is deeper. Adjacent piers centers should be spaced at least three diameters apart, otherwise, a reduction for group effects may be required. Grade beams should span between piers and/or pier caps in accordance with structural requirements.

8.3.1 Vertical and Lateral Capacity

The vertical and lateral capacity of the piers may be designed using the criteria summarized in the following table. Allowable vertical capacity is for combined dead plus live loads based on a factor of safety of 2.0; dead loads should not exceed two-thirds of the allowable capacities. The allowable skin friction may be increased by one-third for wind and seismic loads. Frictional resistance to uplift loads may be developed along the pier shafts based on an allowable frictional resistance of 80 percent of the downward capacities.

Table 5: Summary of Drilled Pier Design Criteria

Design Criteria	Design Value	Comments
Minimum Pier Diameter	16 inches	--
Minimum Pier Depth	10 feet or at least 5 feet into competent rock or competent formation soil	Below bottom of grade beam or lowest adjacent grade
Minimum Pier Spacing	3 pier diameters	--
Allowable Skin Friction	600 psf for D+L loads	For piers on level cut areas or into formation soils
	450 psf for D+L loads	For piers on sloping natural ground or piers drilled through engineered fill pad
Allowable Passive Resistance	375 pcf EFP* to max. 3,000 psf at depth	For piers on level cut bedrock or formation soil areas; applied over 2 pier diameters
	275 pcf EFP to max. 2,000 psf at depth	For piers on sloping natural ground; applied over 2 pier diameters
	300 pcf EFP to max. 2,000 psf at depth	For piers drilled through engineered fill pad; applied over 2 pier diameters
Depth to Neglect	12 inches below ground surface on level lots; 24 inches for piers on sloping groun	Not required for grade beams on level lots embedded at least 12 inches deep.
Lateral Creep Force	60 pcf EFP	Applied to upper 3 feet of piers situated on sloping ground; not required for piers on flat tiered building pad
Allowable End Bearing if Refusal Encountered	5,000 psf for D+L loads	Assumes loose soil can be cleaned from piers; drilling refusal criteria to be determined in the field during construction depending on drilling equipment and methodology

*EFP = equivalent fluid pressure

8.3.2 Drilled Pier Settlement

Total settlement of individual piers should not exceed ½ inch to mobilize static capacities, and post-construction differential settlement between adjacent piers should not exceed ¼-inch due to static loads.

8.3.3 Passive Resistance against Pier Caps and Grade Beams

As lateral deflection of pier-supported structures will be limited by the pier deflection, development of the full allowable passive pressures against grade beams and pier caps will not occur. We should be consulted regarding appropriate reductions in passive pressures acting against grade beams and pier caps.

8.3.4 Construction Considerations

The excavation of all drilled shafts should be observed by a Cornerstone representative to confirm the soil and bedrock profile, verify that the piers extend the minimum depth into suitable materials and that the piers are constructed in accordance with our recommendations and project requirements. The drilled shafts should be straight, dry, and relatively free of loose material before reinforcing steel is installed and concrete is placed. If perched groundwater is encountered and cannot be removed from the excavations prior to concrete placement, the concrete should be placed using a tremie pipe, keeping the tremie pipe below the surface of the concrete to avoid entrapment of water in the concrete.

If drilling refusal is encountered due to hard or resistant bedrock material, the pier capacity and acceptance of final pier depth should be evaluated on a case-by case basis by Cornerstone Earth Group in coordination with the structural engineer. Acceptable refusal criteria will depend on the actual pier depth, bedrock material encountered, as well as type of drill rig, drill bit and level of effort used. We recommend that local drilling contractors experienced in rock drilling methods be contacted to aid in determining the efficiency, time and costs associated with excavations in these types of bedrock or formation soils.

SECTION 9: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS

9.1 INTERIOR SLABS-ON-GRADE

Due to the moderate expansion potential of the surficial soils, if a drilled pier foundation with interior slab-on-grade system is chosen, the proposed slabs-on-grade for the residential structures should be at least 5 inches thick and be supported on at least 6 inches of non-expansive fill (NEF) to reduce the potential for slab damage due to soil heave. The NEF layer should be constructed over subgrade prepared in accordance with the recommendations in the "Earthwork" section of this report. If moisture-sensitive floor coverings are planned, the recommendations in the "Interior Slabs Moisture Protection Considerations" section below may be incorporated in the project design if desired. If significant time elapses between initial subgrade preparation and slab-on-grade NEF construction, the subgrade should be proof-rolled to confirm subgrade stability, and if the soil has been allowed to dry out, the subgrade should be re-moisture conditioned to at least 2 percent over the optimum moisture content.

The structural engineer should determine the appropriate slab reinforcement for the loading requirements and considering the expansion potential of the underlying soils. For unreinforced concrete slabs, ACI 302.1R recommends limiting control joint spacing to 24 to 36 times the slab thickness in each direction, or a maximum of 18 feet.

9.2 INTERIOR SLABS MOISTURE PROTECTION CONSIDERATIONS

The following general guidelines for concrete slab-on-grade construction where floor coverings are planned are presented for consideration by the developer, design team, and contractor. These guidelines are based on information obtained from a variety of sources, including the American Concrete Institute (ACI) and are intended to reduce the potential for moisture-related problems causing floor covering failures, and may be supplemented as necessary based on

project-specific requirements. The application of these guidelines or not will not affect the geotechnical aspects of the slab-on-grade performance.

- Place a minimum 15-mil vapor retarder conforming to ASTM E 1745, Class C requirements or better directly below the concrete slab; the vapor retarder should extend to the slab edges and be sealed at all seams and penetrations in accordance with manufacturer's recommendations and ASTM E 1643 requirements. A 4-inch-thick capillary break, consisting of crushed rock should be placed below the vapor retarder and consolidated in place with vibratory equipment. The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by laboratory sieves will conform to the following gradation:

Sieve Size	Percentage Passing Sieve
1"	100
¾"	90 – 100
No. 4	0 – 10
No. 200	0 – 5

  The capillary break rock may be considered as the upper 4 inches of the non-expansive fill previously recommended.

- The concrete water:cement ratio should be 0.45 or less. Mid-range plasticizers may be used to increase concrete workability and facilitate pumping and placement.

- Water should not be added after initial batching unless the slump is less than specified and/or the resulting water:cement ratio will not exceed 0.45.

- Polishing the concrete surface with metal trowels is not recommended.

- Where floor coverings are planned, all concrete surfaces should be properly cured.

- Water vapor emission levels and concrete pH should be determined in accordance with ASTM F1869-98 and F710-98 requirements and evaluated against the floor covering manufacturer's requirements prior to installation.

9.3 EXTERIOR FLATWORK

9.3.1 Pedestrian Concrete Flatwork

Exterior concrete flatwork subject to pedestrian and/or occasional light pick up loading should be at least 4 inches thick and supported on at least 4 inches of Class 2 aggregate base overlying subgrade prepared in accordance with the "Earthwork" recommendations of this report. Flatwork that will be subject to heavier or frequent vehicular loading should be designed in accordance with the recommendations in the "Vehicular Pavements" section below. To help reduce the potential for uncontrolled shrinkage cracking, adequate expansion and control joints should be included. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness. Flatwork should be isolated from adjacent foundations or retaining walls except where limited sections of

structural slabs are included to help span irregularities in retaining wall backfill at the transitions between at-grade and on-structure flatwork.

9.3.2 Pedestrian Pavers

Concrete unit pavers subject to pedestrian and/or occasional light pick up loading should be at least 60 mm thick and supported on at least 8 inches of Class 2 aggregate base overlying subgrade prepared in accordance with the "Earthwork" recommendations of this report. A maximum 1-inch-thick layer of sand may be used as a leveling/setting bed over the aggregate base. Pavers that will be subject to heavier or frequent vehicular loading should be designed in accordance with the recommendations in the "Vehicular Pavements" section below.

SECTION 10: VEHICULAR PAVEMENTS

10.1 ASPHALT CONCRETE

The following preliminary asphalt concrete pavement recommendations tabulated below are based on Procedure 608 of the Caltrans Highway Design Manual, estimated traffic indices for various pavement-loading conditions, and on a design R-value of 5. The design R-value was chosen based on engineering judgement considering the variable and expansive soil conditions.

Table 6: Preliminary Asphalt Concrete Pavement Recommendations

Design Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base[1] (inches)	Total Pavement Section Thickness (inches)
4.0	2.5	7.5	10.0
4.5	2.5	9.5	12.0
5.0	3.0	10.0	13.0
5.5	3.0	12.0	15.0
6.0	4.0	13.0	17.0
6.5	5.0	14.0	19.0

[1]Caltrans Class 2 aggregate base; minimum R-value of 78; subgrade R-value of 5

Frequently, the full asphalt concrete section is not constructed prior to construction traffic loading. This can result in significant loss of asphalt concrete layer life, rutting, or other pavement failures. To improve the pavement life and reduce the potential for pavement distress through construction, we recommend the full design asphalt concrete section be constructed prior to construction traffic loading. Alternatively, a higher traffic index may be chosen for the areas where construction traffic will use the pavements.

Due to the variability of the near surface soils and the presence of shallow bedrock, we recommend that additional R-value testing be performed on samples of the final subgrade soils to confirm the preliminary pavement design.

10.2 PORTLAND CEMENT CONCRETE

The Portland Cement Concrete (PCC) pavement recommendations outlined below are based on methods presented in American Concrete Pavement Association (ACPA, 2006). We have provided pavement alternatives as an anticipated Average Daily Truck Traffic (ADTT) was not provided.

The following table presents minimum PCC pavements thicknesses for various traffic loading categories and the anticipated maximum Average Daily Truck Traffic (ADTT).

Table 7: PCC Pavement Recommendations

Traffic Category	Minimum PCC Thickness[1] (inches)	Class 2 Aggregate Base (inches)
Maximum ADTT = 5	6.0	6.0
Maximum ADTT = 20	7.0	6.0

(1) Subgrade design R-Value = 5

The PCC thicknesses above are based on a concrete compressive strength of at least 3,500 psi, and laterally restraining the PCC with curbs or concrete shoulders. Adequate expansion and control joints should be included. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness.

10.3 PAVEMENT CUTOFF

Surface water penetration into the pavement section can significantly reduce the pavement life, due to the native expansive clays. While quantifying the life reduction is difficult, a normal 20-year pavement design could be reduced to less than 10 years; therefore, increased long-term maintenance may be required.

It would be beneficial to include a pavement cut-off, such as deepened curbs, redwood-headers, or “Deep-Root Moisture Barriers” that are keyed at least 4 inches into the pavement subgrade. This will help limit the additional long-term maintenance.

SECTION 11: RETAINING WALLS

11.1 STATIC LATERAL EARTH PRESSURES

The structural design of any site retaining wall should include resistance to lateral earth pressures that develop from the soil behind the wall, any undrained water pressure, and surcharge loads acting behind the wall. Provided a drainage system is constructed behind the wall to prevent the build-up of hydrostatic pressures as discussed in the section below, we recommend that the walls be designed for the following pressures:

Table 8: Recommended Lateral Earth Pressures

Sloping Backfill Inclination (horizontal:vertical)	Lateral Earth Pressure*	
	Unrestrained – Cantilever Wall	Restrained – Braced Wall
Level	45 pcf	45 pcf + 8H
3:1	55 pcf	55 pcf + 8H
2½:1	60 pcf	60 pcf + 8H
2:1	65 pcf	65 pcf + 8H
Additional Surcharge Loads	1/3 of vertical loads at top of wall	½ of vertical loads at top of wall

* Lateral earth pressures are based on an equivalent fluid pressure
** H is the distance in feet between the bottom of footing and top of retained soil

If adequate drainage cannot be provided behind the wall, an additional equivalent fluid pressure of 40 pcf should be added to the values above for both restrained and unrestrained walls for the portion of the wall that will not have drainage. Damp proofing or waterproofing of the walls may be considered where moisture penetration and/or efflorescence are not desired.

11.2 SEISMIC LATERAL EARTH PRESSURES

11.2.1 Cantilevered Site Walls

The 2022 CBC states that lateral pressures from earthquakes should be considered in the design of basements and retaining walls. Because walls greater than about 6 feet are planned, and peak ground accelerations greater than 0.40g are expected, we recommend checking the walls for the seismic condition in accordance with the interim recommendations of the above referenced paper and the 2022 CBC.

The CBC prescribes basic load combinations for structures, components and foundations with the intention that their design strength equals or exceeds the effects of the factored loads. With respect to the load from lateral earth pressure and groundwater pressure, the CBC prescribes the basic combinations shown in CBC equations.

For load combinations with the seismic component, the static “active” earth pressure component under seismic loading conditions should be used (45 pcf) with the seismic component, a triangular load with a resultant force of $6H^2$. The triangular load should be applied one third of the height up from the base of the wall (and which can also be expressed as an equivalent fluid pressure equal to 12 pcf).

The interim recommendations in the SEAOC paper more appropriately split out "active" earth pressure from the seismic earth pressure increment so that different load factors can be applied in accordance with different risk levels.

11.2.2 Restrained Foundation Walls

From the preliminary grading plans, some of the planned residential pads are split into upper and lower-level pads. Therefore, foundation walls will likely be needed to support the upper tiered pads, and these walls will likely be restrained at the top of the wall. Once grading and

foundation plans are completed, we should be retained to further evaluate whether these foundation walls require an additional seismic earth pressure increment.

11.3 WALL DRAINAGE

Adequate drainage should be provided by a subdrain system behind all walls. This system should consist of a 4-inch minimum diameter perforated pipe placed near the base of the wall (perforations placed downward). The pipe should be bedded and backfilled with Class 2 Permeable Material per Caltrans Standard Specifications, latest edition. The permeable backfill should extend at least 12 inches out from the wall and to within 2 feet of finished grade. Alternatively, ½-inch to ¾-inch crushed rock may be used in place of the Class 2 Permeable Material provided the crushed rock and pipe are enclosed in filter fabric, such as Mirafi 140N or approved equivalent. The upper 2 feet of wall backfill should consist of compacted on-site soil. The subdrain outlet should be connected to a free-draining outlet or sump.

Miradrain, Geotech Drainage Panels, or equivalent drainage matting can be used for wall drainage as an alternative to the Class 2 Permeable Material or drain rock backfill. Horizontal strip drains connecting to the vertical drainage matting may be used in lieu of the perforated pipe and crushed rock section. The vertical drainage panel should be connected to the perforated pipe or horizontal drainage strip at the base of the wall, or to some other closed or through-wall system such as the TotalDrain system from AmerDrain. Sections of horizontal drainage strips should be connected with either the manufacturer's connector pieces or by pulling back the filter fabric, overlapping the panel dimples, and replacing the filter fabric over the connection. At corners, a corner guard, corner connection insert, or a section of crushed rock covered with filter fabric must be used to maintain the drainage path.

Drainage panels should be terminated 18 inches from final exterior grade. The Miradrain panel filter fabric should be extended over the top of and behind the panel to protect it from intrusion of the adjacent soil.

11.4 BACKFILL

Where surface improvements will be located over the retaining wall backfill, backfill placed behind the walls should be compacted to at least 95 percent relative compaction using light compaction equipment. Where no surface improvements are planned, backfill should be compacted to at least 90 percent. If heavy compaction equipment is used, the walls should be temporarily braced.

We recommend v-ditches (lined or unlined depending on anticipated volume of water runoff) be placed behind planned site retaining walls supporting sloping ground conditions to divert water away from back of walls and to prevent water and sediment runoff over the walls. Tiered walls with relatively flat backfill conditions should be designed with area drains to collect surface water.

11.5 FOUNDATIONS

In general, conventional site retaining walls may be supported on drilled, cast-in-place piers connected by grade beams. Refer to the "Foundations" section for drilled pier design recommendations as well as construction considerations.

11.6 SEGMENTED WALLS

As an alternative to cast-in-place, concrete retaining walls, segmented walls can also be used to support planned cuts/fills. Tiered segmented walls that will be constructed on site should be designed on a preliminary basis in accordance with the soil parameters below. Depending on the height of tiered walls, global wall stability will need to be evaluated on a case-by-case basis to confirm that walls are stable. Foundations for new residential structures should not be placed within the reinforced fill zone for new walls. Where segmented walls will retain more than about 3 feet, requiring geogrid reinforcing elements, we recommend the use of wall systems with pinned connections between blocks, such as Keystone or Versalok wall systems, not just angled blocks that rely on gravity. These values may need to be field-revised based on review of the existing materials in the wall alignment area, as needed. All walls should be designed to include permeable granular fill behind the walls with an appropriate outlet.

