Stanford Wedge Housing Project

State Clearinghouse Number 2020010203

Draft Environmental Impact Report

Lead Agency:

Town of Portola Valley
Planning and Building Department
765 Portola Road
Portola Valley, CA 94028

March 2022

LAMPHIER - GREGORY
URBAN PLANNING, ENVIRONMENTAL ANALYSIS & PROJECT MANAGEMENT | 510.535.6690

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For hard copies, appendices are included in two separate volumes: Volume I: A through E and Volume II: F through J.

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INTRODUCTION

PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act and the Guidelines promulgated thereunder (together "CEQA") require an Environmental Impact Report (EIR) be prepared for any project which may have a significant impact on the environment. An EIR is an informational document, the purposes of which, according to CEQA are "to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project." The information contained in this EIR is intended to be objective and impartial, and to enable the reader to arrive at an independent judgment regarding the significance of the environmental impacts resulting from the proposed project.

This EIR evaluates the potential environmental impacts that may be associated with the Stanford Wedge Housing Project ("Project") at 3530 Alpine Road in Portola Valley, California.

ENVIRONMENTAL IMPACT REPORT REVIEW PROCESS

This Draft EIR, together with the Final EIR (discussed below) will constitute the EIR for the proposed Project. The EIR is intended to enable Town decision makers, public agencies, and interested citizens to evaluate the environmental issues associated with the proposed Project.

In reviewing the Draft EIR, readers should focus on the sufficiency of the document in identifying and analyzing the possible environmental impacts associated with the Project. Readers are also encouraged to review and comment on ways in which significant impacts associated with this Project might be avoided or mitigated. Comments are most helpful when the basis for the comments is explained and they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental impacts.

The Draft EIR will be available for review online at https://www.portolavalley.net/building-planning/stanford, and as a hard copy at Town Hall, 765 Portola Road, Portola Valley and at the Portola Valley Library located adjacent to Town Hall. Comments on the Draft EIR may be submitted in writing until 5:00 P.M. PST on the last day of the public review period to:

Town of Portola Valley
Building and Planning Department
765 Portola Road, Portola Valley, CA 94028
Attn: Laura Russell, Planning & Building Director
stanfordeir@portolavalley.net

The comments received during the public review period will be compiled and presented together with responses to those comments in the Final EIR. Any minor revisions to the Draft EIR will also be included in the Final EIR.

The Town of Portola Valley Planning Commission and the Town Council will review the EIR documents and will determine whether or not the EIR provides a full and adequate appraisal of the Project and its alternatives. After reviewing this Draft EIR and the Final EIR, and after reviewing the recommendation of the Town of Portola Valley Planning Commission regarding the certification of the EIR as adequate and complete, the Town Council will be in a position to determine whether or not the EIR should be certified. An EIR does not control the agency's ultimate discretion on the Project. However, as required under CEQA, the agency must respond to each significant effect identified in the EIR by making findings and, if necessary, by making a statement of overriding considerations for any significant and unavoidable impacts. In accordance with California law, the EIR on the Project must be certified before any action on the Project can be taken. Once the EIR is certified, the Town of Portola Valley can then consider whether the Project as proposed should be approved, revised, or rejected.

CONTENT AND ORGANIZATION OF THE DRAFT EIR

A Notice of Preparation (NOP) was issued in January 2020 to solicit comments from public agencies and the public regarding the scope of the environmental evaluation for the proposed Project. The NOP and all written responses to the NOP are presented in Appendix A. These comments were taken into consideration during the preparation of the Draft EIR.

An Executive Summary follows this introduction as Chapter 2. This summary presents an overview of the Project and the potentially significant environmental impacts which may be associated with the Project, including a listing of recommended mitigation measures.

The Draft EIR presents a description of the Project in Chapter 3. Chapters 4 through 18 present environmental analysis of the Project, focusing on the following issues:

4. Aesthetics
5. Agricultural, Forestry, and Mineral Resources
6. Air Quality
7. Biological Resources
8. Cultural Resources and Tribal Cultural Resources
9. Geology and Soils
10. Greenhouse Gas Emissions
11. Hazards and Hazardous Materials
12. Hydrology and Water Quality
13. Land Use and Planning
14. Noise
15. Population and Housing, Public Services, and Recreation
16. Transportation
17. Utilities and Service Systems

18. Wildfire
19. Other CEQA Topics

Chapter 20 presents an evaluation of the environmental effects that may be associated with the proposed Project and three alternatives evaluated: the "No Project" Alternative, the “Larger Setback” Alternative and the “No Clustering” Alternative.

Chapter 21 lists the persons who prepared the Draft EIR, identifies those persons and organizations contacted during the preparation of the document, and lists the reference materials used.

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EXECUTIVE SUMMARY

INTRODUCTION AND PROJECT OVERVIEW

This report, together with its appendices, constitutes the Draft Environmental Impact Report (EIR) on the Stanford Wedge Housing Project. The Lead Agency for environmental review under the California Environmental Quality Act is the Town of Portola Valley.

The Project site is located at 3530 Alpine Road on a 75.4-acre parcel (APN 077-281-020) that forms a triangular shape between Alpine Road, and developments along Westridge Drive and Minoca Road in Portola Valley, California. The site, known as the Stanford Wedge property, is mostly undeveloped and is covered with grasses, shrubs, and trees. The approximately 7.4-acre northeastern portion of the Project site (10% of the total site area) is proposed for development. Alpine Rock Ranch, a horse boarding facility with stables, currently occupies this portion of the site and would be removed.

The Project would subdivide the development area into 30 residential lots, which would be developed with 27 market-rate single-family 2-story residences as part of a planned unit development and 12 affordable multifamily units (configured as 3 lots, each with a 2-story, 4-unit building), as well as a picnic and play area and stormwater detention and bioretention treatment facilities. The approximately 68-acre remainder of the property, not included as part of the development site, is sloped and heavily wooded; it would remain in University ownership and preserved as open space through an enforceable covenant or other mechanism.

Within the approximately 68-acre open space hillside area, the Project would implement an ongoing Vegetation Management Plan (VMP) to reduce and manage wildfire risk on the property. As a part of these efforts, the Project proposes a permanent fire access road, which would be used for ongoing vegetation management and fire access. A looped public trail is also proposed on this open space hillside, connecting to the existing Alpine Road Trail along the Project's site's frontage.

The Town of Portola Valley General Plan designates the Project site as Conservation-Residential, and the site is zoned Residential Estate (R-E). The Project site is subject to the 3.5A residential density combining district, the SD-2 slope-density combining district, and the D-R design review combining district. The Housing Element of the General Plan identifies the Stanford Wedge site (Site 40) as one that could accommodate a number of new homes, including affiliated affordable housing, and notes that such development would need to be clustered along Alpine Road given the site constraints. The proposed development is consistent with allowable site density under the Portola Valley General Plan and State Affordable Density Housing Bonus Law due to the amount and type of affordable housing proposed.

The Project would require the following approvals from the Town: Planned Unit Development Permit, Conditional Use Permit, Vesting Tentative Map, Site Development Permit, Architectural Review Permit, and may enter into an Affordable Housing and Development Agreement. The Project would also require Local Agency Formation Commission (San Mateo LAFCo) approval of annexation into the West Bay Sanitary District for sewer service.

SUMMARY OF CONCLUSIONS

SIGNIFICANT AND UNAVOIDABLE IMPACTS

This EIR did not identify any impacts of the Project that would remain significant following implementation of identified mitigation. The Project would not result in any Significant and Unavoidable impacts.

POTENTIALLY SIGNIFICANT IMPACTS AND MITIGATION MEASURES

All potentially significant impacts and the identified mitigation measure to reduce those impacts are included in Table 2.1.

Potentially significant impacts are largely limited to construction-period disturbance, including impacts and mitigation related to construction period dust and emissions (Mitigation Measure Air-1); potential disturbance of special status plants, animals, and/or habitat (Bio-1a-c, Bio-2a, Bio-3, Bio-5a-b, Bio-6, Bio-8a, Bio-9, and Bio-13a); potential disturbance of cultural and tribal cultural resources (Cultural-1, Cultural-3a-b); appropriate construction for site soils and in a seismically-active region (Geo-2a-b), minimizing potential for erosion, sedimentation, and other stormwater contamination (Geo-5a-b and Hydro-1a-b).

Following construction, impacts and mitigation would apply to ongoing operation of the residential development and trails, including those related to prohibition of nighttime and off-trail use to protect biological resources (Bio-2c), erosion, sedimentation, and other stormwater control (Geo-5a-b and Hydro-1a-d), safety of vehicular trail crossings (Trans-2), and ignition reduction measures to reduce the potential for ignition and wildfires (Wildfire-2b).

Additional impacts and mitigation would be applicable to the vegetation management activities to implement the VMP, including those related to address the potential disturbance of special status plants, animals, and/or habitat (Bio-1a-c, Bio-2a-b, Bio-3, Bio-5a-b, Bio-6, Bio-8a-b, Bio-9, and Bio-13a-b) and cultural resources (Cultural-2, Cultural-3a-b), and effectiveness of the VMP (Wildfire-2a).

As detailed in the following chapters of this EIR, all potentially significant impacts of the Project would be reduced to less than significant levels through implementation of the identified mitigation measures. All other impacts would be less than significant without the need for mitigation (also included in Table 2.1).

ALTERNATIVES

Three alternatives to the Project were evaluated in Chapter 20 of this EIR, including:

- The **"No Project" Alternative** representing a scenario in which the existing horse boarding facility (or a similar use) at the Project site remains in place. This scenario assumes no comprehensive vegetation management plan would be implemented to reduce wildfire risk at the site.

- The **"Larger Setback" Alternative** representing the same development as proposed, shifted a little farther to the south farther from concerned neighbors but into a less flat area requiring more disturbance of the hillside. The fire access road and trails would be developed the same as under the proposed Project and a vegetation management plan would be implemented.

- The **"No Clustering" Alternative** assumes the site would be developed with standard single family homes each on their own lots rather than a clustered development including some multi-family homes and duet units. This would eliminate the need for a Planned Unit Development approval and more closely follow the adjacent lotting pattern. Consistent with underlying zoning, each lot would be at least 3.5 acres in size, which would total 21 lots that could be developed on the site. Given the larger lot sizes and new State laws promoting accessory dwelling unit (ADU) and junior accessory dwelling unit (JADU) construction, 21 additional ADU/JADUs are also assumed for this alternative, bringing the total number of units to 42. Construction activities would be increased to account for a greater development footprint including the hillside and the need for longer driveways to reach the larger, separate lots. No trails or fire access road would be developed and no comprehensive vegetation management plan would be implemented.

The "No Project" alternative was identified as the environmentally superior alternative, since it would not result in any substantial changes to the site or use and therefore, has the lowest possible impacts in every parameter. However, this alternative does not meet any of the Project objectives and would not provide a mechanism to require a comprehensive vegetation management plan to reduce wildfire risk at the site.

Under CEQA, when the "No Project" alternative has been identified as the environmentally superior alternative, it is necessary to identify another alternative that would represent the environmentally superior alternative in the absence of the "No Project" Alternative. The CEQA Guidelines require a consideration of whether alternatives "avoid or substantially lessen" significant impacts of the proposed Project. No significant and unavoidable impacts were identified under the proposed Project. All Project impacts are either less than significant or can be reduced to those levels through implementation of the mitigation contained in this Draft EIR. Because of the low impact of the proposed Project, differences between it and the Alternatives are marginal except in the case of the "No Project" Alternative, which avoids all impacts entirely, and the potential for construction-period impacts to cultural resources, which could be significantly increased under the "No Clustering" Alternative.

Because the "No Clustering" Alternative would require additional construction activities to prepare spread-out development sites and longer driveways, it would result in a marginally greater construction impacts including the potential to significantly impact a known cultural resource at the site and is therefore not environmentally superior to the Project.

The "Larger Setback" Alternative and the Project would have similar impacts. The "Larger Setback" alternative would result in marginally greater impacts related to grading, including construction emissions and tree removals. Therefore, the Project is the next most environmentally superior alternative.

TABLE 2.1: SUMMARY OF PROJECT IMPACTS AND MITIGATION MEASURES

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
Significant and Unavoidable Impacts		
This EIR did not identify any impacts of the Project that would remain significant following implementation of identified mitigation. The Project would not result in any Significant and Unavoidable impacts.		
Less than Significant Impacts After Mitigation		
Impact Air-1: Construction Period Dust and Emissions. Construction activities would generate exhaust emissions from vehicles and equipment and fugitive dust particles that could affect local air quality. This impact is ***less than significant with mitigation.***	**Air-1: Basic Construction Management Practices**. The Project shall demonstrate proposed compliance with all applicable regulations and operating procedures prior to issuance of demolition, building or grading permits, including implementation of the following BAAQMD "Basic Construction Mitigation Measures". • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mile per hour. • 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. • 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. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at the 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.	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
Impact Bio-1: Impacts on Special-Status Plants. While there are no special-status plant species in the Residential Development Area, ten species have the potential to occur on the remainder of the site and could be impacted by construction and use of the fire access road and hiking/equestrian trails and/or vegetation management activities. This impact is ***less than significant with mitigation.***	**Bio-1a: Survey (outside the Residential Development Area): Special-Status Plant Surveys.** Prior to the initiation of grading for the fire access road and/or hiking/equestrian trail, or the implementation of initial ground disturbance or vegetation removal activities in areas outside the Residential Development Area that has been surveyed for special- status plants, a qualified biologist shall conduct, in areas outside the Residential Development Area that has been surveyed, a focused survey during the appropriate bloom season for potentially occurring special- status plant species, including: • California bottle-brush grass (Elymus californicus; CRPR 4.3; May through August) • Western leatherwood (Dirca occidentalis; CRPR 1B.2; January through March) • Bent-flowered fiddleneck (Amsinckia lunaris; CRPR 1B2; March through June) • Woodland woolly threads (Monolopia gracilens; CRPR 1B.2; March through July) • Santa Cruz clover (Trifolium buckwestiorum; CRPR 1B.1; April through October) • California androsace (Androsace elongata ssp. acuta; CRPR 4.2; March through June) • Brewer's calandrinia (Calandrinia breweri; CRPR 4.2; March through June) • Oakland star-tulip (Calochortus umbellatus; CRPR 4.2; March through May) • Bristly leptosiphon (Leptosiphon acicularis; CRPR 4.2; April through July) • Michael's rein orchid (Piperia michaelii; CRPR 4.2; April through August) Ground disturbance associated with vegetation management activities that could potentially impact sensitive plant species if they are present, necessitating focused plant surveys, would include all vegetation management activities except initial vegetation management treatments that are implemented prior to construction of the fire access road (Panorama Environmental 2020b). These initial treatments include (1) removing trees and large shrubs through hand removal methods to avoid ground disturbance, and minimizing dragging out material; (2) minimization of soil disturbance through use of low compacting equipment (e.g., masticator or chipper) that would reduce rutting from machine turns and minimize soil compaction; and (3) limiting the spread of chipped or masticated materials to 1-inch in depth or less (Panorama Environmental 2020b). Therefore, focused surveys shall be conducted prior to all ground disturbance associated with vegetation management activities including and following construction of the fire access road, including a surrounding 50-foot buffer area on site and to the extent access to adjacent properties may be permitted. Surveys shall take place no more than 3 years before	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	ground disturbance or vegetation removal for these vegetation management activities and should be conducted in a year with near-average or above-average precipitation. Alternatively, these surveys may be conducted in a year of below-average precipitation and the surveyor should attempt, if possible, to identify a nearby reference population that is flowering and detectable despite the below-average rainfall. The purpose of the survey shall be to assess the presence or absence of the potentially occurring species. If none of the target species are found in the impact area or surrounding 50-foot buffer, then no further mitigation measures shall apply. Otherwise, Mitigation Measure Bio-1b shall be additionally implemented. **Bio-1b: Avoidance and Minimization: Special-Status Plants**. If any individual special-status plants are found in the impact area or 50-foot buffer, then in consultation with a qualified botanist or plant ecologist, the project shall be designed to avoid direct and indirect impacts to the species to the extent feasible. If avoidance of special-status plants reduces the impacts so that less than 10% for CRPR List 1B species of either individuals or occupied area within the population would be impacted, or less than 20% for CPRP List 4 species, then the impact would be considered less than significant, and no further mitigation is necessary. Otherwise, Mitigation Measure Bio-1c shall be additionally implemented. **Bio-1c: Compensatory Mitigation if Avoidance is Infeasible: Special-Status Plants.** If, even with project redesign to minimize impacts, more than 10% of the population for CRPR List 1B species, or more than 20% of the population for CRPR List 4 species would be impacted, compensatory mitigation shall be provided via the management of currently occupied habitat or the establishment of a new population for the species impacted. The mitigation habitat shall be of equal or greater habitat quality compared to the impacted areas, as determined by a qualified plant ecologist, in terms of soil features, extent of disturbance, vegetation structure, and dominant species composition, and shall contain at least as many individuals of the species as are impacted by project activities. A Habitat Mitigation and Management Plan (HMMP) shall be developed by a qualified plant or restoration ecologist and implemented for the mitigation lands. The HMMP shall be approved by the Town of Portola Valley prior to the start of ground-disturbing activities. The HMMP shall include, at a minimum, all of the following information: • Summary of habitat impacts and the proposed mitigation; • Description of the location and boundaries of the	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	mitigation site and description of existing site conditions; • Description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for the focal special-status species; • Description of measures to transplant individual plants or seeds from the impact area to the mitigation site, if appropriate (which shall be determined by a qualified plant or restoration ecologist); • Proposed management activities to maintain high-quality habitat conditions for the focal species; • Description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria shall include demonstration that any plant population fluctuations over the monitoring period do not indicate a downward trajectory in terms of reduction in numbers and/or occupied area for the preserved mitigation population that can be attributed to management (e.g., that are not the result of local weather patterns, as determined by monitoring of a nearby reference population, or other factors unrelated to management); and • Annual monitoring should be conducted for a period of 5 years following transplantation of individuals, if plants are transplanted, or following the initiation of monitoring (e.g., for a mitigation site where the species is already present) to ensure that the population is healthy. • Description of the management plan's adaptive component, including potential contingency measures for mitigation elements that do not meet performance criteria.	
Impact Bio-2: Loss of Individual California Red-legged Frogs. While there is no breeding habitat on the Project site for the California red-legged frog, there is the potential for infrequent individuals to visit the site and these could be impacted directly or indirectly by construction, operation, and vegetation management activities. Despite the low potential for individuals to be impacted, loss of any individual California red-legged frogs resulting from the proposed project activities would constitute a significant impact due to the species' regional rarity. This impact is ***less than significant with mitigation.***	**Bio-2a: Survey and Avoidance (all Construction Activities and the Initial Vegetation Management Activities): Red-legged Frogs**. Before any construction or initial vegetation management activities begin, the following measures shall be completed and/or included in construction contracts as ongoing measures: i. *Pre-activity Survey*. A qualified biologist shall conduct a preconstruction survey for the California red-legged frog no more than 24 hours prior to initial ground disturbing activities within 100 feet of any riparian area. If a California red-legged frog is encountered in the work area, all activities with the potential to result in the harassment, injury, or death of the individual shall be immediately halted and shall not resume until the individual leaves the	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	project site of its own accord. ii. *Worker Environmental Awareness Program*. Before any construction activities begin, Stanford shall hire a qualified biologist to conduct a training session for all construction personnel. At a minimum, the training shall include descriptions of all special-status species potentially occurring on the project site and their habitats, the importance of these species, the general measures that are being implemented to conserve them as they relate to the proposed project, and the boundaries within which project activities may be accomplished. iii. *Construction Timing*. Because California red-legged frogs are most active at night, nighttime earthmoving and other construction activities shall be avoided to the extent practicable within 100 feet of any riparian area. Further, to the extent practicable, ground-disturbing activities shall be avoided during the wet season, from mid-October through mid-April, when red-legged frogs are most likely to be moving through upland areas. **Bio-2b: Survey and Avoidance (Initial and Ongoing Vegetation Management Activities): Red-legged Frogs.** Before any construction or vegetation management activities (initial or ongoing) begin, the following measures shall be included in construction/vegetation management contracts: i. *Vegetation Stockpiles*. Because California red-legged frogs could move into areas under debris piles, where they could then be injured or killed when the debris piles are disposed of, debris intended for burning, mastication, or other disturbance, should not be piled on the ground within 100 feet of any riparian area unless the piles would be treated on the same day that they are created. If vegetation piles cannot be treated or removed daily, they should be dispersed on the site, to the extent feasible. ii. *Trash Containment during Construction and vegetation management Activities*. Because human trash associated with construction activities and vegetation management activities has the potential to attract predators, all trash shall be contained in sealed containers and disposed of on a daily basis. iii. *Mechanical Support for Vegetation Management*. If off-road mechanical support is necessary for ongoing vegetation management activities, Mitigation Measure Bio-2a shall be implemented for the off-road mechanical support activities. **Bio-2c: Avoidance, Operational Prohibition of Nighttime Access to Trails: Red-Legged Frogs.** Signage shall be installed at trailheads indicating that nighttime access to trails and all access off trails is prohibited.	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
Impact Bio-3: Loss of Individual Western Pond Turtles. While there is no suitable habitat on the Project site for the western pond turtle, there is a low potential for individuals to visit the site and these could be impacted directly or indirectly by construction or vegetation management activities. Despite the low potential for individuals to be impacted, loss of any individual western pond turtle resulting from the proposed Project activities would constitute a significant impact due to the species' regional rarity. This impact *is **less than significant with mitigation.***	**Bio-3: Survey and Avoidance (all Construction Activities and Vegetation Management Activities Involving Off-Road Mechanical Equipment): Western Pond Turtles.** Before any construction or vegetation management activities involving off-road mechanical equipment begin, a qualified biologist shall conduct a preconstruction survey for western pond turtles no more than 24 hours prior to initial ground disturbing activities within 100 feet of any stream. If a western pond turtle is encountered in the work area, all activities with the potential to result in the harassment, injury, or death of the individual shall be immediately halted, and the individual shall be captured and relocated to a safe location outside of the work area by a qualified biologist, after which work may proceed.	Less than Significant
Impact Bio-5: Disturbance of Dusky-footed Woodrats. Hundreds of woodrat nests are expected to be present in the coast live oak woodland, blue oak woodland, mixed riparian forest, and chamise chaparral areas throughout the Project site, including at least 13 in the Residential Development Area. While dusky-footed woodrats and their habitat are relatively common in the region, woodrats are very important ecologically in that they provide an important prey source for raptors and predatory mammals, and their nests provide habitat for a wide variety of small mammals, reptiles, and amphibians. Loss multiple woodrat nests would be considered a potentially significant impact due to the ecological impact that the loss of nests would represent both to the woodrat and to the other species that benefit from its presence. This impact is ***less than significant with mitigation.***	**Bio-5a: Survey and Avoidance (all Construction Activities and Vegetation Management Activities Involving Off-Road Mechanical Equipment): Dusky-footed Woodrats.** Before any construction or vegetation management activities involving off-road mechanical support begin, the following measures shall be completed and/or included in construction contracts: i. *Pre-activity Survey*. No more than 30 days prior to any initial ground disturbance or vegetation removal activities, a pre-activity survey for woodrat nests shall be conducted by a qualified biologist within areas where ground disturbance or vegetation removal shall be conducted and within 10 feet of the disturbance and vegetation removal areas. ii. *Disturbance-Free Buffers*. If feasible, a minimum 10-ft buffer shall be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of a qualified biologist, removing the nest would be a greater impact than that anticipated due to project activities. Environmentally sensitive area (ESA) fencing shall be installed to mark the buffer area around potentially impacted woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located. iii. *Woodrat Relocation Plan*. Due to the large number of nests that could be impacted and infeasibility of avoiding impact to all nests at the site, a woodrat relocation plan shall be prepared by a qualified biologist prior to initial ground disturbance or vegetation removal activities. At a minimum, the plan shall include woodrat nest relocation methods, relocation site habitat requirements, appropriate relocation sequence with respect to vegetation management activities, spacing of nests, timing of relocations, and recommended protective buffers around nests proposed to remain in place.	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	The plan shall also include a map of all woodrat nests, and proposed relocation areas. Relocation of nest materials shall follow the following guidance: If it is determined that disturbance of woodrat nests cannot be avoided, the woodrats shall be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. Relocation activities shall follow methods outlined in the Woodrat Relocation Plan. A qualified biologist shall monitor and direct all activities associated with the removal of dusky-footed woodrat nests (structures). Only as necessary and to the minimum extent possible, project site vegetation shall be removed to provide access to the woodrat nest(s). Following the removal of vegetation required to access woodrat nests, a fiber-optic camera shall be used to observe inside the nest to determine its occupancy prior to beginning the dismantling process. If young are not observed, the nest shall be fully dismantled and materials shall be relocated, as described below. If dependent young are present, the protocol for active nests below shall be followed to dismantle the structure over a two-week period. Except where dependent young are present, woodrat structures or nests shall slowly and progressively be dismantled during a single site visit. Appropriate personal protective equipment (e.g. respirator, gloves, and Tyvek suit) shall be used while dismantling and relocating woodrat nest material to protect against disease carried by rodents (e.g., hantavirus). Where feasible, nesting material or food caches shall be moved to a new location at least 30 feet outside the disturbance area, preferably next to a large tree or similar structure in a riparian or oak woodland habitat, in an area where it can be used by woodrats to construct new nests. If no suitable structure is present, a log pile structure may be constructed to support the nest materials. If young are uncovered within the nest prior to or during the dismantling process, dismantling of the nest shall be suspended for a period of two weeks to allow young to develop eyesight and become mobile. Nest materials shall be placed back on top of the nest to re-cover the exposed young. After the two-week period, the above removal procedures shall be resumed. Within 24 hours of vegetation removal and completion of nest dismantling, an additional survey shall be conducted to confirm no new woodrat nests were constructed. **Bio-5b: Avoidance, Implement Overgrazing Management Strategy for Annual Vegetation Management: Dusky- footed Woodrat.** To ensure that annual grazing activities do not result in excessive	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	disturbance of, or habitat loss around, San Francisco dusky- footed woodrat nests, grazing shall be performed so that goats will not graze in any one area too long. If no off-road mechanical support of annual vegetation management is required, Mitigation Measure Bio-5a would not also be required for this activity.	