Table 9: Recommended Soil Parameters – Segmented Walls

Material Type	Friction Angle (degrees)	Cohesion (psf)	Soil Moist Unit Weight (pcf)
Reinforced Soil Zone	32	50	125
Retained Soil Zone (Fill Pads)	32	50	125
Retained Soil Zone (Cut Pads in QTsc/Tus)	36	0	125
Foundation Soil Zone (Western site walls on alluvial soil - Qpf)	30	100	120
Foundation Soil Zone (Eastern site walls on bedrock cut – QTsc/Tus)	36	0	125

The above assumes that the reinforced soil zone will generally consist of imported materials and that the retained and foundation soil zones fill will consist of excavated on-site materials. If select fill material cannot be generated from on-site cuts, imported select fill should be used as the reinforced soil zone behind the wall. Fill in the reinforced soil zone should be non-expansive, consisting predominantly of sand and gravel with less than 30 percent passing the No. 200 sieve. The manufacturer's recommendations should be followed regarding design and construction. We should be retained to review the design calculations, plans and details for conformance with project requirements.

SECTION 12: LIMITATIONS

This report, an instrument of professional service, has been prepared for the sole use of JS California Development, LLC specifically to support the design of the Twin Oaks Drive Subdivision project in Los Gatos, California. The opinions, conclusions, and recommendations

presented in this report have been formulated in accordance with accepted geotechnical engineering practices that exist in Northern California at the time this report was prepared. No warranty, expressed or implied, is made or should be inferred.

Recommendations in this report are based upon the soil and groundwater conditions encountered during our subsurface exploration. If variations or unsuitable conditions are encountered during construction, Cornerstone must be contacted to provide supplemental recommendations, as needed.

JS California Development, LLC may have provided Cornerstone with plans, reports and other documents prepared by others. JS California Development, LLC understands that Cornerstone reviewed and relied on the information presented in these documents and cannot be responsible for their accuracy.

Cornerstone prepared this report with the understanding that it is the responsibility of the owner or their representatives to see that the recommendations contained in this report are presented to other members of the design team and incorporated into the project plans and specifications, and that appropriate actions are taken to implement the geotechnical recommendations during construction.

Conclusions and recommendations presented in this report are valid as of the present time for the development as currently planned. Changes in the condition of the property or adjacent properties may occur with the passage of time, whether by natural processes or the acts of other persons. In addition, changes in applicable or appropriate standards may occur through legislation or the broadening of knowledge. Therefore, the conclusions and recommendations presented in this report may be invalidated, wholly or in part, by changes beyond Cornerstone's control. This report should be reviewed by Cornerstone after a period of three (3) years has elapsed from the date of this report. In addition, if the current project design is changed, then Cornerstone must review the proposed changes and provide supplemental recommendations, as needed.

An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Recommendations provided in this report are based on the assumption that Cornerstone will be retained to provide observation and testing services during construction to confirm that conditions are similar to that assumed for design, and to form an opinion as to whether the work has been performed in accordance with the project plans and specifications. If we are not retained for these services, Cornerstone cannot assume any responsibility for any potential claims that may arise during or after construction as a result of misuse or misinterpretation of Cornerstone's report by others. Furthermore, Cornerstone will cease to be the Geotechnical-Engineer-of-Record if we are not retained for these services.

SECTION 13: REFERENCES

Aagaard, B.T., Blair, J.L., Boatwright, J., Garcia, S.H., Harris, R.A., Michael, A.J., Schwartz, D.P., and DiLeo, J.S., 2016, Earthquake outlook for the San Francisco Bay region 2014–2043

(ver. 1.1, August 2016): U.S. Geological Survey Fact Sheet 2016–3020, 6 p., http://dx.doi.org/10.3133/fs20163020.

ATC Hazards by Location, Hazards by Location, 2024, https://hazards.atcouncil.org/

American Concrete Pavement Association (ACPA, 2006). *Design of Concrete Pavement for Streets and Roads.*

ASCE 7-16. American Society of Civil Engineers. (2016). *Minimum Design Loads and Associated Criteria for Buildings and Other Structures.*

California Building Code, 2022, Structural Engineering Design Provisions, Vol. 2.
California Geological Survey, 1991, State of California Special Studies Zones, Los Gatos 7.5-Minute Quadrangle, California: Revised Official Map, November 1, 1:24,000.

California Geological Survey, 2002, State of California Seismic Hazard Zones, Los Gatos 7.5-Minute Quadrangle, California: Seismic Hazard Zone Report 069.

CGS. (2024). *Earthquake Zones of Required Investigation.* CGS Homepage. https://maps.conservation.ca.gov/cgs/EQZApp/app/

Dibblee, T.W. and Minch, J.A., 2005, Geologic map of the Los Gatos quadrangle, Santa Clara & Santa Cruz Counties, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-157, scale 1:24,000.

Federal Emergency Management Administration (FEMA), 2009, FIRM Town of Los Gatos, California, Community Panel #0603430377.

Ishihara, K., 1985, Stability of Natural Deposits During Earthquakes: Proceedings Eleventh International Conference on Soil Mechanics and Foundation Engineering, San Francisco.

McLaughlin, R.J., Clark, J.C., Brabb, E.E., and Helley, E.J., 2001, Geologic map and structure sections of the Los Gatos 7 1/2' quadrangle, Santa Clara and Santa Cruz Counties, California: U.S. Geological Survey, Open-File Report OF-91-593, scale 1:24,000.

Nationwide Environmental Title Research, Historic Aerials by NETR Online, http://www.historicaerials.com/

Nolan Associates, 1999, Geotechnical and Seismic Safety Element Working Paper, Town of Los Gatos General Plan Update: report to William Frost & Associates, January 30, 1999.

Ritter, J.R., and Dupre, W.R., 1972, Map Showing Areas of Potential Inundation by Tsunamis in the San Francisco Bay Region, California: San Francisco Bay Region Environment and Resources Planning Study, USGS Basic Data Contribution 52, Misc. Field Studies Map MF-480.

Rogers, T.H., and J.W. Williams, 1974 Potential Seismic Hazards in Santa Clara County, California, Special Report No. 107: California Division of Mines and Geology.

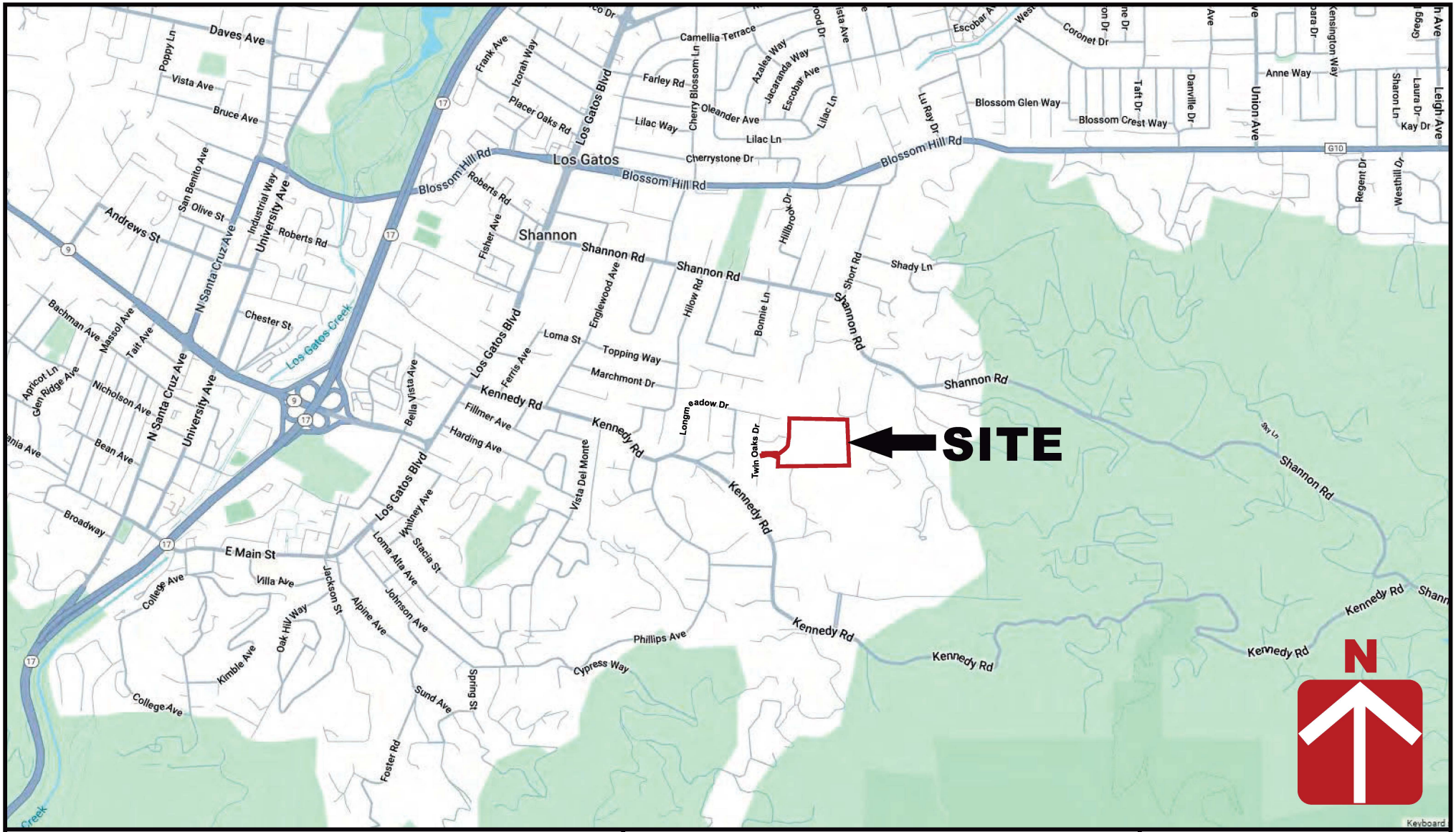
Seed, H.B. and I.M. Idriss, 1971, A Simplified Procedure for Evaluation soil Liquefaction Potential: JSMFC, ASCE, Vol. 97, No. SM 9, pp. 1249 – 1274.

State of California Department of Transportation, Highway Design Manual, Latest Edition.

Tokimatsu, K., and Seed, H. Bolton, 1987, Evaluation of Settlements in Sands due to Earthquake Shaking, ASCE Journal of Geotechnical Engineering, Vol. 113, August 1987, pp. 861-878.

Working Group on California Earthquake Probabilities, 2015, The Third Uniform California Earthquake Rupture Forecast, Version 3 (UCERF), U.S. Geological Survey Open File Report 2013-1165 (CGS Special Report 228). *KMZ files available at:* www.scec.org/ucerf/images/ucerf3_timedep_30yr_probs.kmz

Youd, T.L. and Hoose, S.N., 1978, Historic Ground Failures in Northern California Triggered by Earthquakes, United States Geologic Survey Professional Paper 993.

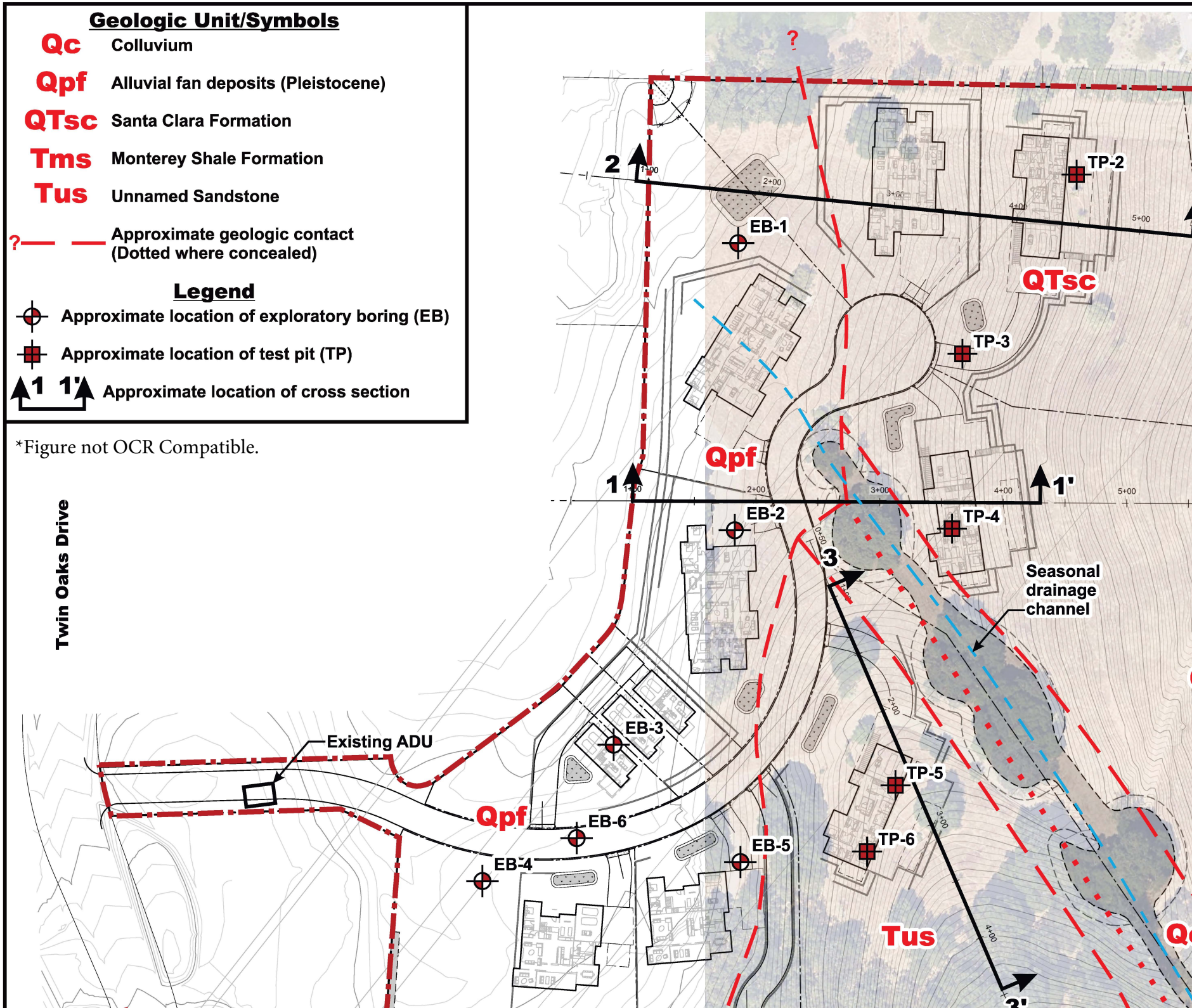


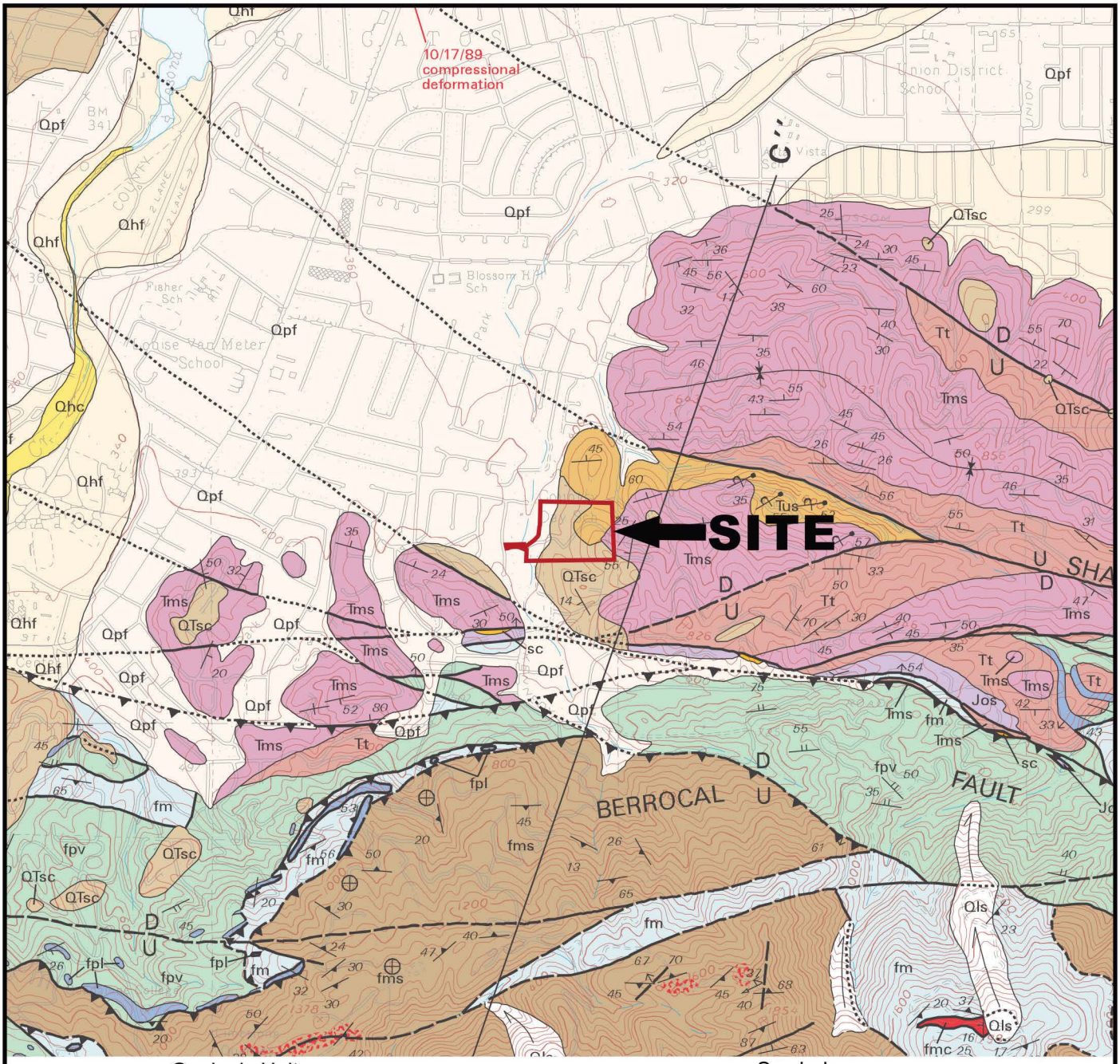
CORNERSTONE EARTH GROUP

Vicinity Map

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure 1
Date	September 2024
Drawn By	RRN


Geologic Unit/Symbols
Qc Colluvium
Qpf Alluvial fan deposits (Pleistocene)
QTsc Santa Clara Formation
Tms Monterey Shale Formation
Tus Unnamed Sandstone
? Approximate geologic contact (Dotted where concealed)
Legend
Approximate location of exploratory boring (EB)
Approximate location of test pit (TP)
1 1' Approximate location of cross section
*Figure not OCR Compatible.
Twin Oaks Drive
Existing ADU
EB-1
EB-2
EB-3
EB-4
EB-5
EB-6
TP-2
TP-3
TP-4
TP-5
TP-6
QTsc
Qpf
Tus
Seasonal drainage channel
1
1'
2
3
3'
?