Impact Bio-6: Disturbance of Pallid Bats. Construction in or demolition of buildings could result in destruction of maternity roosts, hibernacula, day roosts, and/or night roosts of bat species, including pallid bat. This impact is ***less than significant with mitigation.***	**Bio-6: Survey and Avoidance (all Construction Activities and Vegetation Management Activities Involving Off-Road Mechanical Equipment): Pallid Bats**. Before any structure removal, construction, or vegetation management activities involving off-road mechanical support begin, the following measures shall be completed and/or included in construction contracts: i. *Potential Roost Habitat Removal September through February, Outside Pallid Bat Maternity Season.* Potential roost habitat trees may be removed outside the maternity season, during a two-day tree removal process, to encourage day-roosting bats to leave potential roost trees ahead of tree removal. This process involves removing small branches and small limbs containing no day-roost habitat (e.g., crevices) on habitat trees on Day 1, using chainsaws only. The following day (Day 2), the remainder of the tree is to be removed. The disturbance caused by chainsaw noise and vibration, combined with the physical modification of the tree, is expected to cause day-roosting bat species to abandon the roost tree after nightly emergence for foraging. Trimmed habitat trees must be removed the next day to prevent re-occupation of trimmed trees. If potential habitat trees are not proposed for removal but would undergo a specific treatment (e.g., thinning, crown raising), disturbance shall be scheduled to take place outside the maternity roost season. If treatment activities cannot occur outside the maternity season, a pre-activity evening survey shall be conducted by a qualified biologist to determine if the tree is occupied by a maternity colony. If no bats are detected, work may proceed without any additional surveys. If a maternity colony is present, work shall be postponed until the end of the maternity season (August 31). ii. *Pre-activity Survey for Work within Pallid Bat Maternity Season (March through August).* Prior to any initial ground disturbance or off-road mechanical vegetation removal activities to occur during Pallid Bat Maternity Season, a pallid bat roost habitat assessment shall be conducted for all trees and structures on and within 150 feet of the location of the activity, during the appropriate time of year when bats would be detectable (March 1 – August 31). A qualified bat biologist shall conduct the survey to look for evidence of bat use within suitable habitat. If evidence of use is observed, or	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	if high-quality roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or a nocturnal acoustic survey may be necessary to determine if a bat colony is present and to identify the specific location of the bat colony. iii. *Avoidance.* If an active pallid bat maternity colony or non-breeding roost is located, construction work or vegetation activities shall be redesigned to avoid disturbance of the roost, if feasible. iv. *Eviction and Alternative Roost Habitat.* If an active pallid bat maternity colony or non-breeding bat roost is located and construction work cannot be redesigned to avoid removal or disturbance of the occupied roost, the individuals shall be safely evicted by a qualified bat biologist between August 1 and October 15 or between February 15 and March 15, with the timing determined by a qualified bat biologist. If eviction is necessary, alternative roost habitat shall be provided at least 30 days prior to eviction of bats from the roost. A qualified bat biologist shall determine the appropriate location for the alternative roost structure, based on the location of the original roost and habitat conditions in the vicinity, and oversee installation of a new roost structure. The structure shall be placed as close to the affected roost site as feasible, taking into account potential for disturbance during construction on the site (e.g., the roost might be placed elsewhere on the larger project site). The roost structure either shall be built to specifications determined by a qualified bat biologist or shall be purchased from an appropriate vendor (though a qualified bat biologist should approve the type of structure purchased). Stanford University shall monitor the roost for up to three years (or until occupancy is determined, whichever occurs first) to determine use by bats. If, by Year 3, pallid bats are not using the structure, a qualified bat biologist, in consultation with CDFW, shall identify alternative roost designs or locations for placement of the roost, place the new roost at the agreed-upon location, and monitor the new roost for an additional three years (or until occupancy has been verified).	
Impact Bio-8: Direct or Indirect Impacts to Riparian Habitat. Construction of the fire access road would occur within 50 feet of an ephemeral stream, which could result in erosion and sedimentation impacting the riparian habitat. Additionally, while vegetation management activities are proposed to generally avoid riparian habitat, impacts could occur without specific measures for avoidance and/or compensation if warranted. This impact is ***less than significant with mitigation.***	**Bio-8a: Avoidance (all construction and all Vegetation Management Activities): BMPs for Work within/near Sensitive Habitats.** The following measures shall be implemented to reduce impacts on mixed riparian forest and streams during construction on the Residential Development Area, during the grading of the fire access road and hiking/equestrian trails, and during all vegetation management activities: i. If the CDFW and/or RWQCB determine potentially impacted areas are under their	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	jurisdiction, the applicant shall acquire permits from CDFW and RWQCB and comply with all permit conditions. ii. Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels. iii. Spill prevention kits shall always be in close proximity when using hazardous materials. iv. No equipment servicing shall be done in the stream channel or immediate floodplain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators). v. Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the fire access road and trail clearing width. vi. If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil. vii. If goat grazing is to be used as a long-term vegetation management tool in the future, temporary fencing shall be erected when goats are introduced to keep them out of riparian habitats. viii. Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles). ix. Control sediment runoff using sandbag barriers or straw wattles. x. Stabilize site ingress/egress locations. xi. Temporary disturbance or removal of aquatic and riparian vegetation shall not exceed the minimum necessary to complete the work. xii. Vehicles operated within and adjacent to streams shall be checked and maintained daily to prevent leaks of materials that, if introduced to the water, could be deleterious to aquatic life. xiii. Potential contaminating materials must be stored in covered storage areas or secondary containment that is impervious to leaks and spills xiv. All disturbed soils shall be revegetated with native plants suitable for the altered soil conditions upon completion of construction. Local watershed native plants shall be used if available. All disturbed areas that have been compacted shall be de-compacted prior to planting or seeding. Cut-and-fill slopes shall be planted with local native or non-invasive plants suitable for the altered soil conditions. **Bio-8b: Compensatory Mitigation if Avoidance is Infeasible (All Vegetation Management Activities): Riparian Habitat.** The riparian habitat within the project site consists of a mature overstory composed of California bay, California buckeye, and coast live	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	oak. Riparian vegetation may be removed during vegetation treatment activities. All trees removed within mixed riparian forest habitat shall be replaced with the same species that was removed during project implementation, which shall be planted within the same reach where impacts occur or along streams on other Stanford University lands. Trees shall be replaced at a ratio of at least 1:1. Additionally, if trees are to be removed within mixed riparian forest habitat, a qualified biologist shall develop a Riparian Mitigation and Monitoring Plan, which shall contain the following components (or as otherwise modified by regulatory agency permitting conditions): i. Summary of habitat impacts and proposed mitigation ratios ii. Goal of the restoration to achieve no net loss of habitat functions and values iii. Location of mitigation site(s) and description of existing site conditions iv. Mitigation design: a) Soil amendments and other site preparation elements as appropriate b) Planting plan c) Irrigation and maintenance plan d) Remedial measures/adaptive management,etc. v. Monitoring and Success Criteria: the mitigation site shall be monitored by an ecologist during a 5-year monitoring period. The interim site performance success criterion is annual replacement of any dead trees and shrubs during Years 1-3. The final success criterion at Year 5 shall be defined as 60% average cover of native trees and shrubs combined. vi. Reporting requirements	
Impact Bio-9: Introduction and/or Spread of Invasive Plants. Project construction and vegetation management activities could contribute to the introduction or spread of non-native invasive vegetation, some of which could degrade the quality of sensitive habitats. This impact is ***less than significant with mitigation.***	**Bio-9: Implement Invasive Weed BMPs.** The invasion and/or spread of noxious weeds shall be avoided by the use of the following invasive weed BMPs: i. During construction activities in the Residential Development Area, all seeds and straw materials used on-site shall be weed-free rice straw (or similar material acceptable to the Town), and all gravel and fill material shall be certified weed-free to the satisfaction of the Town. ii. Prior to equipment coming onto the site for construction or vegetation management activities, all equipment (e.g., masticators, haul vehicles, excavators, and other heavy equipment) shall be washed (including wheels, undercarriages, and bumpers). Vehicles shall be cleaned at existing construction yards or legally operating car washes. iii. Following construction of the residential development and the fire access road and hiking/equestrian trails, a standard erosion control	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	seed mix (acceptable to the Town) from a local source shall be planted within the temporary impact zones on any disturbed ground that shall not be under hardscape, landscaped, or maintained. This will minimize the potential for the germination of the majority of seeds from non-native, invasive plant species. iv. If areas are left bare by vegetation treatments as carried out by the VMP, a standard erosion control seed mix (acceptable to the Town) from a local source and consisting of native species shall be planted on any disturbed ground.	
Impact Bio-13: Disturbance of Nesting Birds. The removal of trees and shrubs during the February 1 to August 1 breeding season could result in mortality of nesting avian species if they are present. This could include but is not limited to species of special concern, which could also be disturbed when they are wintering at the site, outside of breeding season. This impact is ***less than significant with mitigation.***	**Bio-13a: Nesting Bird Avoidance, Substrate Pre-removal, Pre-activity Surveys, and Buffers.** The applicant shall conduct or include in work contracts the following measures related to nesting birds for construction and vegetation management activities: i. To the extent feasible, construction and vegetation management activities should be scheduled to avoid the nesting season (February 1 to August 31). If these activities are scheduled to take place outside the nesting season, all impacts on nesting birds protected under the MBTA and California Fish and Game Code shall be avoided. ii. If construction of the residential development, fire access road, or trails would not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by these project features may be removed prior to the start of the nesting season (e.g., prior to February 1). This would preclude the initiation of nests in this vegetation and prevent the potential delay of the project construction due to the presence of active nests in these substrates. iii. If it is not possible to schedule construction or vegetation management activities between September 1 and January 31 then pre-activity surveys for nesting birds should be conducted by a qualified ornithologist to ensure that no nests shall be disturbed during project implementation. We recommend that these surveys be conducted no more than seven days prior to the initiation of all project activities. During this survey, the ornithologist shall inspect all trees and other potential nesting habitats (e.g., shrubs, ruderal grasslands, trees, horse paddocks) in and immediately adjacent to the impact areas for nests. iv. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist shall determine the extent of a construction- or disturbance-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code shall be	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	disturbed during Project implementation. **Bio-13b: Maintain Nesting Substrate during Vegetation Management.** To the extent feasible, maintain a variety of tree, shrub, and herbaceous nesting substrates during vegetation management activities. This would involve maintaining (1) plant species diversity, and structural and age class diversity to accommodate a variety of tree-nesting species, (2) islands or scattered locations of live and dead or dying trees that support nest cavity habitat, and (3) islands or scattered locations supporting moderately dense pockets of shrubs, and other low-lying vegetation for shrub and ground-nesting species.	
Impact Cultural-1: Potential Disturbance of Resource P-43-000557 (Precontact Habitation Site). While there is no evidence that Resource P-43-000557 is located within the Project site, the known location is close by (43 meters east of the Residential Development Area). Due to the underlying soils and depositional conditions within the Residential Development Area, it is considered possible that subsurface deposits from this resource could extend into the Residential Development Area and adjacent Alpine Road and if so, could be disturbed by Project construction activities. This impact is ***less than significant with mitigation.***	**Cultural-1: Residential Development Area Archaeological Monitoring.** Prior to the issuance of a grading permit in the development Residential Development Area and adjacent Alpine Road , the project sponsors shall obtain the services of a qualified archaeological consultant (meeting the Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology (NPS 1983)) to observe all project-related ground disturbing activities. In accordance with CEQA Guideline §15064.5 (f), should any previously unknown prehistoric resources (including but not limited to charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, or pockets of dark, friable soils) and/or historic-period resources (including but not limited to glass, metal, ceramics, wood, privies, trash deposits or similar debris) be discovered in the Residential Development Area during grading, trenching, or other on-site excavation(s), earthwork within 25 feet of these materials shall be stopped until a qualified professional archaeologist has an opportunity to evaluate the potential significance of the find and suggest appropriate mitigation(s), as determined necessary to protect the resource. If feasible, the location of earthwork shall be modified to protect the resource from damaging effects through avoidance. If avoidance is not feasible, a qualified archaeologist shall conduct data recovery in the area of potential adverse effect in accordance with an approved Archaeological Data Recovery Plan (ADRP) Once the site has been properly tested, subject to data recovery, or preserved to the satisfaction of the professional archaeologist in compliance with CEQA Guideline §15064.5, the site can be further developed. Archaeological monitoring may be reduced or halted at the discretion of the monitor, and in consultation with the Town, as warranted by conditions such as encountering bedrock, ground disturbance is occurring in fill, or negative findings during the first 60 percent of rough grading. If monitoring is reduced to spot-	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	checking, spot checking shall occur when ground-disturbance moves to a new location within the site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).	
Impact Cultural-2: Potential Disturbance of P-41-000297 (Stone Circle) and the Wedge Quarry/Bedrock Mortars Site within the Vegetation Management Area. The "stone circle site" (P-41-000297) and the Precontact component of the Wedge Quarry/Bedrock Mortars site would not be directly impacted by construction associated with the Residential Development Area, trails, or fire access road, but may be affected by activities related to the Stanford Wedge Property VMP. The VMP describes four treatment activities to be undertaken at the Project site: steep slope mechanical treatment with manual support, mechanical treatment, manual treatment, and prescribed herbivory. As described, several of these treatment activities use heavy machinery to assist in vegetation management, which may negatively impact surface or near-surface archaeological resources. This impact is ***less than significant with mitigation.***	**Cultural-2: Vegetation Management Plan Archaeological Monitoring.** Prior to the implementation of the VMP, the Project sponsor shall hire a qualified archaeologist (meeting the Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology (NPS 1983)) to review all proposed activities and determine if those activities are in or near (within 50 feet) P-41-000297 and the precontact component of the Wedge Quarry/Bedrock Mortars site. If work is proposed at or within 50 feet of either of these sites, a qualified archaeologist will be required to accompany the VMP crew and prevent any work from occurring within 25 feet of the site.	
Impact Cultural-3: Disturbance of Previously Unidentified Cultural Resources or Human Remains. While not anticipated, it is possible that previously unidentified historic resources, archaeological resources, or human remains could be uncovered and disturbed during ground disturbing activities throughout all portions of the Project site. This impact is ***less than significant with mitigation.***	**Cultural-3a: Halt Construction Activity, Evaluate Find and Implement Mitigation.** In the event that any previously unidentified cultural resource (historic / archaeological / paleontological / Native American) are uncovered during site preparation, excavation or other construction activity, all such activity shall cease until these resources have been evaluated by a qualified consultant and specific measures can be implemented to protect these resources in accordance with sections 21083.2 and 21084.1 of the California Public Resources Code. **Cultural-3b: Halt Construction Activity, Evaluate Remains and Take Appropriate Action in Coordination with Native American Heritage Commission.** In the event that any human remains are uncovered during site preparation, excavation or other construction activity, all such activity shall cease until these resources have been evaluated by the County Coroner, and appropriate action taken in coordination with the Native American Heritage Commission, in accordance with section 7050.5 of the California Health and Safety Code or, if the remains are Native American, section 5097.98 of the California Public Resources Code.	Less than Significant
Impact Cultural-4: Disturbance of Previously Unidentified Tribal Cultural Resources or Remains. During earth-moving activities at the Project site, it is possible that	Mitigation Measure Cultural-1 detailed under Impact Cultural-1 above requires archaeological monitoring during ground disturbance within the Residential Development Area and appropriate actions taken in	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
previously unidentified tribal cultural resources or remains could be uncovered and disturbed. This is a ***potentially significant*** impact.	the event of discoveries. This measure would be applicable to mitigate Impact Cultural-4 as well. Mitigation Measures Cultural-3a and Cultural-3b detailed under Impact Cultural-3 above further require halting of construction activity and appropriate actions in the event any unknown cultural or tribal cultural resources or remains are discovered. These measures would be applicable to mitigate Impact Cultural-4 as well.	
Impact Geo-2: Seismic Ground Shaking. There is a high probability that the proposed development would be subjected to strong to violent ground shaking from an earthquake during its design life. Strong seismic ground shaking is considered a ***less than significant impact with mitigation.***	**Geo-2a: Preparation and Compliance with a Design-Level Geotechnical Investigation Report prepared by a Registered Civil or Geotechnical Engineer and with Structural Design Plans as Prepared by a Registered Structural Engineer.** The Preliminary Geotechnical Investigation and Geologic Hazards Assessment for the site identified seismic design criteria for the Project development. The structural engineering design should incorporate seismic design standards required by the California Building Code/California Residential Code. In general, the design-level report shall either corroborate or provide alternative recommendations to the preliminary report based upon actual soil and rock conditions in the areas where structures are proposed. The fire access road shall also be investigated. As is standard required practice prior to issuance of building permits, a design level geotechnical investigation shall be completed that includes the following elements: A) Additional subsurface investigation in areas to be occupied by structures which shall confirm or expand on the geotechnical recommendations presented in the preliminary report related to seismic ground shaking. B) Specific measures to addressing the potential for seismically-induced landslides, such as retaining structures, buttress fills or other techniques to reduce the potential for seismically induced landslides. C) Additional test pits within the Residential Development Area and fire access road area to identify areas of expansive claystone bedrock. As applicable, measures to address expansive claystone bedrock shall include control of drainage measures, depth of excavations, location of improvements relative to the claystone, the use of deep foundations, and the use of stiffened structural slabs and void forms beneath the slabs. D) Measures for control of expansive clay soils, which could include the following: 1. Placing and compacting potentially expansive subgrade soils at high moisture contents (at least 3 percent above optimum moisture content in accordance with ASTM D1557) and compaction within selected ranges of 87 to 92 percent in the upper 5 feet and 95 percent below a depth of 5 feet.	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	2. Using thickened concrete slabs with increased steel reinforcement. 3. Replacing clayey soils underlying foundations and concrete slabs with select structural fill that is non-expansive or has a low expansion index. 4. Treating site soils with lime to reduce the expansion potential and increase the strength. 5. Utilize pier-and-grade-beam foundation systems where appropriate; 6. Grade around structures to assure positive drainage away from structures. **Geo-2b: Compliance with California Building Code (CBC) and California Residential Code (CRC).** Project development shall meet requirements of the current applicable California Building Code and California Residential Code Edition as determined by the Town of Portola Valley, published by the International Conference of Building Officials, and as modified by the amendments, additions and deletions as adopted by the Town of Portola Valley, California.	
Impact Geo-4: **Seismically-induced Landslides**. Portions of the site may be subject to seismically-induced landsliding. A portion of the site is identified on the Seismic Hazard Zone Map of the Palo Alto Quadrangle as being potentially susceptible to seismic shaking induced ground failure. Preliminary investigation by Cornerstone indicates that a design-level geotechnical investigation is needed to address the potential for slope failure associated with seismic shaking events in several areas. This would be a ***less than significant impact with mitigation***.	Mitigation Measure Geo-2a (detailed under Impact Geo-2 above) would also mitigate Impact Geo-4.	Less than Significant
Impact Geo-5: Soil Erosion. The Project would involve mass grading in a location that could facilitate stormwater-related soil erosion, soil movement and the loss of topsoil. This could potentially impact vicinity drainages such as Los Trancos Creek, the unnamed creek, and ultimately San Francisco Bay. This would be a ***less than significant impact with mitigation.***	**Geo-5a: Erosion Control Plan.** The Project applicant shall complete an Erosion Control Plan to be submitted to the Town in conjunction with the Grading Permit Application. The Erosion Control Plan shall include winterization, dust, erosion and pollution control measures conforming to the California Stormwater Quality Association (CASQA) Stormwater Best Management Plan Handbook for New Development and Redevelopment. The Erosion Control Plan shall describe the "best management practices" (BMPs) to be used during and after construction to control pollution resulting from both stormwater and construction water runoff. The Erosion Control Plan shall include locations of vehicle and equipment staging, portable restrooms, mobilization areas, and planned access routes. The erosion control plan will also address the fire access road area. Recommended soil stabilization techniques include placement of straw wattles, silt fences, berms, and gravel construction entrance areas or other control to prevent tracking sediment onto city streets and into	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	storm drains. **Geo-5b: Storm Water Pollution Prevention Plan (SWPPP).** In accordance with the Clean Water Act and the requirements of the State Water Resources Control Board (SWRCB), the Applicant shall file a SWPPP prior to the start of construction. The SWPPP shall be prepared by a Qualified Plan Developer (QSD) and shall include specific best management practices to reduce soil erosion and protect ground water quality. This is required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activities. During construction, the SWPPP measures shall be reviewed by a Qualified Individual (QSP) certified to monitor that the stormwater protection measures are adequately implemented. Reporting will be performed in accordance with General Permit requirements.	
Impact Geo-6: **Unstable Geologic Unit-Expansive Bedrock**. Portions of the Project site are underlain by expansive soils that can be susceptible to substantial differential movement resulting in damage to structures, concrete slabs, retaining walls, pavements, sidewalks and other improvements. This would be a ***less than significant impact with mitigation***.	Mitigation Measure Geo-2a (detailed under Impact Geo-2 above) would also mitigate Impact Geo-6.	Less than Significant
Impact Geo-7: **Potentially Expansive Soils**. The surface soils at the Project site are moderately expansive due to clay content that is susceptible to substantial shrink-swell characteristics linked to changes in the moisture content. These expansive soils could cause damage to foundations, concrete slabs, and pavements. The impact due to expansive soils is ***less than significant with mitigation***.	Mitigation Measure Geo-2a (detailed under Impact Geo-2 above) would also mitigate Impact Geo-7.	Less than Significant
Impact Geo-8: Disturbance of Previously Unidentified Unique Paleontological Resources. While not considered likely due to the types of soil at the Project site, it is possible that previously unidentified paleontological resources could be uncovered and disturbed. This impact is ***less than significant with mitigation.***	Mitigation Measures Culturale-1b and Cultural-1c (detailed under Impact Cultural-1 above) would also mitigate Impact Geo-8.	Less than Significant
Impact Hydro-1: Potential for Contaminated Runoff. Unmitigated, Project activities associated with construction of the Project could result in violation of waste discharge requirements under the San Mateo County Municipal Regional Stormwater NPDES Permit from contaminated runoff entering Los Trancos Creek or other unnamed creeks or drainages for both the construction phase and on-going operation of the Project.	**Hydro-1a: Erosion and Sediment Control Plan.** Prior to issuance of grading permits or approval of improvement plans, the Applicant shall submit a detailed ESCP to the County of San Mateo Planning and Building Department and the Director of Public Works of Portola Valley for review and approval. The purpose of the ESCP shall be to mitigate erosion and sedimentation impacts during the construction period for the proposed residential development, trails, and the new fire access road. The detailed ESCP shall	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
Increased erosion caused by construction activities and increased runoff could result in the sedimentation of receiving waters. This impact is ***less than significant with mitigation.***	meet the requirements of both San Mateo County and the town of Portola Valley. It shall be accompanied by a written narrative and shall include, at a minimum, the following: a. Proposed schedule of grading activities, monitoring, and infrastructure milestones in chronological format. An anticipated construction schedule and/or construction duration (in weeks or months) shall be provided. b. Separate plan sheets for measures to be implemented at the grading stage and the construction stage. c. Delineation of work areas including protection of surface waters, storm drain inlets, sensitive areas, and buffer zones. d. A separate Tree Protection Plan. e. All proposed retaining walls, including areas that will be used for stockpiling and storing construction materials. f. Indicate location and method of stabilizing disturbed bare earth areas. Use seeding and/or mulching and the following, as necessary: (i) For slopes less than 3:1, provide silt fencing or fiber rolls along contour lines; (ii) For slopes greater than 3:1, anchored erosion blankets (rice, straw, or coconut) and fiber rolls or silt fencing at the crest are required. Jute netting is preferred when used with seeding. g. Use diversion berms to divert water from unstable or denuded areas (e.g., top and base of a disturbed slope, grade breaks where slopes transition to a steeper slope). h. Direct water from construction areas to designated temporary filtration/detention areas. Show any temporary detention areas for stormwater and stabilization of those areas. i. Show location of office trailer(s), storage sheds, temporary power pole, scaffold footprint, and other temporary installations on the Erosion and Sediment Control Plan. Show how they will be accessed and show protection of the access routes. j. Show location of utility trenches, indicate utility types, and identify timing of installation. k. Use stabilized designated access points for entrance onto the property using 4- to 6-inch fractured aggregate over geo-textile fabric over the first 20 feet of the property. If using an existing paved driveway, identify on EC Plan. Where vehicles or equipment will travel from an existing paved driveway to unpaved areas within the property, a stabilized transition point is required that meets the above standards. l. Provide designated area(s) for parking of construction vehicles, using aggregate over geo-textile fabrics required that meets the above	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	standards. m. Show all access roads/ramps and access points used by excavation equipment, trucks, or forklifts/crane access. The type of materials used for stabilization and their locations shall be indicated on the Erosion and Sediment Control Plan. Materials for this purpose are required to be stored on-site. n. Show location, installation, and maintenance of a concrete/stucco mixer, washout, and pits. No concrete, mortar, or stucco washout is allowed to be placed directly on the soil/ground. Specify the method used to contain the washout. o. Show location of portable toilets away from surface water locations and storm drain inlets. p. Show storage location and containment of construction materials during work, as well as afterhours/ weekends. Show the location of lumber, gravel, and materials storage areas on the Erosion and Sediment Control Plan. Show how they will be accessed and show protection of the access routes. q. Show areas and proposed protection of temporary stockpiles using anchored-down plastic sheeting in dry weather. The use of plastic sheeting during the wet season, October 1 through April 30, is not allowed, unless the stockpile is also protected with fiber rolls containing the base of the stockpile. Alternatively, in wet weather, or for longer storage, use seeding and mulching, soil blankets or mats. r. Indicate the location of refuse piles and debris box locations on the Erosion and Sediment Control Plan. Show how they will be accessed and show protection of the access routes. s. Identify an Erosion Control Point of Contact, including name, title/qualification, email, and phone number. The Erosion Control Point of Contact will be the County's main point of contact if Erosion and Sediment Control or Tree Protection corrections are required. The ESCP shall also contain the following standard comments: • Perform clearing and earth-moving activities only during dry weather. Measures to ensure adequate erosion and sediment control shall be installed prior to earth-moving activities and construction. • Measures to ensure adequate erosion and sediment control are required year-round. Stabilize all denuded areas and maintain erosion control measures continuously between October 1 and April 30. • Use sediment controls or filtration to remove sediment when dewatering site and obtain Regional Water Quality Control Board (RWQCB) permit(s) as necessary.	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	• Avoid cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated. • Limit and time applications of pesticides and fertilizers to prevent polluted runoff. • Limit construction access routes to stabilized, designated access points. • Avoid tracking dirt or other materials off-site; clean off-site paved areas and sidewalks using dry sweeping methods. • Train and provide instruction to all employees and subcontractors regarding the Watershed Protection Maintenance Standards and Construction BMPs. • List the locations where placement of erosion materials is required on weekends and during rain events. • The areas delineated on the plans for parking, grubbing, storage, etc., shall not be enlarged or "run over." • Construction sites are required to have erosion control materials on-site during the "off-season." • Dust control is required year-round. • Erosion control materials shall be stored on-site. • Use of plastic sheeting between October 1 and April 30 is not acceptable, unless for use on stockpiles where the stockpile is also protected with fiber rolls containing the base of the stockpile. • Tree protection shall be in place before any demolition, grading, excavating or grubbing is started. **Hydro-1b: Stormwater Pollution Prevention Program**. Prior to issuance of grading permits or approval of improvement plans, the Applicant shall also submit evidence to the Town Engineer of Portola Valley showing that coverage under the Statewide General Construction Activities Stormwater Permit (General Permit) has been obtained. The Applicant shall comply with the NPDES General Construction Activities Storm Water Permit Requirements established by the CWA. The Applicant can obtain coverage under the General Permit by filing a Notice of Intent (NOI) with the State Water Resource Control Board's (SWRCB) Division of Water Quality. The filing shall describe erosion control and storm water treatment measures to be implemented during and following construction and provide a schedule for monitoring performance. These BMPs shall serve to control point and non-point source pollutants in stormwater and constitute the Project's SWPPP for construction activities. Long-term BMPs shall serve to control post-construction erosion and sedimentation. While the SWPPP will include several of the same components of the ESCP,	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	the SWPPP shall also include BMPs for preventing the discharge of other nonpoint source pollutants besides sediment (such as paint, concrete, etc.) to downstream waters. **Hydro-1c: Final Drainage Plan.** Prior to the issuance of the Building permit or Planning permit (for Provision C3 Regulated Projects), the Applicant shall submit to the Planning and Building Department for review and approval a Drainage Plan including the following: 1. A drainage analysis of the proposed Project (including the Residential Development Area, trails, and fire access road) prepared, by a registered civil engineer. The drainage analysis shall consist of a written narrative and a plan. The plan shall include the following: a. A written analysis that includes the delineation of all drainage basins to which stormwater from the Project site would flow, description of proposed drainage system, discussion of rationale used to design the system, a discussion of methods and/or calculations, description of how excess drainage will be detained, and a description of how discharge will be controlled. b. Complete plans of storm drainage contours and elevations, storm drain facilities and lines, utility crossings, and construction materials. c. The flow of the stormwater onto, over, and off of the property shall be detailed on the plan and shall include adjacent lands as appropriate to clearly depict the pattern of flow. d. A hydraulic analysis demonstrating that the post-development discharge will be controlled and peak flow and velocity will not exceed pre-development values, and that all storm drainage facilities have sufficient capacity to carry anticipated peak flows. This analysis shall consider all facilities including the fire access road grading and its drainage system. The condition of the southern culvert underneath Alpine Road shall be assessed and replacement or repairs shall be completed as necessary. The analysis shall detail all measures necessary to certify adequate drainage. Post development flows and velocities shall not exceed those that existed in the pre-developed state. e. Recommended measures shall be designed and included in the improvement plans and submitted to the Planning and Building Department for review and approval. 2. In addition, once reviewed and approved by the Town, the Applicant shall record documents which address future maintenance responsibilities of any private drainage and/or roadway facilities which	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	may be constructed. The Applicant or Homeowners Association must be responsible for proper maintenance of drainage structures, the bioretention swale, and equipment on the Project area. The Applicant must submit an Operation and Maintenance Agreement for review and approval. At a minimum, the Operation and Maintenance Agreement must include the following: • The contact information for the property owner(s) or responsible party; • Identification of the number, type and location of all stormwater treatment measures on site; • A list of specific, routine maintenance tasks and the intervals that they will be conducted; and • An inspection checklist specific to the measures, which indicates the items that will be reviewed during regular maintenance inspections. For bioretention areas, the following inspections must be required: • Inspect monthly for obstructions and trash. • Inspect monthly for ponded water. If ponded water does not drain in 5 days, take the appropriate action. If mosquito larvae are observed, contact the San Mateo County Mosquito Abatement District. • Inspect monthly for channels, exposure of soils, or other evidence of erosion. Clear any obstructions and remove any accumulation of sediment. • Inspect biannually for health of plants and remove dead and diseased vegetation. • Treat and maintain vegetation and irrigation system. Minimize use of pesticides and quick-release synthetic fertilizers. • Inspect and replace mulch as needed before wet season. **Hydro-1d: Stormwater Treatment System Operation and Maintenance Plan.** A stormwater treatment system operation and maintenance plan shall be prepared by the applicant's engineer consistent with the San Mateo County Water Pollution Prevention Program requirements that describes the type and frequency of ongoing maintenance required for proper operation of all post-construction permanent stormwater treatment measures on the Project site. As development accessed via a private road, this operation and maintenance plan shall include maintenance and cleaning of paved areas to minimize litter and debris washing into storm drains. This plan shall be submitted to and must be approved by the City of Portola Valley Public Works Department prior to first certificate of occupancy.	