Geologic Units

Qpf — Alluvial Fan Deposits (Pleistocene) Gravel, sand, and clay.

QTsc — Santa Clara Formation (Pleistocene and Pliocene) Gravel Conglomerate of pebbles of mostly mixed detritus derived from local rocks.

Tms — Monterey Shale (middle and lower Miocene) Siliceous shale, white-weathered, thin bedded, platy, locally includes fine grained sandstone layers.

Tus — Unnamed Sandstone (middle Miocene or younger)/ Temblor Sandstone (Dibblee & Minch, 2005) light gray to tan, moderately hard, thick bedded, arkosic.

Symbols

Contact - dashed where approximate, dotted where concealed

Fault - dashed where approximate, dotted where concealed

45 — Strike and dip of metamorphic or igneous rock foliation

N

0 2000 4000

APPROXIMATE SCALE (FEET)

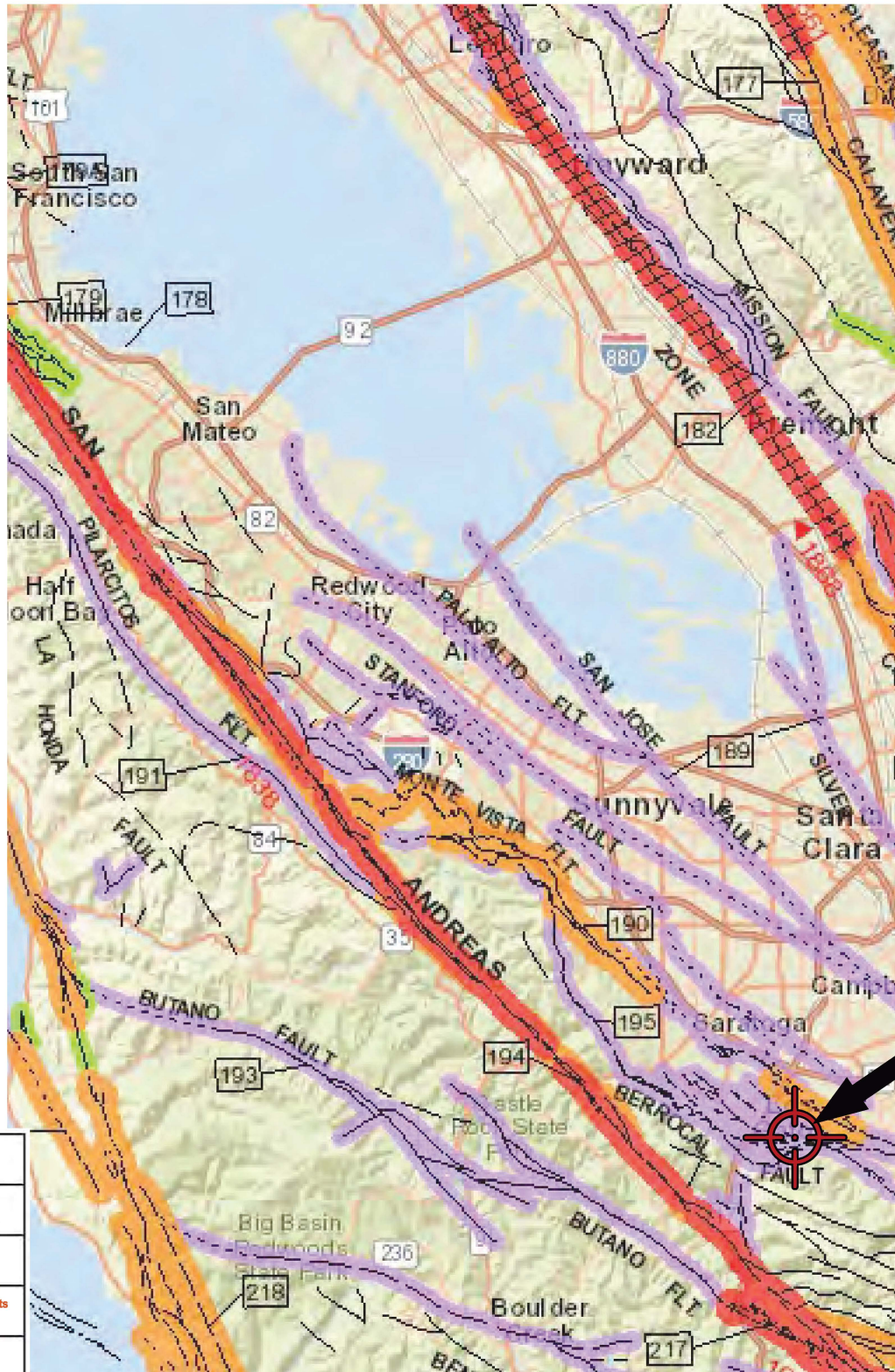
Base: USGS, Geologic Maps and Structure Sections of the Southwestern Santa Clara Valley and Southern Santa Cruz Mountains, Santa Clara and Santa Cruz Counties, California, by McLaughlin, Clark, Brabb, Helley, and Colón, 2001.

CORNERSTONE EARTH GROUP

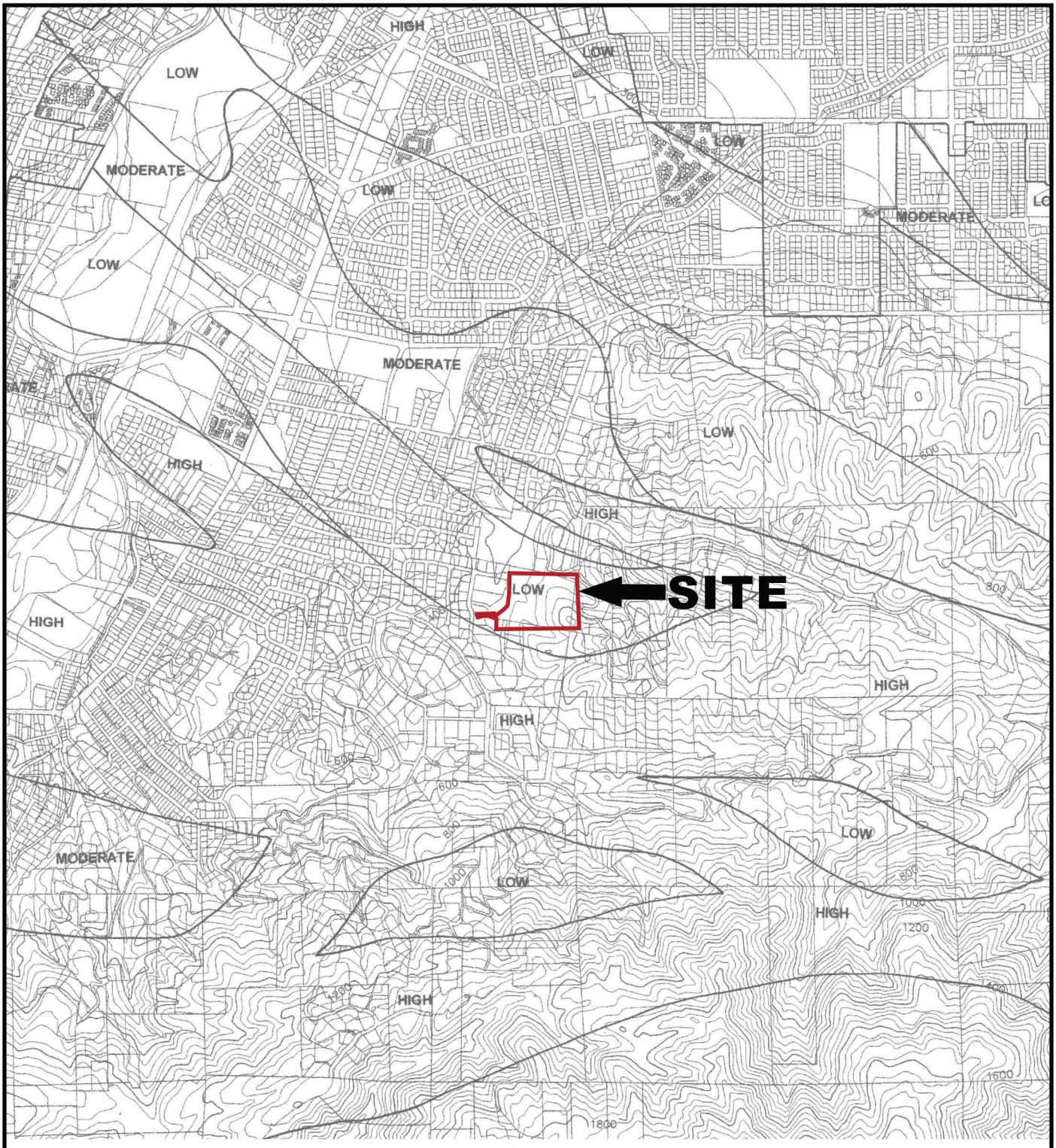
Vicinity Geologic Map

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure 3
Date	September 2024
Drawn By	RRN



Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION: ON LAND	DESCRIPTION: OFFSHORE
ry	Late Quaternary	Historic	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	11,700			Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
						Faults showing evidence of displacement during late	Fault cuts strata of Late Pleistocene age.



EXPLANATION

Town of Los Gatos Sphere of Influence

INTERPRETATION

LOW
- Areas outside recognized fault zones, with no concentrations of photo lineaments or evidence of widespread coseismic deformation

MODERATE
- Areas within 400-500 feet of probable fault traces mapped as dashed or dotted lines
- Areas containing concentrated clusters of mapped aerial photo lineaments
- Areas with widespread evidence of coseismic deformation caused by the 1989 Loma Prieta Earthquake

NOTE: More than one of the above mentioned criteria occurring in a single area typically constitutes a HIGH fault rupture hazard rating

HIGH
- Areas within 400-500 feet of recognized, undashed fault traces
- Areas with widespread evidence of coseismic deformation that correspond with concentrated aerial photo lineaments and /or recognized fault zones

N

0 2000 4000

APPROXIMATE SCALE (FEET)

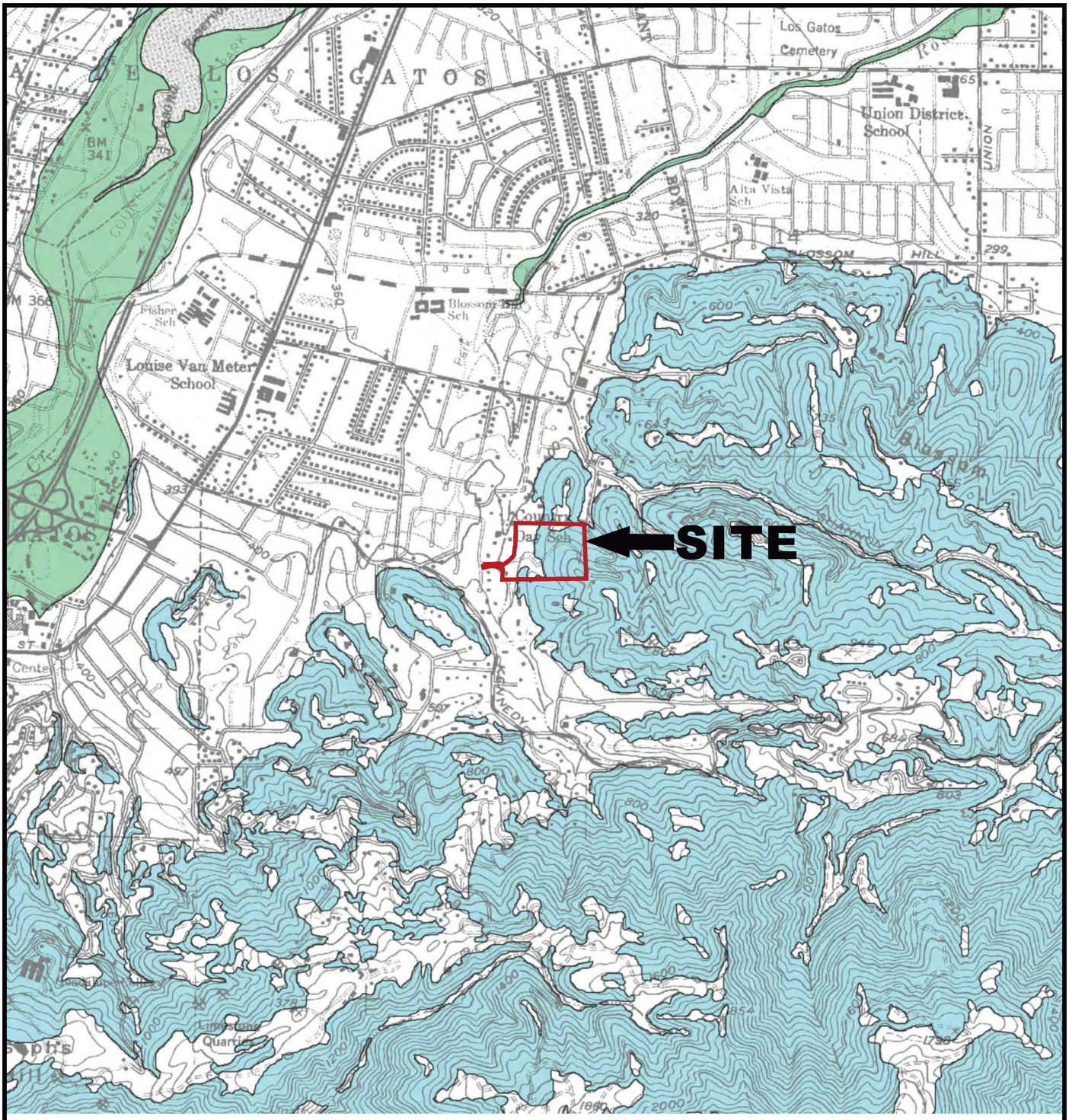
Base: Nolan Associates, Fault Rupture Hazard Zones Map for the Town of Los Gatos General Plan Update - Plate #4, dated 01/17/1999.

CORNERSTONE EARTH GROUP

Vicinity Fault Hazard Rupture Zones

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure 5
Date	September 2024
Drawn By	RRN



Explanation

Liquefaction

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 Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides

Areas where previous occurrence on landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

N

0 2000 4000

APPROXIMATE SCALE (FEET)

Base: CGS, State of California Seismic Hazard Zones, Los Gatos Quadrangle, released 09/23/2002.