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
Impact Hydro-2: Potential for Erosion and Sedimentation. If unmitigated, erosion and sedimentation could occur during and after construction-period earthwork and grading activities and due to the resultant increased impervious surfaces at the Project site once constructed. This impact is ***less than significant with mitigation.***	Mitigation Measures Hydro-1a, Hydro-1b, and Hydro-1c (detailed under Impact Hydro-1 above) would also mitigate Impact Hydro-2.	Less than Significant
Impact Hydro-3b: Potential for Increased Runoff from the Fire Access Road. Construction of the Project fire access road would result in increased runoff to the Alpine Road culvert in the southern corner of property, which could lead to flooding of Alpine Road during large storm events if the capacity and condition are not adequate to accommodate the additional 2.7% increase in runoff from this watershed. This impact is less than significant with mitigation.	Mitigation Measure Hydro-1d (detailed under Impact Hydro-1 above) would also mitigate Impact Hydro-3b.	Less than Significant
Impact Hydro-4: Contribute to the Stormwater System. If unmitigated, increases in impervious surfaces at the Project site and resultant increases in stormwater runoff could exacerbate downstream flooding problems. This impact is ***less than significant with mitigation.***	Mitigation Measure Hydro-1c (detailed under Impact Hydro-1 above) would also mitigate Impact Hydro-4.	Less than Significant
Impact Trans-2: Additional Vehicle Crossings Across Alpine Road Trail. The Project would increase in vehicle access points and vehicle crossings across the Alpine Road trail, which would increase the potential for conflict between vehicles and trail users and is considered a potential safety hazard. This impact is ***less than significant with mitigation.***	**Trans-2: Trail Crossing Warning.** The Project shall install a sign at the driveways "STOP HERE LOOK FOR TRAIL USERS STOP AGAIN AT ROAD" for outbound traffic approaching the trail to alert the exiting drivers of the presence of trail users.	Less than Significant
Impact Wildfire-2: Lessened On-Site Wildfire Risk but Increased Activity and Related Ignition Risk. Overall, if the Project and proposed vegetation management activities were implemented, it would substantially lower Wildfire Risk at the Project site. However, the additional human activity creates a greater likelihood of ignition at the site if not mitigated. Therefore, the Project impact with respect to Wildfire Risk would be ***less than significant with mitigation.***	**Wildfire-2a: Further Increase Effectiveness of the Vegetation Management Plan.** The Project sponsor shall implement the following measures to further increase the effectiveness of the VMP, as feasible: i. Consideration of less thinning of the oak woodland canopy cover than the 40% thinning proposed in the VMP. This level of canopy opening can promote growth of understory shrubs and small trees - ladder fuels that contribute to tree torching, and ember production. ii. Consideration of allowable methods to remove over-abundant fuels in riparian forests and creekbeds in consultation with the California Department of Fish and Wildlife. iii. No mechanical equipment use on days of Red Flag Warning.	Less than Significant

Potentially Significant Impacts	Mitigation Measures	Resulting Level of Significance
	Wildfire-2b: Ignition Reduction. The Project sponsor shall implement the following measures to further reduce the potential for ignitions within the Residential Development Area: i. Annual third-party inspection and certification of defensible space in HOA-property; the letter of compliance should be sent to the Woodside Fire Protection District. ii. As feasible, obtain fuel management easements on adjacent properties where defensible space is not 100-feet from structures so that the HOA can treat fuels appropriately. iii. Installation of non-combustible fences on sides as well as rear yards. Solid, non-combustible fences could form a radiant heat barrier rather than a source of heat. iv. Installation and maintenance of ember-resistant zones 5-feet from side walls, per AB 3074. v. Prohibition of smoking in common areas, outdoor fireplaces, and pizza ovens in yards and common areas, and use of mechanical equipment on hot, dry windy days. No mechanical equipment use on days of Red Flag Warning. vi. Robust and regular education of residents regarding ignition prevention to be coordinated by the HOA.	

Less than Significant Impacts (No Mitigation Required)
Impact Aesthetics-1: Development along the Alpine Road Scenic Corridor. There are no designated or eligible scenic highways in the vicinity of the Project site though the Project is within the locally-designated Alpine Road Scenic Corridor. The Project is consistent with General Plan objectives related to development along the Alpine Road Scenic Corridor and the environmental impact of the Project with respect to scenic vistas or scenic resources would be ***less than significant.***
Impact Aesthetics-2: Modified Visual Character. The Project proposes residential redevelopment of a portion of the site. While this would change the look of that portion of the site, the proposed development is generally consistent with plans and regulations for development of the site and would not represent a substantial degradation of visual character. The impact of the Project with respect to visual character would be ***less than significant.***
Impact Aesthetics-3: Low-Impact Site Lighting. The Project proposes residential redevelopment of a portion of the site, which would include lighting. Proposed lighting fixtures are designed to provide targeted lighting at focused locations without substantial spillover into adjacent areas or into the sky and the proposed architectural finishes are consistent with rural residential development and do not include substantial glass or other reflective materials that could be a source of substantial glare. The impact of the Project with respect to light and glare would be ***less than significant.***
Impact Ag-1: Oak Woodlands. The Project site contains Oak Woodlands, which while not used as productive forest land, and not under Williamson Act contract, a conservation plan, or conservation easement, and not indicated on state mapping as grazing land, could be considered potential rangeland. The Project is consistent with applicable identified protection opportunities under the state's latest Forests and Rangelands Assessment and applicable provisions of the Oak Woodland Conservation Act related to tree removal permits. This is a ***less than significant*** impact.

Impact Air-3: Exposure of Sensitive Receptors. The Project would result in emissions that could contribute to increased health risks during both the construction period and operations. However, the Project's contribution would not be substantial and is below applicable screening and threshold levels and the impact would be considered ***less than significant.***
Impact Bio-4: Disturbance of White-tailed Kites. Suitable nesting habitat is available on site for no more than one pair of white-tailed kites. Construction or off-road mechanical vegetation management activities during breeding season could result in destruction or disturbance of active nests. However, because no more than one pair of kites could possibly be impacted, and because this species is relatively widespread in the region, the loss of reproductive effort associated with one pair of kites, and the loss of habitat suitable to support one pair, would be a ***less than significant*** impact on this species.
Impact Bio-7: Indirect Lighting Impacts on Wildlife. While the project would bring artificial lighting to the Project site, such lighting is appropriately designed to avoid substantial impacts to surrounding habitat that could support sensitive species, and the impact of Project artificial lighting on wildlife would be ***less than significant.***
Impact Bio-10: Indirect Impacts on Wetlands. While no wetlands occur on the Project site, the ephemeral streams on the Project site could carry sediment or contamination in stormwater to wetlands outside the project area. However, with required compliance with existing regulations requiring stormwater control and pollution prevention during construction and operation, the impact would be ***less than significant.***
Impact Bio-11: Reduced Wildlife Movement. While development of a portion of the Project site would reduce the ability for wildlife to use and move across the Project site, wildlife would still be able to move between the surrounding higher quality habitat patches. This is a ***less than significant*** impact.
Impact Bio-12: Bird Collisions. While the proposed residential development would add structures that could present a risk of bird collisions as they travel across the site between surrounding habitats, the specific design of the proposed structures, including the lack of extensive glazing elements, would minimize this risk below levels where it could substantially impact sensitive species. This is a ***less than significant*** impact.
Impact Bio-14: Tree Removal. The proposed development as well as vegetation management activities would result in removal of an unknown but substantial number of trees, some of which may qualify as "Significant Trees" under the Town's Municipal Code. However, the applicant is required to comply with the Town's regulations, including the need for permits and payment of fees as appropriate and would therefore not conflict with local policies. This is a ***less than significant*** impact.
Impact Geo-1: Surface Fault Rupture. According to state mapping and a focused site-specific investigation, there are no active faults within the Project site. The impact of surface fault rupture would be a ***less than significant*** impact.
Impact Geo-3: Seismic Ground Failure, including Liquefaction, Densification, and Differential Settlement. Site-specific analysis has determined that soils at the site have a low potential for liquefaction, densification (seismic settlement/saturated sand shaking) or lateral spreading to occur at the site. Seismically induced ground failure is considered a ***less than significant*** impact.
Impact GHG-1: Increased GHG Emissions. Construction and operation of the proposed Project would be additional sources of GHG emissions, primarily through consumption of fuel for transportation and energy usage on an ongoing basis. However, the GHG emissions level would be below applicable significance thresholds and would therefore be a ***less than*** *significant* impact.
Impact Haz-1: Routine Hazardous Materials. Construction activities routinely utilize fuels and oils in construction equipment that may be considered hazardous and residential operations use small amounts of hazardous materials such as cleaning products and oil and gasoline in vehicles. However, compliance with applicable regulations would ensure that the impact is ***less than significant.***
Impact Haz-2: Additional Evacuation Traffic. The Project would contribute additional evacuating vehicles in the event of an emergency evacuation in the area. However, based on modeling of evacuation traffic, the addition of evacuating vehicles from the Project site would not make a statistically significant difference in evacuation times. Proposed site improvements and vegetation management would additionally show fire spread across the Project site and therefore provide more time before area roadways including Alpine Road would be affected by fires. Therefore, the Project would not substantially impair emergency response or evacuation and would have a ***less than significant*** impact in this regard.