CORNERSTONE EARTH GROUP

Seismic Hazard Map

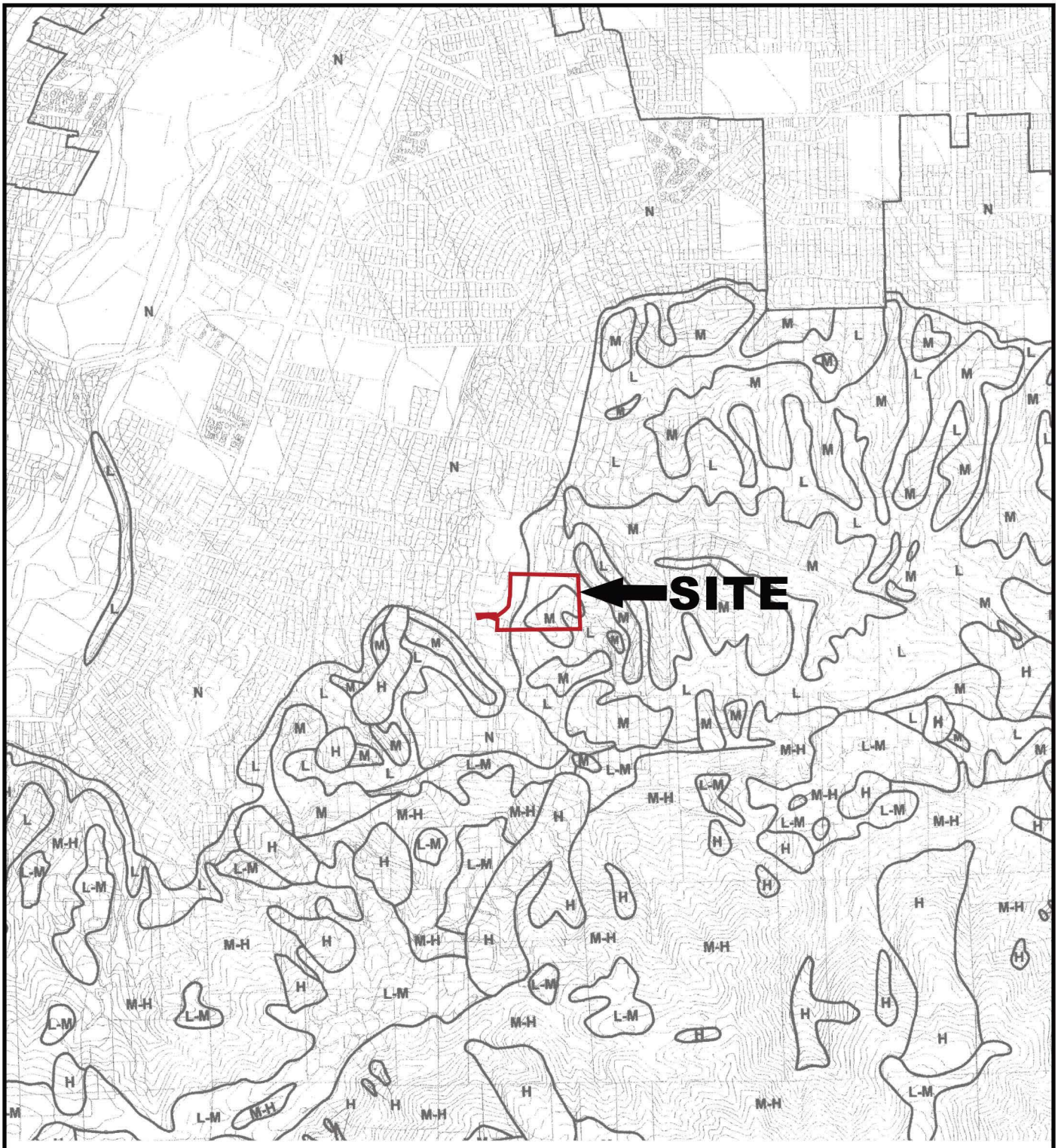
170 Twin Oaks Drive
Los Gatos, CA

Project Number: 1530-1-1

Figure Number: Figure 6

Date: September 2024

Drawn By: RRN



EXPLANATION

Town of Los Gatos Sphere of Influence Boundary

SYMBOL	DEGREE OF POTENTIAL SLOPE STABILITY HAZARD	INTERPRETATION
N	NEGLIGIBLE	<30% slopes
L	LOW	30%-50% slopes in Tertiary sedimentary rocks
L-M	LOW to MODERATE	Broad ridge crests in Franciscan rocks (30% average slope)
M	MODERATE	>50% slopes in Tertiary sedimentary rocks (including areas of potential debris flow hazard)
M-H	MODERATE to HIGH	>50% slopes in Franciscan rocks (including narrow ridge crests with average slopes >30%)
H	HIGH	Landslide interpreted from aerial photographs or field mapping

N

0 2000 4000

APPROXIMATE SCALE (FEET)

Base: Nolan Associates, Slope Stability Hazard Map for the Town of Los Gatos General Plan Update - Plate #8, dated 11/21/2002.

CORNERSTONE EARTH GROUP

Slope Stability Hazard Map

170 Twin Oaks Drive
Los Gatos, CA

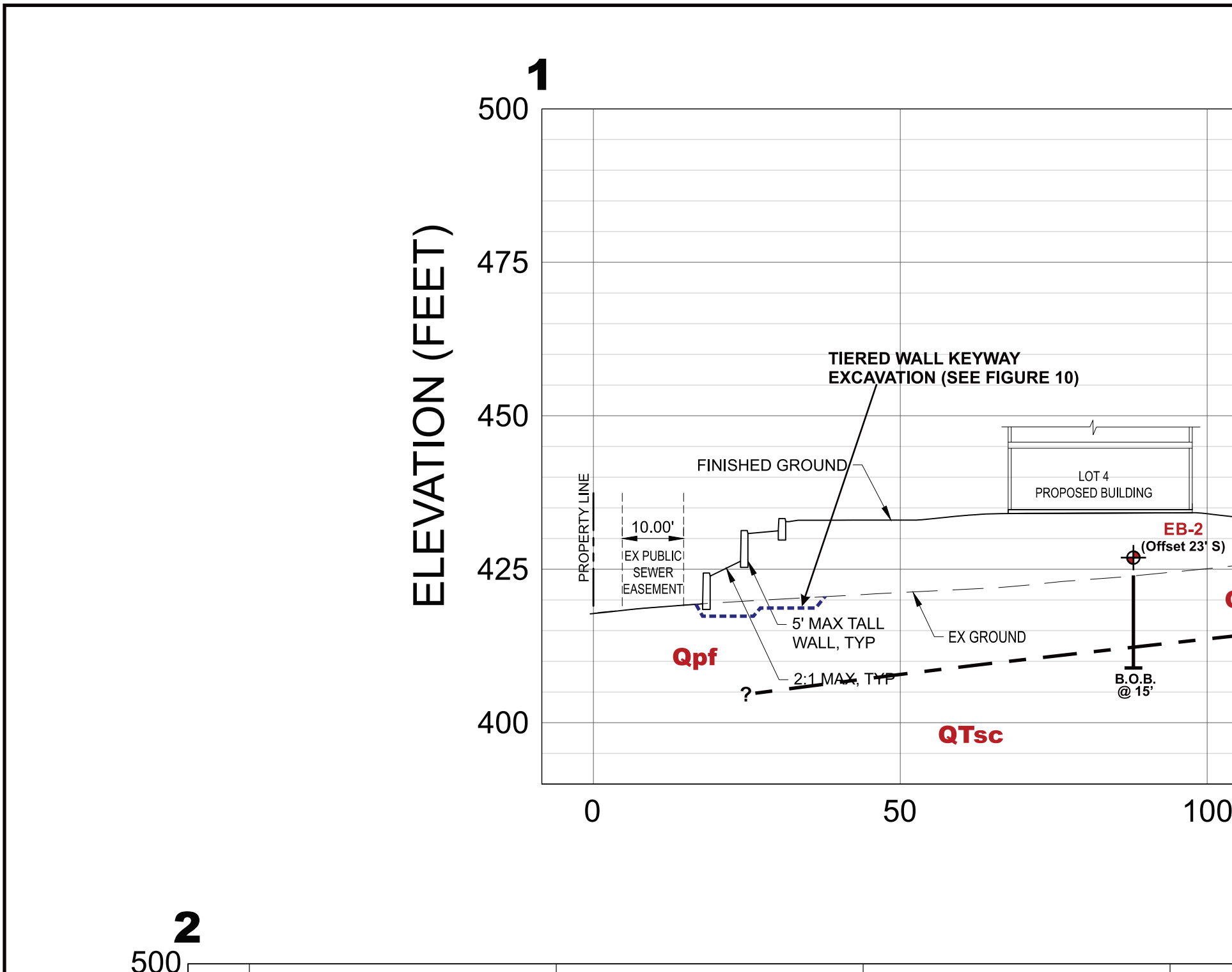
Project Number: 1530-1-1

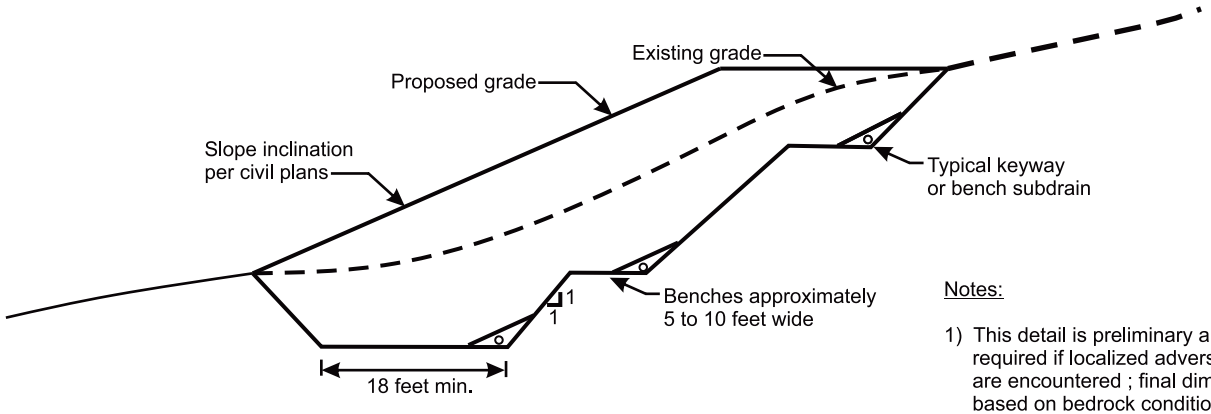
Figure Number: Figure 7

Date: September 2024

Drawn By: RRN

*Figure not OCR Compatible.



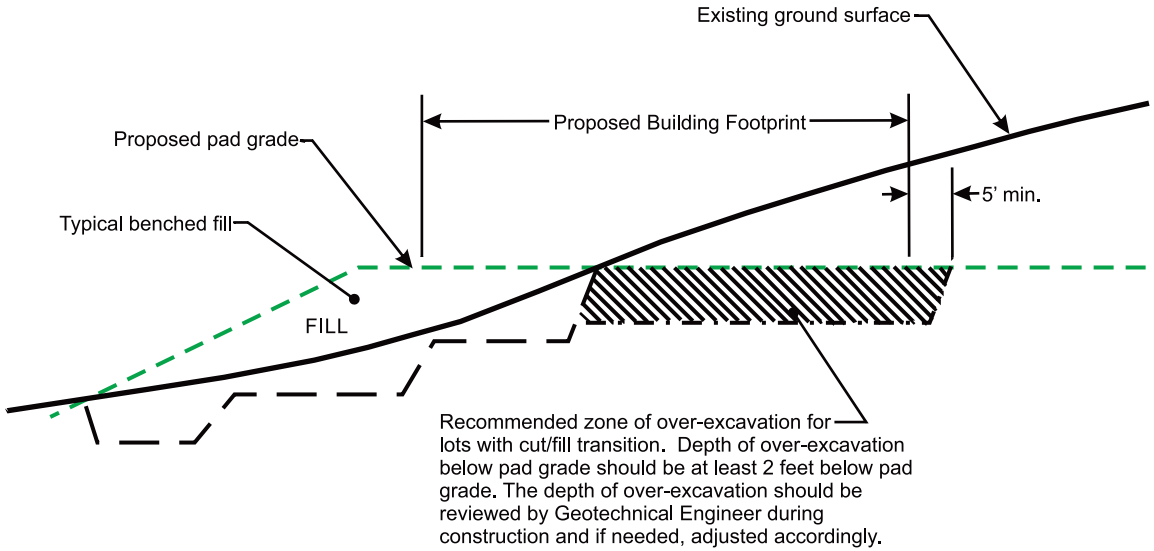


Notes:

1) This detail is preliminary and modifications may be required if localized adverse bedrock or soil conditions are encountered ; final dimensions to be determined based on bedrock conditions in the field.
2) Geotechnical engineer to observe keyways and subdrains prior to placement of fill.
3) Place erosion control as specified by civil engineer; see report for details.

Detail 1 - Typical Bench and Keyway Detail

Not to scale



Detail 2 - Conceptual Cut / Fill Transition Over-Excavation

Not to scale

2% min. slope b
of keyway or be

Detail 4 -

APPENDIX A: FIELD INVESTIGATION

The field investigation consisted of a surface reconnaissance and a subsurface exploration program using truck-mounted, hollow-stem auger drilling equipment and a mid-sized mini-excavator. Six 8-inch-diameter exploratory borings were drilled on August 29, 2024, to depths of 10 to 20 feet. Six test pits were also excavated on August 29, 2024, with the mini-excavator to depths ranging from 4½ to 5¼ feet. The approximate locations of exploratory borings and test pits are shown on the Site Plan, Figure 2 and Figure 3. The soils encountered were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D2488). Boring logs, as well as a key to the classification of the soil and bedrock, are included as part of this appendix.

Boring and test pit locations were approximated using existing site boundaries, a hand held GPS unit, and other site features as references. Boring and test pit elevations were based on interpolation of plan contours. The locations and elevations of the borings and test pits should be considered accurate only to the degree implied by the method used.

Representative soil samples were obtained from the borings at selected depths. All samples were returned to our laboratory for evaluation and appropriate testing. The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The 2-inch O.D. split-spoon sampler was driven 18 inches and the number of blows was recorded for each 6 inches of penetration (ASTM D1586). 2.5-inch I.D. samples were obtained using a Modified California Sampler driven into the soil with the 140-pound hammer previously described. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows required to drive the last 12 inches. The various samplers are denoted at the appropriate depth on the boring logs.

Field tests included an evaluation of the unconfined compressive strength of the soil samples using a pocket penetrometer device. The results of these tests are presented on the individual boring logs at the appropriate sample depths.

Attached boring and test pit logs and related information depict subsurface conditions at the locations indicated and on the date designated on the logs. Subsurface conditions at other locations may differ from conditions occurring at these boring and test pit locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

UNIFIED SOIL CLASSIFICATION (ASTM D-2487-98)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	Cu>4 AND 1<Cc<3	GW	WELL-GRADED GRAVEL
			Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	Cu>6 AND 1<Cc<3	SW	WELL-GRADED SAND
			Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY
			PI>4 AND PLOTS<"A" LINE	ML	SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY
			PI PLOTS <"A" LINE	MH	ELASTIC SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT

OTHER MATERIAL SYMBOLS

- Poorly-Graded Sand with Clay
- Clayey Sand
- Sandy Silt
- Artificial/Undocumented Fill
- Poorly-Graded Gravelly Sand
- Topsoil
- Well-Graded Gravel with Clay
- Well-Graded Gravel with Silt
- Sand
- Silt
- Well Graded Gravelly Sand
- Gravelly Silt
- Asphalt
- Boulders and Cobble

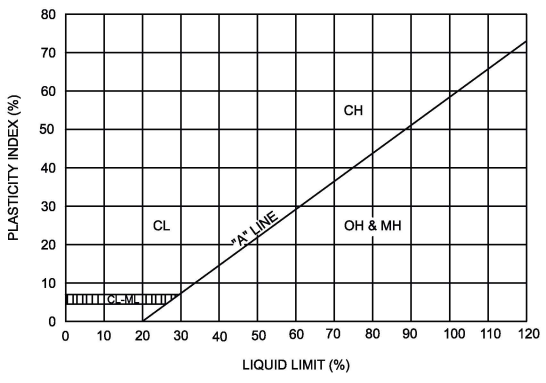
SAMPLER TYPES

- SPT
- Modified California (2.5" I.D.)
- Rock Core
- Shelby Tube
- No Recovery
- Grab Sample

ADDITIONAL TESTS

CA	-	CHEMICAL ANALYSIS (CORROSIVITY)	PI	-	PLASTICITY INDEX
CD	-	CONSOLIDATED DRAINED TRIAXIAL	SW		SWELL TEST
CN	-	CONSOLIDATION	TC	-	CYCLIC TRIAXIAL
CU	-	CONSOLIDATED UNDRAINED TRIAXIAL	TV	-	TORVANE SHEAR
DS	-	DIRECT SHEAR	UC	-	UNCONFINED COMPRESSION
PP	-	POCKET PENETROMETER (TSF)	(1.5)	-	(WITH SHEAR STRENGTH IN KSF)
(3.0)	-	(WITH SHEAR STRENGTH IN KSF)		-	
RV	-	R-VALUE	UU		UNCONSOLIDATED UNDRAINED TRIAXIAL
SA	-	SIEVE ANALYSIS: % PASSING #200 SIEVE		-	
▼	-	WATER LEVEL			

PLASTICITY CHART



PENETRATION RESISTANCE
(RECORDED AS BLOWS / FOOT)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	STRENGTH** (KSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.5
MEDIUM DENSE	10 - 30	MEDIUM STIFF	4 - 8	0.5-1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

** UNDRAINED SHEAR STRENGTH IN KIPS/SQ. FT. AS DETERMINED BY LABORATORY TESTING OR APPROXIMATED BY THE STANDARD PENETRATION TEST, POCKET PENETROMETER, TORVANE, OR VISUAL OBSERVATION.