Impact Hydro-3a: Potential for Increased Runoff from the Residential Development Area. The Project would result in increased impervious area due to development in the Residential Development Area, which has the potential to result in increased runoff volumes and faster flows. However, the Residential Development Area includes a bioretention basin to capture and treat stormwater and mimic pre-Project hydrological conditions at the site. This is a ***less than significant*** impact.
Impact Plan-1: Generally Consistent with Plans and Policies. The proposed Project is generally consistent with the Town's plans and policies related to development of the Project site, with allowable approvals as proposed and the proposed land use would not result in physical changes to the environment that results in significant impacts. The impact related to conflict with plans and policies would therefore be ***less than significant.***
Impact Noise-1: Temporary Construction Noise. Existing noise-sensitive land uses would be exposed to a temporary increase in ambient noise levels due to Project construction activities, but these would be constrained to weekday daytime hours and require appropriate noise control measures according to existing Town regulations and requirements. This is a ***less than significant*** temporary noise impact.
Impact Noise-2: Operational Noise. The proposed Project would generate operational noise related to residential use of the site including home mechanical equipment, increased traffic noise, and ongoing vegetation management. However, operational noise from the Project and increased noise levels at existing sensitive receptors would comply with applicable standards. This is a ***less than significant*** operational noise impact.
Impact Noise-3: Vibration. Residential uses are not a source of substantial operational vibration and while construction activities can result in vibration, Project construction would not result in vibration levels exceeding applicable standards (0.3 in/sec PPV) at the surrounding sensitive land uses levels. This is a ***less than significant*** impact.
Impact Noise-4: Excessive Aircraft Noise. The Project site is located over 6 miles from a public airport or public use airport and would not expose people residing or working in the Project area to excessive aircraft noise. This is a ***less than significant*** impact.
Impact Pop-1: Planned Population Growth. The Project would result in an increase of 39 units (approximately 101 residents) at the Project site. However, this increase is consistent with the Town's General Plan to develop the Project site with residential (including affordable) units and helps fulfil the Town's Regional Housing Needs Allocation and would therefore not be considered "unplanned." The impact related to substantial unplanned population growth would be a ***less than significant*** impact.
Impact Services-1:Increased Public Service and Recreation Demand. The Project would increase the number of residents at the site and therefore demand for public services and recreational opportunities. However, the Project would be served with existing facilities and those proposed as a part of the Project and the impact related to public services and recreation would be considered ***less than significant.***
Impact Trans-1: Consistency with Circulation System Plans and Policies. The Project would improve pedestrian and equestrian facilities at the site and while it would add some use of bicycle, pedestrian, transit, and roadway facilities, it would not conflict with applicable plans and policies. This is a ***less than significant*** impact.
Impact Trans-3: Consistency with Circulation System Plans and Policies. The Project would add trips to the circulation system, but would have an average Vehicle Miles Traveled below the Town of Portola Valley and below applicable significance thresholds. This is a ***less than significant*** impact.
Impact Trans-4: Site Access and Circulation. The design of the Project would meet all applicable Town and safety standards related to circulation and emergency access. This is a ***less than significant*** impact.
Impact Util-1: Increased Utility Demand. The proposed Project represents development of a site that does not currently utilize public utilities, but on which the General Plan anticipated such development and therefore would be expected to generate related utility demand. While the proposed Project would lead to an increase in utility demand at the site, the Project would utilize existing service systems with connections to the Project site as applicable and included in this analysis and no other new or expanded off-site utility facilities are proposed. As a standard condition of any project, the proposed Project will pay appropriate development impact and utility connection fees toward ongoing improvement and maintenance and comply with all applicable regulations and would be required to present "Will Serve" letters from the applicable utility providers demonstrating availability of services prior to construction. Therefore, the impacts related to increased utility demand are ***less than significant.***

Impact Util-2: Increased Energy Consumption. The Project would have an incremental increase in the demand for energy at the Project site. However, the Project is expected to be served with existing capacity and would not require or result in construction of new energy facilities or expansion of existing off-site facilities and would not violate applicable federal, state and local statutes and regulations relating to energy standards. Additionally, development at the Project site is required to meet or exceed applicable energy efficiency standards. The Project would have a ***less than significant*** impact relating to energy.
Impact Wildfire-1: Reduced Wildfire Roadway Blockage. Overall, if the Project including proposed vegetation management activities were implemented, it would result in slower spread of wildfires and resultant fewer blockages of roadways and intersections during an evacuation despite small increases in vehicles to be evacuated from Project residences. Therefore, the Project would not substantially impair emergency response or evacuation and would have a ***less than significant*** impact in this regard.
Impact Wildfire-3: Post-Fire Risk. The Project would follow applicable construction and post-development best management practices and would not create conditions that result in post-fire risk or expose people or structures to significant post-fire risks. The Project would have a ***less than significant*** impact in this regard.

3

PROJECT DESCRIPTION

Note that **Figures 3.1 through 3.11** are included together at the end of this chapter (pages 3-8 through 3-19).

PROJECT APPLICANT

The Project Applicant is Stanford University.

PROJECT OBJECTIVES

The Town of Portola Valley has identified the following objectives for the Stanford Wedge Housing Project in coordination with the applicant:

- Maximize single-family housing opportunities in an area the Town has studied and identified for housing
- Reduce wildfire risk at the site, increase access for fighting wildfires, and contribute to a more fire resilient community.
- Include sufficient affordable housing to make progress toward the Town's fair share of low-income housing needs under the Housing Element of the Town's General Plan, enable a density bonus, and comply with the Town's inclusionary housing ordinance
- Cluster development closest to existing infrastructure on relatively flat land, in a manner that avoids development of unstable ground, preserves substantial open space and steep slopes, minimizes grading, and fosters a sense of community

LOCATION AND VICINITY OF THE PROJECT

PROJECT SITE AND SURROUNDINGS

The Project site is located at 3530 Alpine Road on a 75.4-acre parcel (APN 077-281-020) that forms a generally triangular shape between Alpine Road, and developments along Westridge Drive, and Minoca Road in Portola Valley, California (**Figure 3.1: Project Site and Vicinity**). The site, known as the Stanford Wedge property, is mostly undeveloped and is covered with grasses, shrubs, and trees. The Alpine Rock Ranch, a horse boarding facility with stables, currently occupies approximately 7.4-acres (10% of the total site area) in the northeastern portion of the Project site.

Elevations within the site range from approximately 323 feet to 678 feet above sea level. The existing Alpine Rock Ranch facility is located on a relatively flat portion of the site along Alpine Road, with steep hillsides to the sides and rear of the property.

Single-family residences are located to the north, west, and south of the Project site. Only the homes to the north along Westridge Drive near Alpine Road are adjacent to the portion of the parcel proposed for residential development. Across Alpine Road to the east is Glenoaks Stables, then Felt Lake approximately 1,300 feet away, and Interstate 280 approximately 3,700 feet away.

SITE ZONING AND LAND USE DESIGNATION

The Town of Portola Valley General Plan designates the Project site as Conservation-Residential, and the site is zoned Residential Estate (R-E). The Project site is subject to the 3.5A residential density combining district, the SD-2 slope-density combining district, and the D-R design review combining district. The Housing Element of the General Plan identified the Stanford Wedge site (Site 40) as one that could accommodate a number of new residences, including affordable housing through the Affiliated Housing Program, and noted that such development would need to be clustered along Alpine Road given the site constraints.

Maximum allowable density at the site is governed by the Municipal Code and the State Density Bonus Law (Government Code section 65915). Municipal Code sections 18.50.040 and 18.50.050(A) impose a slope-density formula that yields 21 lots for the site. Municipal Code sections 17.20.215, 18.04.055 and 18.44.060(H) allow and require inclusionary housing that may take the form of lots transferred to the Town for construction by a third party or, alternatively, that the project subdivider itself may construct the multifamily housing. These provisions increase allowable units to 18 single-family units and 12 multifamily affordable units (30 total units prior to any density bonus). As discussed in more detail under the Affordability and State Density Bonus heading below, the Applicant proposes for 6 of the affordable units (20 percent of the units) to be affordable at the "low income" level, which entitles the Project to a 35 percent affordable housing density bonus, allowing up to 41 units, though only 39 are proposed.

DESCRIPTION OF THE PROJECT

The Project can be considered as four components, residential development in the Residential Development Area, a new looped public trail on the hillside, a new fire access road, and a vegetation management plan. These are described in more detail below.

RESIDENTIAL DEVELOPMENT AREA

The Project Applicant proposes to subdivide the 75.4 acre property into 30 developable lots (**Figure 3.2: Lot and Parcel Plan**) plus a lot for common open space (parcel Y) and a lot left in a natural state (parcel Z).

The 30 developable lots would be located on the 7.4 acre northeastern portion of the Project site currently operated as the Alpine Rock Ranch (approximately 10% of the total site area) and referred to throughout this analysis as the "Residential Development Area".[1] The Residential Development Area would be developed with 27 market-rate single-family residences as part of a planned unit development and 12 affordable multifamily units configured as 3 lots/buildings with 4 units each.

[1] This definition and acreage for the Residential Development Area is used consistently throughout this analysis and is appropriate for the environmental analysis. However, note that some separate planning materials for the Project reference a 10.8 acre area with the same name. The difference is that the 10.8-acre area includes not only the area of disturbance but also includes the wildfire defensible zone and scenic corridor setback from Alpine Road.

Due to the clustering of development onto small lots along a private road with limited available parking, no accessory dwelling units are proposed.

The Project would provide parking in 60 garage/driveway spaces, 24 standard onsite spaces, and 5 accessible onsite spaces, for a total of 89 vehicle parking spaces. The Project would also include common open space areas, including a play area. The existing horse trail along the Project site's Alpine Road frontage would be retained. The remainder of the site would be preserved as natural open space for the life of the Project.

The existing buildings and fencing associated with the horse boarding facility would be demolished and removed as part of the proposed Project. The Project would also include removal of approximately 114 existing trees from the site.

Specific details of the proposed development are included below and shown on **Figure 3.3: Architectural Site Plan**. Streetscape and internal elevations are included as (**Figures 3.4** and **3.5**).