CORNERSTONE EARTH GROUP

LEGEND TO SOIL DESCRIPTIONS

Figure Number A-1

HARDNESS

Soft – Reserved for plastic material alone.
Low hardness – Can be gouged deeply or carved easily with a knife blade.
Moderately hard – Can be readily scratched by a knife blade: scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
Hard – Can be scratched with difficulty: scratch produces little powder and is often faintly visible.
Very hard – Cannot be scratched with knife blade: leaves a metallic streak.

STRENGTH

Plastic or very low strength.
Friable – Crumbles easily by rubbing with fingers.
Weak – An unfractured specimen of such material will crumble under light hammer blows.
Moderately strong – Specimen will withstand a few heavy hammer blows before breaking.
Strong – Specimen will withstand a few heavy ringing blows and will yield with difficulty only dust and small flying fragments.
Very strong – Specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

WEATHERING – The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

Deep – Moderate to complete mineral decomposition: extensive disintegration: deep and thorough discoloration: many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.
Moderate – Slight change or partial decomposition of minerals: little disintegration: cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.
Little – No megascopic decomposition of minerals: little or no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains or fracture surfaces.
Fresh – Unaffected by weathering agents. No disintegration or discoloration. Fractures usually less numerous than joints.

FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 feet	very thick-bedded
Blocky	2.0 to 4.0 feet	thick-bedded
Slabby	0.2 to 2.0 feet	thin-bedded
Flaggy	0.05 to 0.2 feet	very thin-bedded
Shaly or Platy	0.01 to 0.05 feet	laminated
Papery	less than 0.01 feet	thinly laminated

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME 170 Twin Oaks Drive
PROJECT NUMBER 1530-1-1
PROJECT LOCATION Los Gatos, CA

DATE STARTED 8/29/24 **DATE COMPLETED** 8/29/24
GROUND ELEVATION 420 FT +/- **BORING DEPTH** 20 ft.
DRILLING CONTRACTOR Exploration Geoservices Inc **LATITUDE** 37.226118° **LONGITUDE** -121.952366°
DRILLING METHOD Mobile B-61, 8 inch Hollow-Stem Auger **GROUND WATER LEVELS:**
LOGGED BY RA ▽ **AT TIME OF DRILLING** Not Encountered
NOTES ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
420.0	0	**Silty, Clayey Sand (SC-SM) [Qst]** very dense, dry, light gray brown, fine to coarse sand	50/6"	MC-1B	103	4			
418.0		**Sandy Lean Clay (CL) [Qpf]** hard, moist, dark brown to brown with reddish brown mottles, fine to medium sand, some subrounded gravel, moderate plasticity Liquid Limit = 28, Plastic Limit = 12	50/6"	MC-2B	122	11	16		>4.5
	5		52	MC-3B	113	13			>4.5
	10		58	MC-4B	109	18			>4.5
409.0		**Clayey Sand with Gravel (SC) [Qpf]** medium dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	39	MC-5B	98	17			
	15								
403.0		**Sandy Lean Clay (CL) [Qpf]** very stiff, moist, brown, fine to coarse sand, some fine subangular to subrounded gravel, low plasticity	77	MC-6A	105	19			
400.5									
400.0	20	**Clayey Sand with Gravel (SC) [QTsc]** dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel							
		Bottom of Boring at 20.0 feet.							
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 9/16/24 12:24 - P:\DRAFTING\GINT FILES\1530-1-1 170 TWIN OAKS.GPJ

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME 170 Twin Oaks Drive
PROJECT NUMBER 1530-1-1
PROJECT LOCATION Los Gatos, CA

DATE STARTED 8/29/24 **DATE COMPLETED** 8/29/24
GROUND ELEVATION 427 FT +/- **BORING DEPTH** 15 ft.
DRILLING CONTRACTOR Exploration Geoservices Inc **LATITUDE** 37.225489° **LONGITUDE** -121.952517°
DRILLING METHOD Mobile B-61, 8 inch Hollow-Stem Auger **GROUND WATER LEVELS:**
LOGGED BY RA ▽ **AT TIME OF DRILLING** Not Encountered
NOTES ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
427.0	0	**Silty, Clayey Sand (SC-SM) [Qst]** dense, dry, light gray brown, fine to coarse sand	60	MC-1B	107	6			
423.8		**Sandy Lean Clay (CL) [Qpf]** hard, moist, dark brown to brown with reddish brown mottles, fine to medium sand, some subrounded gravel, moderate plasticity	50/6"	MC-2B	113	12		52	>4.5
	5		50/5"	MC					>4.5
			50/6"	MC-4B	114	15			>4.5
415.0	10	**Clayey Sand with Gravel (SC) [QTsc]** very dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	52	SPT-5		15			
412.0	15	Bottom of Boring at 15.0 feet.							
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 9/16/24 12:24 - P:\DRAFTING\GINT FILES\1530-1-1 170 TWIN OAKS.GPJ

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME 170 Twin Oaks Drive
PROJECT NUMBER 1530-1-1
PROJECT LOCATION Los Gatos, CA

DATE STARTED 8/28/24 **DATE COMPLETED** 8/28/24
GROUND ELEVATION 424 FT +/- **BORING DEPTH** 14.4 ft.
DRILLING CONTRACTOR Exploration Geoservices Inc
LATITUDE 37.225067° **LONGITUDE** -121.952956°
DRILLING METHOD Mobile B-61, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY RA
▽ **AT TIME OF DRILLING** 13 ft.
NOTES
▼ **AT END OF DRILLING** 13 ft.

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
424.0	0	**Silty, Clayey Sand (SC-SM) [Qst]** medium dense, dry, light gray brown, fine to coarse sand	37	MC-1B	98	9	21		>4.5 ○
422.0		**Sandy Lean Clay (CL) [Qpf]** hard, moist, dark brown to brown with reddish brown mottles, fine to medium sand, some subrounded gravel, moderate plasticity Liquid Limit = 35, Plastic Limit = 14	50/5"	MC-2B	116	13			>4.5 ○
419.0	5	**Clayey Sand with Gravel (SC) [QTsc]** very dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50/3"	MC-3A	121	10			▲
416.5		**Clayey Sand (SC) [QTsc]** very dense, moist, light brown, fine to coarse sand, some fine subangular to subrounded gravel	50/6"	SPT-4		11		25	
	10								
		some sandstone gravel	50/5"	MC					
409.6		Bottom of Boring at 14.4 feet.							
	15								
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 9/16/24 12:24 - P:\DRAFTING\GINT FILES\1530-1-1 170 TWIN OAKS.GPJ

BORING NUMBER EB-4

CORNERSTONE EARTH GROUP

PROJECT NAME 170 Twin Oaks Drive
PROJECT NUMBER 1530-1-1
PROJECT LOCATION Los Gatos, CA

DATE STARTED 8/28/24 **DATE COMPLETED** 8/28/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Exploration Geoservices Inc
LATITUDE 37.224821° **LONGITUDE** -121.753385°
DRILLING METHOD Mobile B-61, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY RA
AT TIME OF DRILLING Not Encountered
NOTES _____
AT END OF DRILLING Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL)
	0		**Clayey Sand with Gravel (SC) [Fill]** very dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50/6"	MC-1B	115	11		29	
			Lean Clay with Sand (CL) [Qpf] hard, moist, dark brown with reddish brown mottles, fine to medium sand, some subrounded gravel, moderate plasticity	49	SPT-2		6			>4.5 ○
	5			74	MC-3	99	10			>4.5 ○
			Sandy Lean Clay (CL) [Qpf] very stiff, moist, brown with gray mottles, fine to medium sand, low plasticity	58	MC-4B	107	20			○
	10		Bottom of Boring at 10.0 feet.							
	15									
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf: 1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 9/16/24 12:24 - P:\DRAFTING\GINT FILES\1530-1-1 170 TWIN OAKS.GPJ

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME 170 Twin Oaks Drive
PROJECT NUMBER 1530-1-1
PROJECT LOCATION Los Gatos, CA

DATE STARTED 8/28/24 **DATE COMPLETED** 8/28/24
GROUND ELEVATION 435 FT +/- **BORING DEPTH** 15 ft.
DRILLING CONTRACTOR Exploration Geoservices Inc **LATITUDE** 37.224760° **LONGITUDE** -121.952664°
DRILLING METHOD Mobile B-61, 8 inch Hollow-Stem Auger **GROUND WATER LEVELS:**
LOGGED BY BTM ▽ **AT TIME OF DRILLING** Not Encountered
NOTES ▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
435.0	0	**Silty, Clayey Sand (SC-SM) [Qst]** dense, dry, light gray brown, fine to coarse sand	66	MC-1B	107	3			
		becomes very dense	50/6"	MC-2	102	5		42	
431.0		**Sandy Lean Clay (CL) [Qpf]** hard, moist, dark brown to brown with reddish brown mottles, fine to medium sand, some subrounded gravel, moderate plasticity	50/6"	MC-3		9			>4.5
	5		50/3"	SPT-4		11			>4.5
	10		45	SPT					>4.5
420.0	15	Bottom of Boring at 15.0 feet.							
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 9/16/24 12:24 - P:\DRAFTING\GINT FILES\1530-1-1 170 TWIN OAKS.GPJ

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME 170 Twin Oaks Drive
PROJECT NUMBER 1530-1-1
PROJECT LOCATION Los Gatos, CA

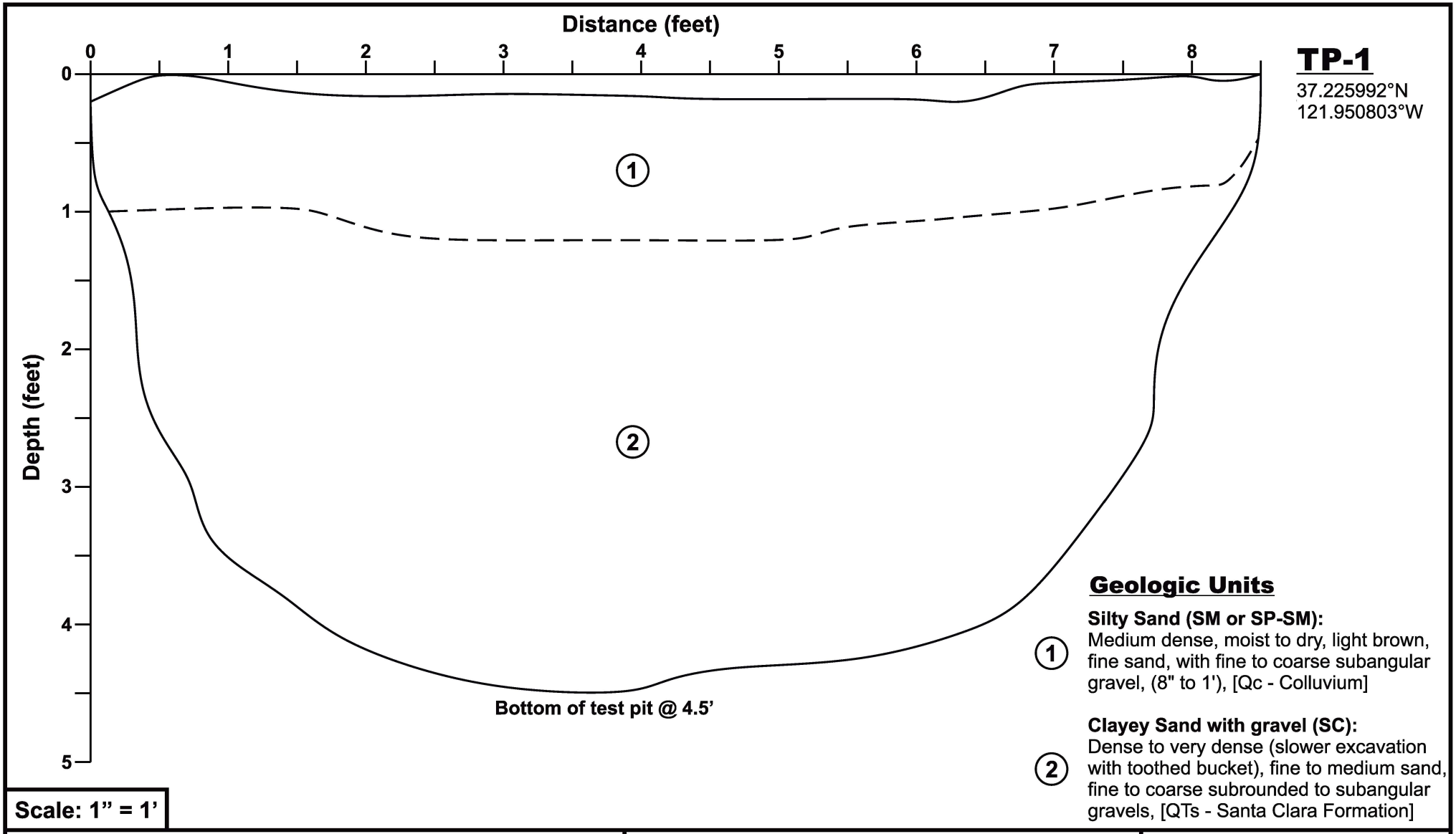
DATE STARTED 8/28/24 **DATE COMPLETED** 8/28/24
GROUND ELEVATION 427 FT +/- **BORING DEPTH** 15 ft.
DRILLING CONTRACTOR Exploration Geoservices Inc
LATITUDE 37.224878° **LONGITUDE** -121.953105°
DRILLING METHOD Mobile B-61, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY RA
AT TIME OF DRILLING Not Encountered
NOTES
AT END OF DRILLING Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
427.0	0	**Sandy Lean Clay (CL) [Fill]** hard, moist, brown with light reddish brown mottles, fine to coarse sand, low plasticity Liquid Limit = 33, Plastic Limit = 15	75	MC-1B	117	8	18		>4.5
424.5		**Silty, Clayey Sand (SC-SM) [Qst]** dense, dry, light gray brown, fine to coarse sand	78	MC-2B	112	5			
422.3	5	**Clayey Sand with Gravel (SC) [QTsc]** very dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50/6"	MC					
			52	SPT-4		11			
	10								
			50/6"	SPT-5		12			
412.0	15	Bottom of Boring at 15.0 feet.							
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 9/16/24 12:24 - P:\DRAFTING\GINT FILES\1530-1-1 170 TWIN OAKS.GPJ



TP-1
37.225992°N
121.950803°W

Geologic Units

① **Silty Sand (SM or SP-SM):**
Medium dense, moist to dry, light brown, fine sand, with fine to coarse subangular gravel, (8" to 1'), [Qc - Colluvium]

② **Clayey Sand with gravel (SC):**
Dense to very dense (slower excavation with toothed bucket), fine to medium sand, fine to coarse subrounded to subangular gravels, [QTs - Santa Clara Formation]

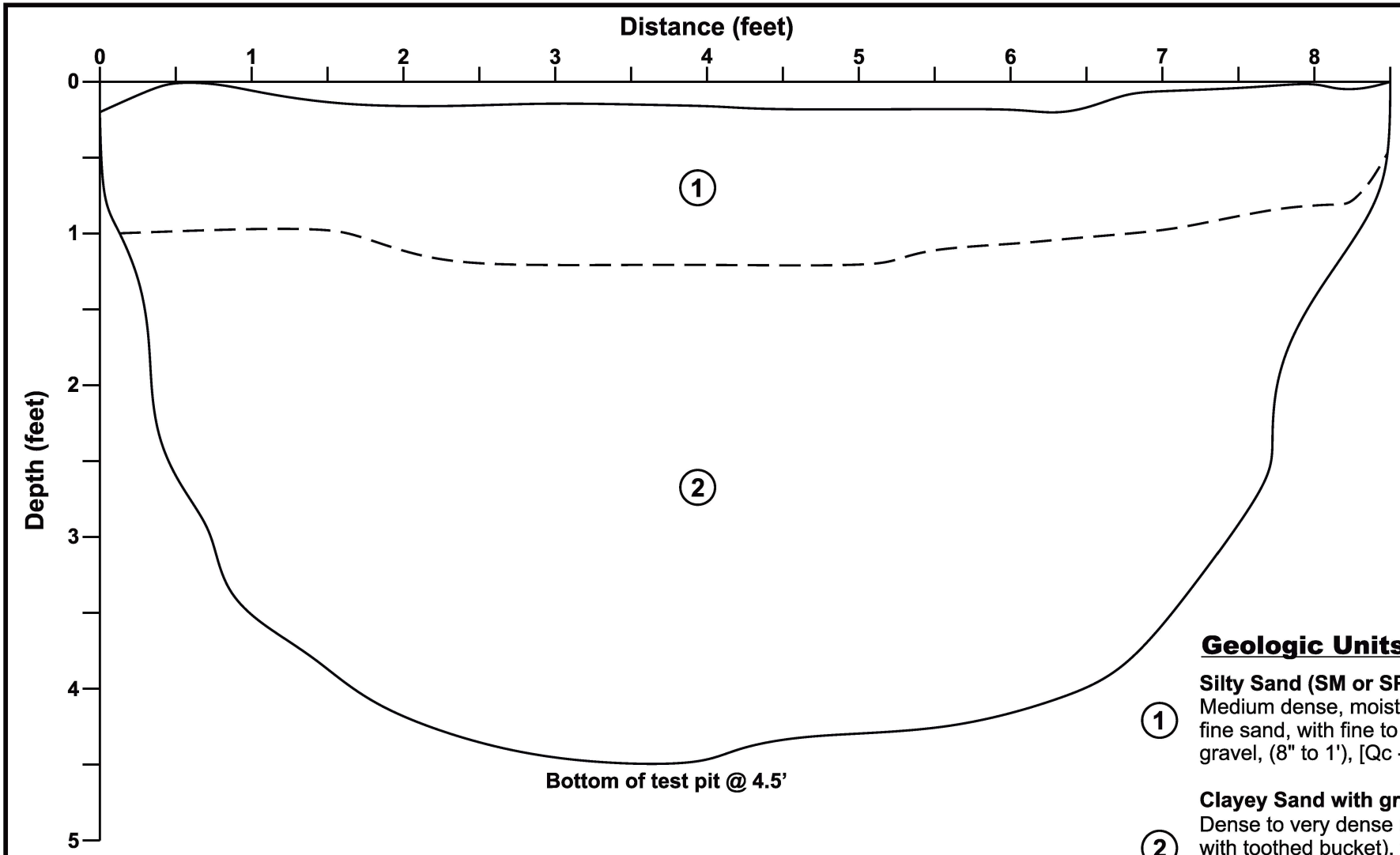
Scale: 1” = 1’

CORNERSTONE EARTH GROUP

Log of Test Pit #1

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure A-1
Date	September 2024
Drawn By	RRN



TP-1

37.225992°N
121.950803°W

Geologic Units

1 **Silty Sand (SM or SP-SM):**
Medium dense, moist to dry, light brown, fine sand, with fine to coarse subangular gravel, (8" to 1'), [Qc - Colluvium]

2 **Clayey Sand with gravel (SC):**
Dense to very dense (slower excavation with toothed bucket), fine to medium sand, fine to coarse subrounded to subangular gravels, [QTs - Santa Clara Formation]

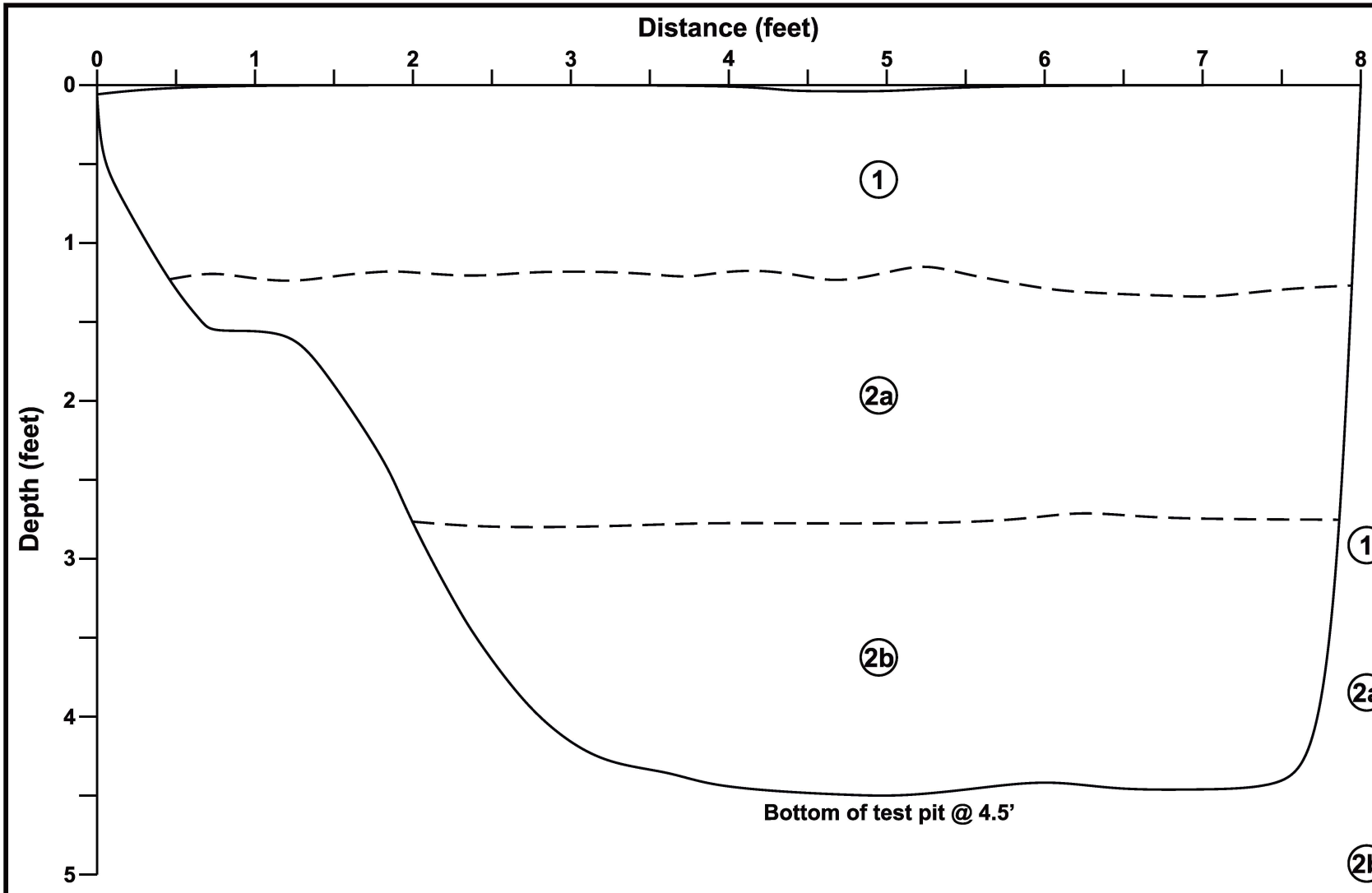
Scale: 1” = 1’

CORNERSTONE EARTH GROUP

Log of Test Pit #1

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure A-1
Date	September 2024
Drawn By	RRN



TP-2

37.226138°N
121.951401°W

Bearing: S16°E

Geologic Units

1 — Silty Sand (SP-SM): Medium dense, moist to dry, fine to coarse subangular gravel, [Qc - Colluvium]

2a — Sandy Lean Clay (CL): Hard (4.5+), moist, yellowish brown, fine to medium sand, [Stream Terrace Deposits]

2b — Clayey Sand (SC): Dense to very dense, brown and reddish brown variegated, fine to medium sand, fine subrounded gravel, [QTs - Santa Clara Formation]

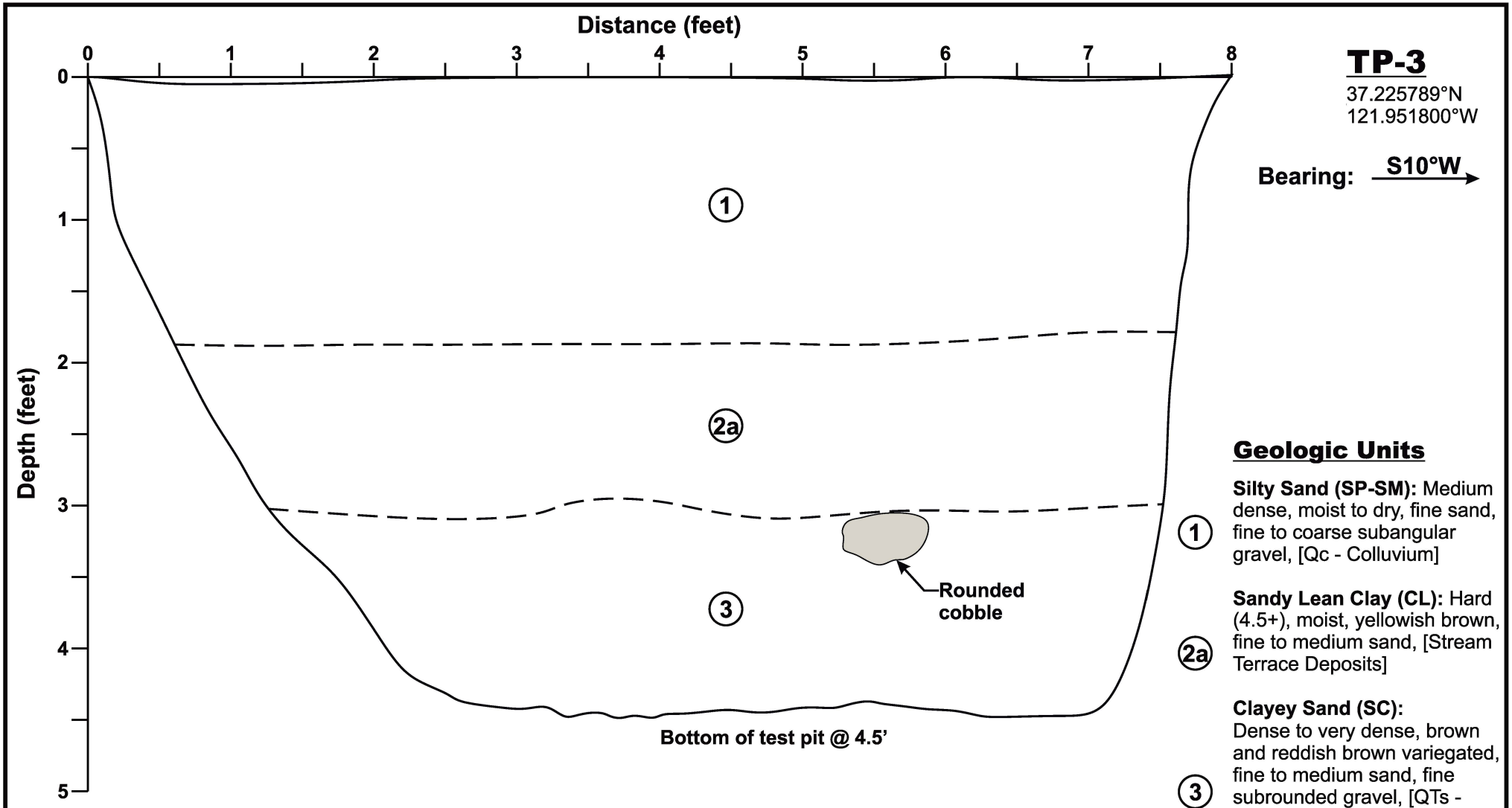
Scale: 1" = 1'

CORNERSTONE EARTH GROUP

Log of Test Pit #2

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure A-2
Date	September 2024
Drawn By	RRN



TP-3

37.225789°N
121.951800°W

Bearing: S10°W

Geologic Units

1 **Silty Sand (SP-SM):** Medium dense, moist to dry, fine sand, fine to coarse subangular gravel, [Qc - Colluvium]

2a **Sandy Lean Clay (CL):** Hard (4.5+), moist, yellowish brown, fine to medium sand, [Stream Terrace Deposits]

3 **Clayey Sand (SC):** Dense to very dense, brown and reddish brown variegated, fine to medium sand, fine subrounded gravel, [QTs - Santa Clara Formation]

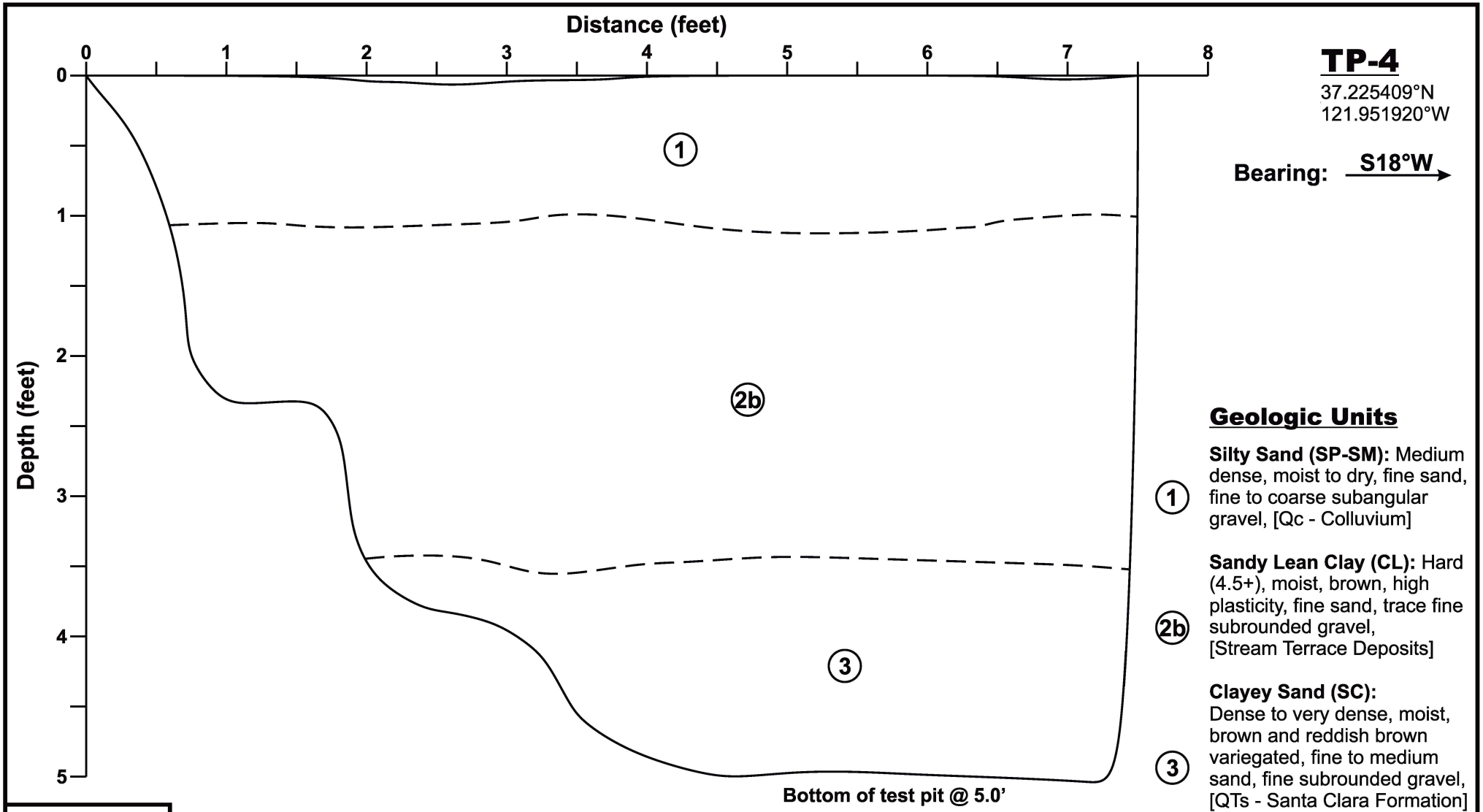
Scale: 1" = 1'

CORNERSTONE EARTH GROUP

Log of Test Pit #3

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure A-3
Date	September 2024
Drawn By	RRN



TP-4

37.225409°N
121.951920°W

Bearing: S18°W

Geologic Units

(1) **Silty Sand (SP-SM):** Medium dense, moist to dry, fine sand, fine to coarse subangular gravel, [Qc - Colluvium]

(2b) **Sandy Lean Clay (CL):** Hard (4.5+), moist, brown, high plasticity, fine sand, trace fine subrounded gravel, [Stream Terrace Deposits]

(3) **Clayey Sand (SC):** Dense to very dense, moist, brown and reddish brown variegated, fine to medium sand, fine subrounded gravel, [QTs - Santa Clara Formation]

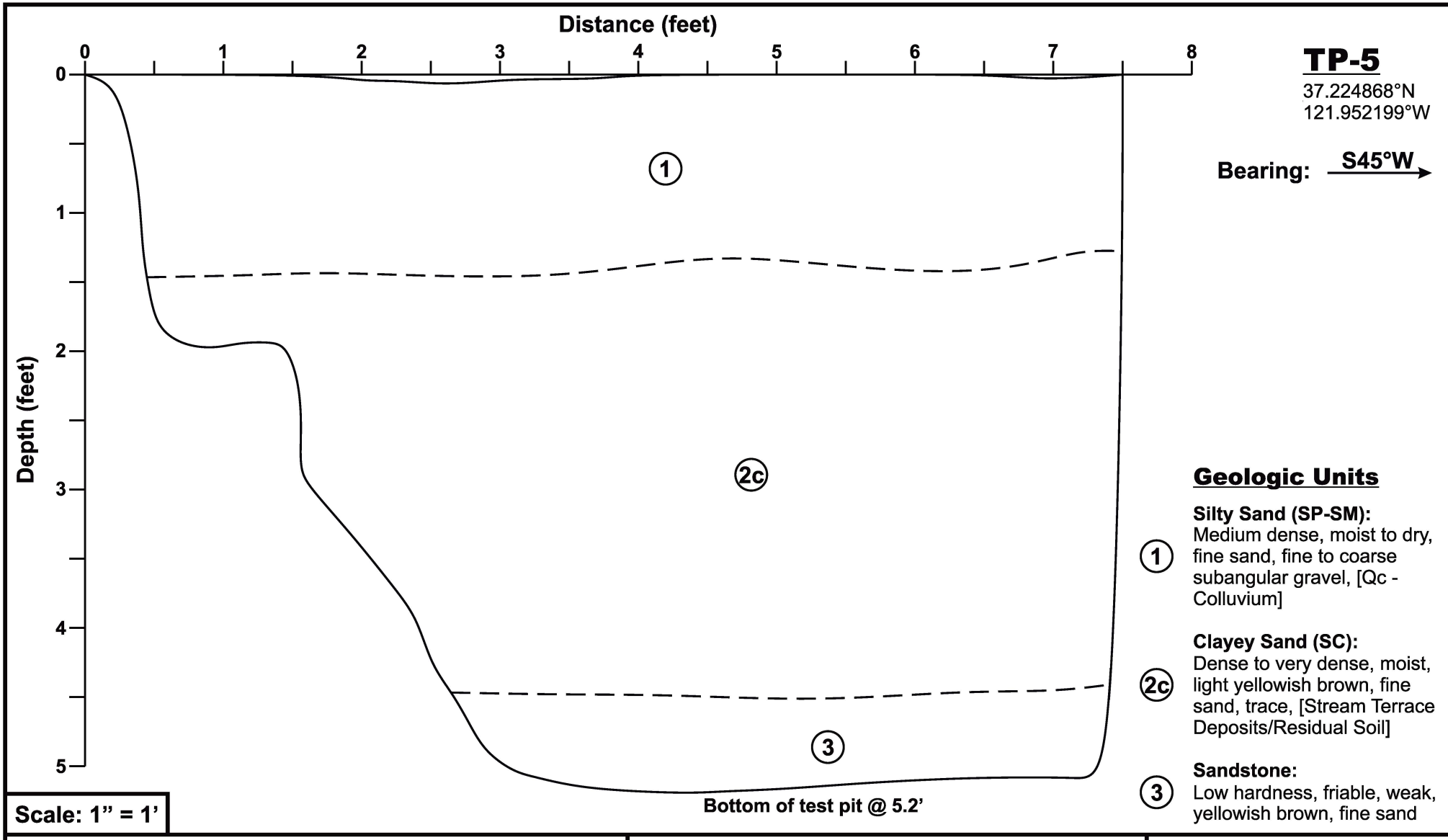
Scale: 1" = 1'

CORNERSTONE EARTH GROUP

Log of Test Pit #4

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure A-4
Date	September 2024
Drawn By	RRN



TP-5

37.224868°N
121.952199°W

Bearing: S45°W →

Geologic Units

1 — Silty Sand (SP-SM): Medium dense, moist to dry, fine sand, fine to coarse subangular gravel, [Qc - Colluvium]

2c — Clayey Sand (SC): Dense to very dense, moist, light yellowish brown, fine sand, trace, [Stream Terrace Deposits/Residual Soil]

3 — Sandstone: Low hardness, friable, weak, yellowish brown, fine sand

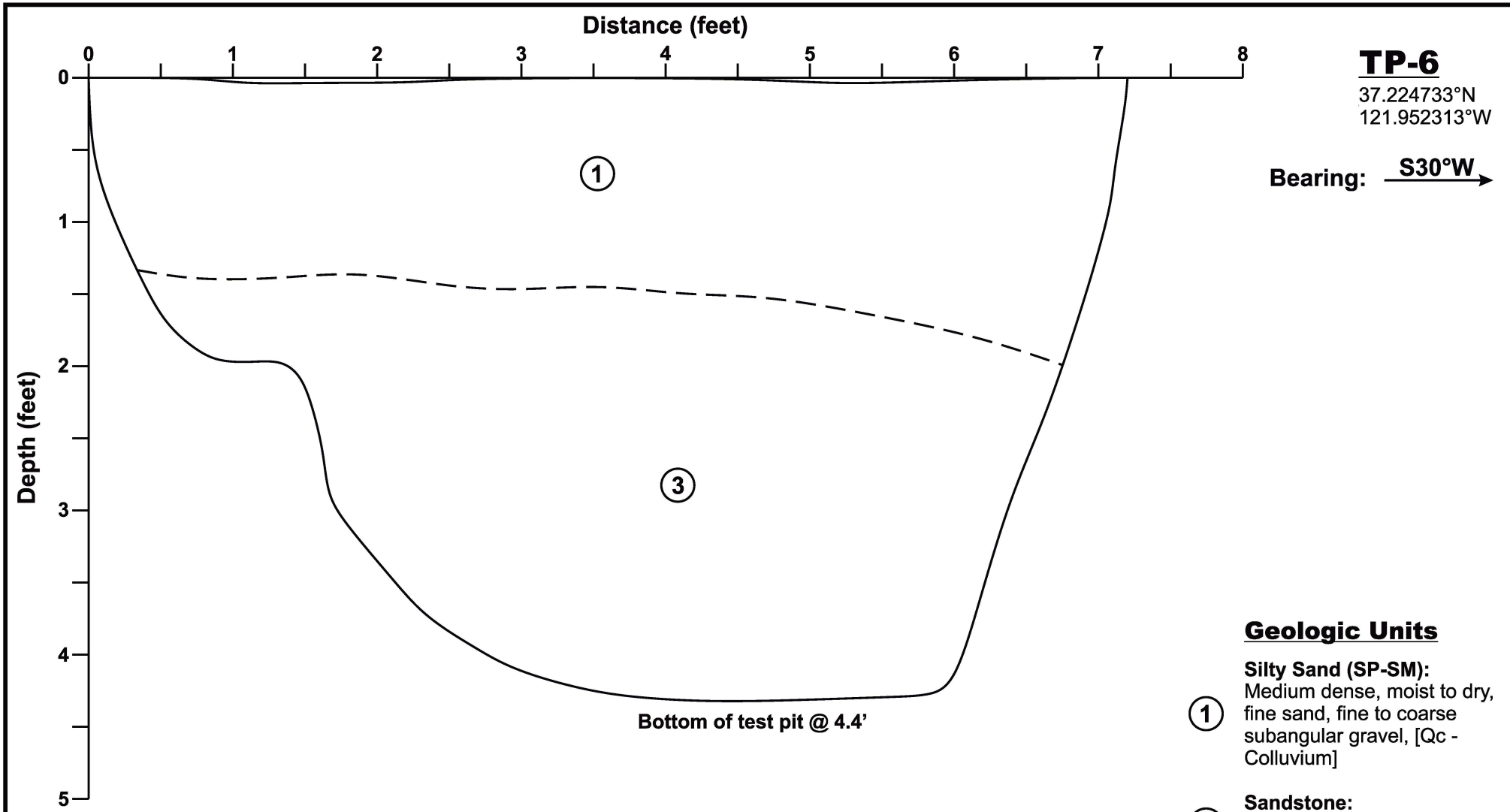
Scale: 1" = 1'

CORNERSTONE EARTH GROUP

Log of Test Pit #5

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure A-5
Date	September 2024
Drawn By	RRN



TP-6

37.224733°N
121.952313°W

Bearing: S30°W

Geologic Units

1 **Silty Sand (SP-SM):** Medium dense, moist to dry, fine sand, fine to coarse subangular gravel, [Qc - Colluvium]

3 **Sandstone:** Low hardness, friable, weak, yellowish brown, fine sand

Scale: 1" = 1'

CORNERSTONE EARTH GROUP

Log of Test Pit #6

170 Twin Oaks Drive
Los Gatos, CA

Project Number	1530-1-1
Figure Number	Figure A-6
Date	September 2024
Drawn By	RRN

APPENDIX B: LABORATORY TEST PROGRAM

The laboratory testing program was performed to evaluate the physical and mechanical properties of the soils retrieved from the site to aid in verifying soil classification.

Moisture Content: The natural water content was determined (ASTM D2216) on 26 samples of the materials recovered from the borings. These water contents are recorded on the boring logs at the appropriate sample depths.

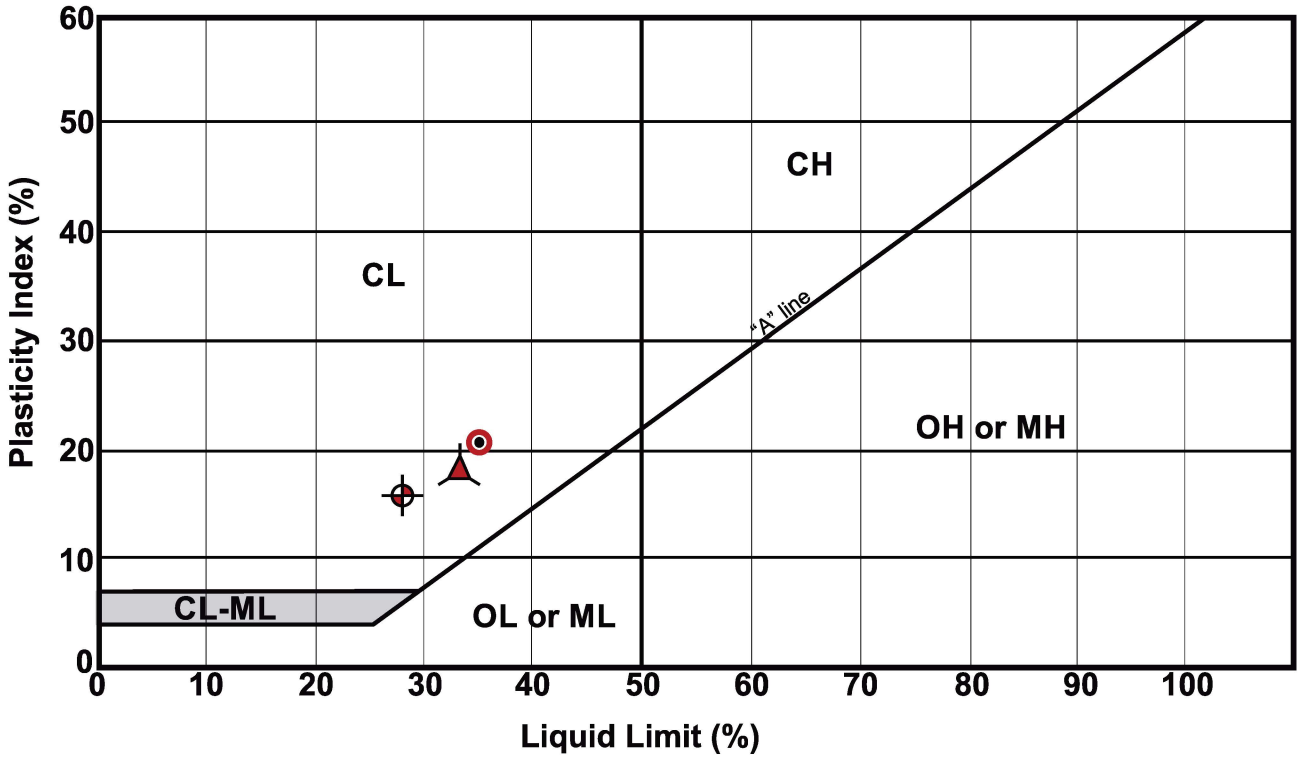
Dry Densities: In place dry density determinations (ASTM D2937) were performed on 19samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Washed Sieve Analyses: The percent soil fraction passing the No. 200 sieve (ASTM D1140) was determined on four samples of the subsurface soils to aid in the classification of these soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Plasticity Index: Three Plasticity Index determinations (ASTM D4318) were performed on samples of the subsurface soils to measure the range of water contents over which this material exhibits plasticity. The Plasticity Index was used to classify the soil in accordance with the Unified Soil Classification System and to evaluate the soil expansion potential. Results of these tests are shown on the boring logs at the appropriate sample depths.

Undrained-Unconsolidated Triaxial Shear Strength: The undrained shear strength was determined on two relatively undisturbed sample(s) by unconsolidated-undrained triaxial shear strength testing (ASTM D2850). The results of this test are included as part of this appendix.

Plasticity Index (ASTM D4318) Testing Summary



[Qpf]

Symbol	Boring No.	Depth (ft)	Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Passing No. 200 (%)	Group Name (USCS - ASTM D2487)
⊕	EB-1	4.0	11	28	12	16	—	Sandy Lean Clay (CL) [Qpf]
◉	EB-3	2.0	9	35	14	21	—	Sandy Lean Clay (CL) [Qpf]
▲	EB-6	2.0	8	33	15	18	—	Sandy Lean Clay (CL) [Fill]

Samples prepared in accordance with ASTM D421

CORNERSTONE EARTH GROUP

Plasticity Index Testing Summary

170 Twin Oaks Drive
Los Gatos, CA

Project Number: 1530-1-1

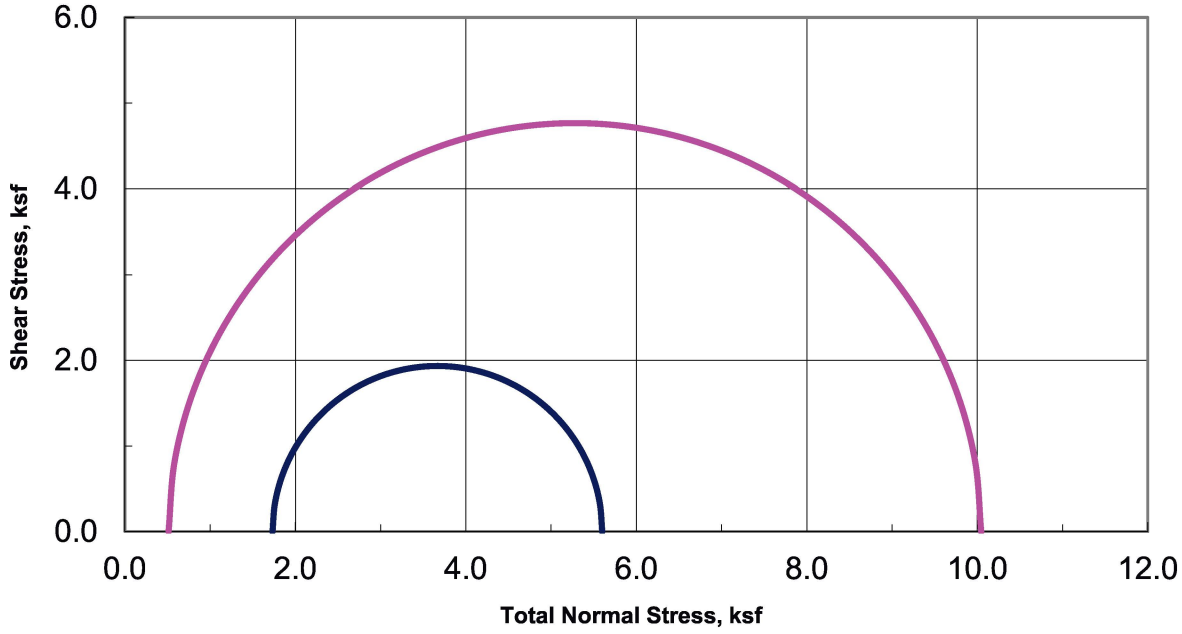
Figure Number: Figure B1

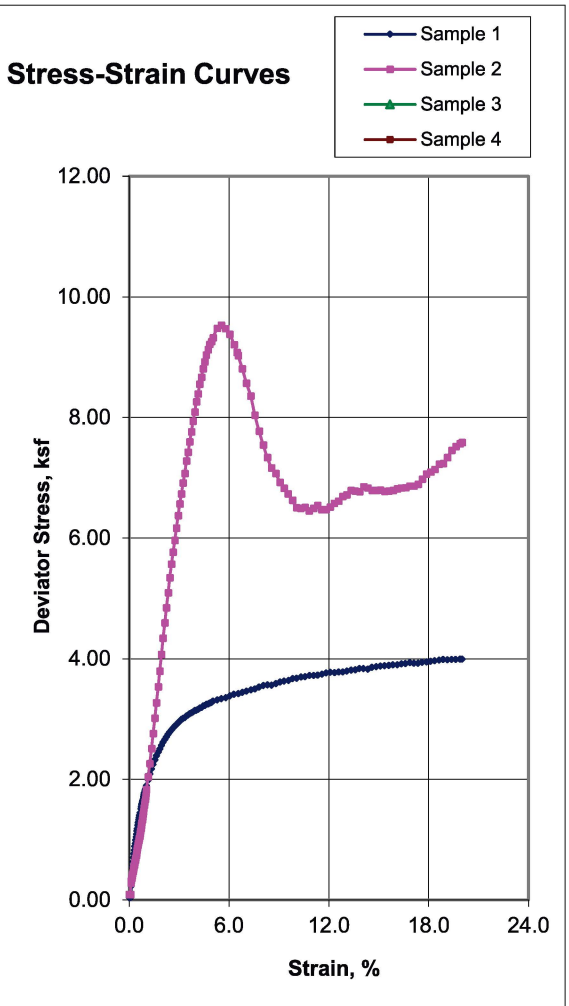
Date: September 2024

Drawn By: FLL

Cooper Testing Labs, Inc.
937 Commercial Street
Palo Alto, CA 94303

Unconsolidated-Undrained Triaxial Test
ASTM D2850





Sample Data	1	2	3	4
Moisture %	19.3	9.7		
Dry Den,pcf	105.3	121.3		
Void Ratio	0.601	0.390		
Saturation %	86.6	67.2		
Height in	5.03	5.07		
Diameter in	2.40	2.40		
Cell psi	12.0	3.6		
Strain %	15.00	5.54		
Deviator, ksf	3.868	9.532		
Rate %/min	1.00	1.00		
in/min	0.050	0.051		
Job No.:	640-1562			
Client:	Cornerstone Earth Group			
Project:	1530-1-1			
Boring:	EB-1	EB-3		
Sample:	6A	3A		
Depth ft:	19	5		

Visual Soil Description	
Sample #	
1	Olive Brown Sandy CLAY w/ Gravel
2	Yellowish Brown Sandy CLAY w/ Gravel
3	
4	

Remarks:

Note: Strengths are picked at the peak deviator stress or 15% strain which ever occurs first per ASTM D2850.

APPENDIX F

VMT TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

Date:	April 23, 2025
To:	Nick Pappani, Vice President, Raney Planning & Management Inc.
From:	Vamsee Modugula, TJKM and Anjali Satheeshkumar, TJKM
Subject:	**Vehicle Miles Traveled (VMT) Analysis for 178 Twin Oaks Drive Project in Town of Los Gatos, CA**

TJKM conducted a VMT (Vehicle Miles Traveled) assessment for the proposed residential subdivision project located at 178 Twin Oaks Drive in Town of Los Gatos (Town), California. The proposed project would construct 12 single family residences on an approximately 17.55-acre site (APN 532-16-006) located on an undeveloped hillside. 9 of the units will be market rate and three 3 (20% of the project) will be below market rate housing. **Figure 1** shows the project location.

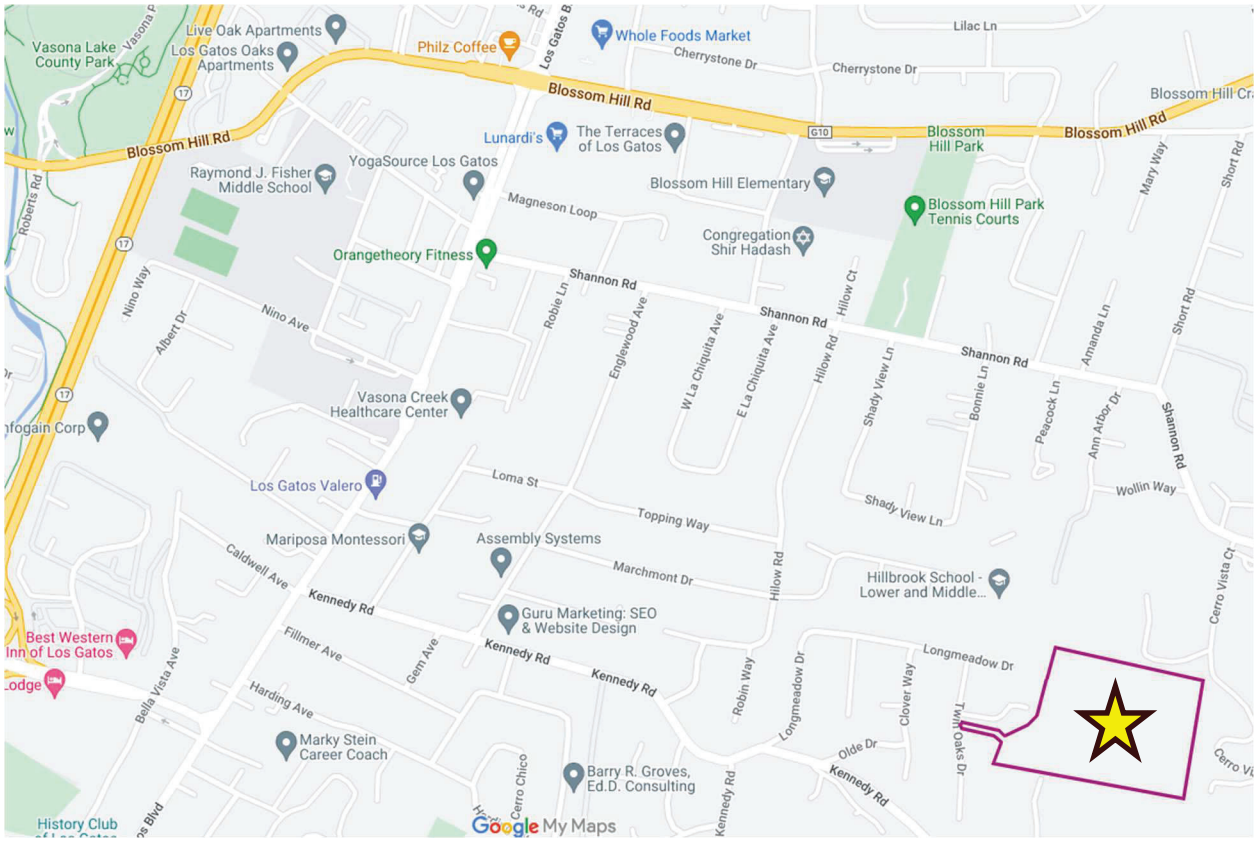
This report has been prepared based on the Town of Los Gatos Transportation Analysis Guidelines final draft (Guidelines), dated December 2, 2021 and Town of Los Gatos 2040 General Plan Draft Environmental Impact Report (DEIR), adopted on June 30, 2022. Based on the requirements outlined in the Traffic Impact Analysis (TIA) guidelines, a VMT analysis has been conducted for the disclosure of potential impacts and mitigation measures pursuant to the California Environmental Quality Act (CEQA).

VEHICLE MILES TRAVELED

Compliance with Senate Bill (SB) 743 will include replacement of LOS with VMT for purposes of assessing traffic impacts under the California Environmental Quality Act (CEQA) described in new Section 15064.3 of the CEQA Guidelines that will be applied statewide that began on July 1, 2020. Lead agencies will have the discretion to choose the most appropriate methodology to evaluate a project's vehicles miles traveled, including whether to express the change in absolute terms, per capita, per household or any other measure. VMT refers to the amount and distance of automobile travel "attributable to a project".

The following sections outline the methodology, significance thresholds, and potential mitigation measures for addressing VMT impacts, ensuring compliance with both state and local guidelines.

Figure 1: Project Location



BACKGROUND

Since the Town requires the preparation of a Vehicle Miles Travelled (VMT) analysis for the project, four full model runs were performed for this project in accordance with Santa Clara Valley Transportation Authority (VTA) VMT. The assessment considers both Baseline conditions (2015), and Future Year Cumulative Conditions (2040) under "no project" and "with project" scenarios.

In accordance with the Guidelines, this VMT analysis evaluates two primary metrics:

1. **Total Project Generated VMT:** Total daily VMT associated with all vehicle trips, vehicle types, and trip purposes for the project.
2. **Project's Effect on VMT /Boundary VMT:** VMT occurring within the Town of Los Gatos, capturing internal and through trips.

SIGNIFICANCE THRESHOLDS

The project consists of residential land use. The guidelines established VMT per service population as the appropriate metric to evaluate land use projects while defining Santa Clara County as the region for determining VMT thresholds. In the Town of Los Gatos, a land use project's impact is deemed significant if:

Baseline Thresholds

1. **Total Project Generated VMT:** A project has a significant impact if its total VMT per service population exceeds 11.3% below the baseline VMT per service population for the Town of Los Gatos.
2. **Project's Effect on VMT /Boundary VMT:** A significant impact occurs if total VMT within the county boundary increases by more than 6.5% compared to baseline conditions.

Cumulative Thresholds

1. **Project's Effect on VMT within the Town of Los Gatos/Boundary VMT:** A significant impact would occur if the project increases the total (boundary) County-wide VMT by 6.5% compared to Cumulative no project conditions.

METHODOLOGY

The latest Santa Clara Valley Transportation Authority (VTA) Model was used for this project. The Travel Analysis Zone (TAZ) for this project in the model is #872. The first step in preparation for this analysis was to update the traffic analysis zones (TAZs) in the model. 12 single family dwelling units and a population of 31 were added into the TAZ for the base year to see if the project creates significant VMT impacts. The residents to household ratio of 2.55 was determined using the base year regional household to population ratio for the Town. No project-specific network modifications were required for the model run. A model run was conducted for the existing/base scenario with updated model inputs. The outputs from this updated model run were used to calculate the project generated and boundary VMT.

Table 1 shows the land use changes for the Base and Future Year plus project run.

Table 1: Land Use Changes in the VTA Model for Plus Project Scenarios

TAZ	Single Family Household	Population
872	+12	+31

Project generated VMT was extracted from the VTA Model by multiplying the traffic volume on each link (derived from trip assignments) by the link's distance (from highway skim matrices). These link-level VMT values are then aggregated across the transportation network to produce total VMT. The process uses input trip-matrices for different purposes and skim-matrices for travel times and distances, for calculations across the study area. This resultant VMT was divided by service population (residential and employment population) to get the VMT/Service Population value. In addition, the boundary VMT was calculated by aggregating the Daily VMT of each link (derived from trip assignments) within the Town of Los Gatos.

The VTA model was run with the project coded and the VMT results are summarized in **Table 2** and **Table 3** for Base and Cumulative conditions respectively**.**

Table 2: VTA Model Run Results (Base Year Conditions)

Metric	Threshold	VMT with Project
Project Generated VMT / Service Population (Town-wide)	29.51	32.34
Boundary VMT (County-wide)	42,498,510	39,897,156

Table 3: VTA Model Run Results (Cumulative Year Conditions)

Metric	Threshold	VMT with Project
Boundary VMT (County-wide)	55,670,865	47,159,758

From the 2015 Base Year run, the total VMT per service population for the Town of Los Gatos is **33.27**. For a project to not be significant, the 88.7% threshold is set at 0.887 x 33.27 which is **29.51**.

The 2015 Base Year Plus Project model added 12 Single Family Dwelling Units into TAZ #872. The resultant total VMT per service population with the project is **32.34**. Since this value is higher than the threshold, mitigation measures are required for this project to have an insignificant impact on VMT.

From the 2015 Base Year run, the county-wide boundary VMT is **39,904,704.** For a project to not be significant, the 6.5% increase threshold is **42,498,510.** The resultant boundary VMT per with the project TAZ is **39,897,156**. Thus, based on the Boundary VMT metric, the project is not likely to have a significant impact.

From the 2040 Cumulative Year run, the county-wide boundary VMT is **52,273,113.** For a project to not be significant, the 6.5% increase threshold is **55,670,865.** The resultant boundary VMT per with the project TAZ is **47,159,758.** Thus, based on the Boundary VMT metric, the project is not likely to have a significant impact.

The project would need to mitigate around **2.83%** of its VMT to be considered insignificant.

VMT MITIGATION MEASURES

When a lead agency identifies a significant CEQA impact, the agency must identify feasible mitigation measures in order to avoid or substantially reduce that impact. These measures can be incorporated as a part of plans, policies, regulations, or project designs. Project design features that encourage mode shift from automobiles to transit or non-motorized modes can therefore help reduce project VMT.

As stated in the "T1- VMT Reduction Strategies" section (Page 4.15-24) of the 2040 General Plan DEIR, projects that generate VMT are required to implement one or more VMT reduction strategies to mitigate their VMT impacts. Applicable strategies provided in the DEIR are categorized based on the scale of implementation: individual site level, Town-wide level, and regional level. The effectiveness of these strategies varies, with individual site-level measures achieving reductions between 0% and 6%, Town-wide measures reducing VMT by 3% to 10%, and regional-level strategies offering the largest potential reduction, ranging from 20% to 60%.

To address the exceedance, a detailed assessment of feasible mitigation strategies was conducted in coordination with the Town of Los Gatos. Pedestrian network improvements were identified as the most viable mitigation measures based on their inclusion in the Town's 2020 Bicycle and Pedestrian Master Plan and their associated VMT reduction potential as outlined in the *California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*. In coordination with the Town of Los Gatos, the following three pedestrian improvement options were identified as potential VMT mitigation measures:

- **Option 1**: Construct sidewalk along the north side of Blossom Hill Road between Regent Drive and Union Avenue
- **Option 2**: Construct sidewalk along Kennedy Road from east of Longmeadow Drive to Olde Drive
- **Option 3**: Construct sidewalk along the north side of Fisher Avenue between Mitchell Avenue and Roberts Road

To assess the VMT reduction potential of each improvement, a quantitative analysis was conducted using the CAPCOA Handbook (Measure T-17: Provide Pedestrian Network Improvements, p. 126). Detailed VMT reduction calculations for the percentage VMT reduction for each option is shown in **Table 4**. A 0.5-mile buffer along the roadway was used to define the study area for each option. For smaller roadways such as Fisher Avenue and Kennedy Road, the full length of the segment was used to define the study area.

Based on the CAPCOA methodology and feasibility of implementation, **Options 1 and 3** were selected as the recommended mitigation measures. These improvements are also consistent with the Town's 2020 Bicycle and Pedestrian Master Plan. Option 2 was not selected as a mitigation measure because there is currently no sidewalk present along Kennedy Road, making it infeasible to apply CAPCOA quantification methodologies for this segment.

The implementation of Options 1 and 3 is expected to achieve the required VMT reduction of 2.83% and reduce the project's VMT impact to a **less-than-significant** level.

Table 4: VMT Reduction Estimates for Pedestrian Network Improvements (Based on CAPCOA Measure T-17)

Road Name	Formula	A	B	C	D
Fisher Avenue between Mitchell Avenue and Roberts Road	A =(((C/B)-1)*D) where, A = Percent reduction in GHG emissions from vehicle travel in plan/community B = Existing sidewalk length in study area (miles) C = Sidewalk length in study area with measure (miles) D = Elasticity of VMT with respect to the ratio of sidewalks-to-streets	**-1.38%**	0.29	0.37	-0.05
Kennedy Road from east of Longmeadow Drive to Olde Drive		**n/a**	0	0.1	-0.05
Blossom Hill Road between Regent Drive and Union Avenue		**-2.68%**	0.71	1.09	-0.05