Single-family Units

Parcels 1 through 27 would be developed as a planned unit development consisting of 13 three-bedroom units, 8 four-bedroom units, and 6 three-bedroom duet units, for a total of 27 single-family residences each on their own lot. Duet units are attached on one side to another duet unit (lots 5/6, 13/14, and 22/23).

The single-family residences would be constructed on lots ranging from approximately 3,300 to 4,800 square feet. The units would range from approximately 2,200 square feet to 2,500 square feet in size (inclusive of garage), and each would be two stories high. The single-family residences would have private fenced rear yards and attached one-car garages.

Multifamily Units

Parcels A, B, and C would be developed with three 4-unit buildings and include a total of 12 below market-rate rental units. At least 6 of these units would be set aside for "low-income" households. The parcels would range from approximately 6,200 to 8,300 square feet, and each of the 2-story multifamily buildings would contain 2 studio units (approximately 475 square feet each), one 1-bedroom unit (approximately 600 square feet), and one 2-bedroom unit (approximately 975 square feet). Vehicle parking would be provided via attached one-car garages and uncovered parking spaces primarily located on each lot.

Residential Subdivision Design

Single-family residences and multifamily buildings would be accessed via a new, private loop road that would connect at two access points to Alpine Road. (The current ranch driveway would be removed.) Overall, buildings would be sited close to the private street to minimize grading and pavement. All buildings would be set back a minimum of 75 feet from Alpine Road to help maintain the Alpine Scenic Corridor. All buildings would be set back from the back property line of existing residences along Westridge Drive by at least 33' to afford privacy to existing residences.

The architectural style of the development would be a mix of traditional and modern. Simple gable roof forms, two-story bays, and covered entries would be clad in painted cement fiber siding with wood accents, standing seam metal roofs, and large metal-clad wood windows with narrow trim and crisp detailing. Colors would be muted—gray to gray-blue tones—typically with two colors per building, and gray metal roofs.

The residential design would follow the Town's Municipal Code relative to outdoor lighting by providing dark sky compliant light fixtures and their equivalent throughout the developed area.

New drought-tolerant landscaping would be installed throughout the site, including private garden areas, common open space areas, and bioretention areas. Screening landscaping would also be installed between the developed area and Alpine Road with visually clear areas maintained around intersections with the new loop road (**Figure 3.6: Planting Plan**).

The existing approximately 3.5-foot tall split rail fence would be retained along the existing horse trail fronting Alpine Road with modifications to accommodate site driveways and a connection to the new site trail. Deer fencing (6 feet tall) is proposed around single-family lots for security without obscuring views. Retaining walls are located at the sides and/or back of some single-family lots as necessary to result in generally flat lots. These retaining walls are a maximum of 3 feet high. Tiered retaining walls are located at the back of the multi-family lots that would be a maximum of 4 feet high on the lower tier and 30 inches high on the higher tier. (See **Figure 3.7: Materials and Finishing Plan**).

The proposed residential development would be designed to comply with Wildland Urban Interface materials and construction methods for exterior wildfire exposure and the Town's recently adopted home hardening ordinance, including:

- Roofs of metal or tile
- Protected vents in eaves or cornices with baffles to block embers
- Eaves and soffits protected with ignition-resistant or non-combustible materials
- Dual-paned windows with one pane of tempered glass to reduce the chance of breakage in a fire
- Exterior walls made of ignition resistant building materials, such as fiber cement, wall siding, fire retardant treated wood, stucco, or other approved materials
- Automatic interior sprinkler systems and exterior irrigation systems
- Decks (if provided) would be built with ignition-resistant, non-combustible, or other approved materials

Residences on the north and east sides of the new loop road (those that don't back generally toward Alpine Road) would include a 25-foot fuel management area in their back yards consisting of irrigated, low-fuel landscaping that homeowners would be required to privately maintain. A Zone 2 defensible space fuel management area would be established and maintained within 200 feet of all residences and the interface with wildland areas within the Project boundary. Within this zone, grasses would be mowed, dead plant material would be removed, and space would be maintained between shrubs, larger trees, and other combustible materials. Further out from the residences, shaded fuel breaks may be used to reduce the fuel load in the surrounding area. (**Figure 3.8: Fuel Management and Fire Access Plan**)

The common area fuel management areas would be owned and maintained by the Project homeowner's association. Stanford University would fund maintenance of the natural undeveloped area located further from the residential units and outside the fuel management areas. The homeowner's association or similar mechanism would also be used to fund maintenance of:

- common areas near the residences, including open space/recreational areas, landscaping, and stormwater detention/treatment areas;
- front yards of the residences;
- private internal loop street; and
- private segments of utilities.

Site Amenities

The Project open space areas within the Residential Development Area include visual buffers, fuel management areas, and a more formal common mini-park.

The mini-park would include a play area with swingset, spinner plate, climbing structure, and picnic tables. Vehicle and bicycle parking would be provided adjacent to the common open space and play area.

Affordability and State Density Bonus

The Project Applicant is seeking to provide affordable housing as part of its proposal pursuant to the State Density Bonus Law, which enables eligible applicants to receive (1) a density bonus, (2) incentives and concessions, (3) waivers and reductions of development standards, and (4) reduced parking requirements:

1) Density bonus: The Project Applicant would construct and set aside 6 units (20 %) for low-income households, which allows the Project up to 11 additional units under the 35% density bonus [Government Code 65915(f)(1)]. The Project Applicant is requesting 9 additional units.
2) Incentives and concessions: With the provision of 20% low-income affordable units, the Project is eligible for two incentives or concessions. The Project Applicant is requesting to reduce the minimum parcel sizes from 20,000 square feet to approximately 3,300 to 8,300 square feet for residential lots. The Project Applicant is also requesting to eliminate any potential application of a General Plan clustering provision to the Project.
3) Development standard waivers and reductions: The Project Applicant is requesting a waiver of the following:
    a. Municipal Code section 18.44.050(C), a Town development standard requiring specified spacing between main buildings in a residential planned unit development.
    b. Municipal Code section 18.48.010, a Town development standard establishing maximum floor area requirements.
    c. Municipal Code section 18.17.070, a Town ordinance that requires similarity between market-rate and affordable units in density bonus projects, to the extent this provision could be read to apply to the proposed Project.
4) Reduced parking requirements: The Project will provide parking consistent with the requirements of the State Density Bonus Law. The Project Applicant is requesting the Town not require a vehicular parking ratio, inclusive of handicapped and guest parking, that exceeds the ratios identified in Government Code section 65915(p)(1).

Access and Circulation

The Project site is bordered by Alpine Road, which runs north-south to the east of the site. A new private, two-way road would be constructed to loop through the residential development from Alpine Road, with entrance and exit points at the northern and southern ends of the development. The new road would provide access for residents, guests, and emergency vehicles.

Sustainability

In addition to compliance with the new 2019 Building Energy Efficiency Standards, which require zero net electricity development, including solar electricity generation on-site, and compliance with Town of Portola Valley's "Green Building" code sections, the Project would include the following sustainability features that are not required by regulations or ordinances:

- One Level-2 electric vehicle charging station installed in each single-family residence garage
- All-electric residences with no natural gas connections

Infrastructure and utilities

The Project anticipates receiving utility service from the following providers:

- Electricity: Pacific Gas & Electric Company
- Solid Waste & Recycling: GreenWaste Recovery, Inc.
- Water: California Water Services Company
- Sewer: West Bay Sanitary District

Utilities would be connected to existing infrastructure, installed underneath the new private road and extended to individual residences (**Figures 3.10a** and **3.10b: Utility Plan**). Electric and sewer lines are available for connection from the adjacent Alpine Road.

The Project is proposed to be constructed for all-electrical operations, with no gas hook-ups and the overhead electrical line on Alpine Road would be brought underground within the new private road. As part of the construction of the Project, Stanford will also underground the existing PG&E overhead power line that runs along the Alpine Road frontage of the entire Project site.

The Project site is not currently a part of the West Bay Sanitary District, so would require annexation into the sewer district prior to connection of sewer service.

Stormwater collection and management would be accommodated on-site with stormwater detention and bioretention treatment facilities meeting required capacity and stormwater treatment quality standards before connecting to the line in Alpine Road, which discharges to Los Trancos Creek.

There is no water main in Alpine Road along the Project frontage. As a part of the Project, the water main would be extended approximately 1,700 feet within Alpine Road from the intersection of Westridge Drive to provide water connection to the Project site. The Project will connect to both an existing 12-inch water main and an existing 6-inch water main located near the intersection of Westridge Drive and Alpine Road. Since these two water mains are fed from two separate sources of water, this would create a dual connection, providing a redundant source of water to the Project site and surrounding area.

The Project has also been designed to provide rooftop photovoltaic solar panel installation, allowing for on-site power generation.

Construction

Project construction is estimated to occur over approximately 24 to 30 months. Site grading activities would take approximately six to eight months, with paving and building construction following. At the time of preparation of the analyses for this document, occupancy of residential units on the site was expected to begin as early as spring of 2023. Delayed commencement of construction activities would not change the conclusions in this EIR.

Grading to accommodate the Residential Development Area development would be generally balanced, with approximately 5,775 cubic yard of dirt being moved on the site and minimal hauling of dirt to/from the site. (**Figure 3.11: Grading and Drainage Plan**)

PUBLIC TRAILS

The existing approximately 3.5-foot tall split rail fence would be retained along the existing horse trail fronting Alpine Road with modifications to accommodate site driveways and a connection to the new site trail.

A new 6' wide looped recreational trail would be constructed along the western edge of the development area. This trail would be open to the public and would connect to the existing horse trail along the Project site's Alpine Road frontage. (**Figure 3.9: Trail Plan**)

FIRE ACCESS ROAD

A fire access road is proposed to provide vehicular access for vegetation management crews from Alpine Road up and into the center of the Wedge property to allow mechanized equipment to clear and remove vegetation from areas not presently accessible. The fire access road would also allow access to emergency vehicles in the event of a wildfire. (**Figure 3.8: Fuel Management and Fire Access Plan**)

VEGETATION MANAGEMENT PLAN

Stanford contracted with wildfire professionals to prepare a Vegetation Management Plan ("VMP") for both the developed and undeveloped portions of the property. Areas with high fire hazard are mitigated through modifications to the live vegetation and removal of dead fuels onsite to reduce the risks. Several treatments or prescriptions (the modification of vegetation to reduce a fire's potential) are available in vegetation management practice. The type of treatments to be utilized within the Project parcel depend on the vegetation type, cover, and location. The VMP identified two types of vegetation cover on the Project site that can exhibit extreme fire behavior, which are chaparral and oak woodland. Given the existing condition of the vegetation on-site, three treatment areas were developed in the VMP, including defensible space areas around structures and recommended maintenance activities within the oak woodland chaparral areas of the property.

Stanford University would fund maintenance of the natural undeveloped area located outside the Residential Development Area.

PROJECT APPROVALS

The Project Applicant is requesting the following discretionary approvals from the Town:

- Conditional Use Permit to Allow Establishment of a Planned Unit Development
- Vesting Tentative Map to subdivide 75.4 acres into 30 residential lots and two common area lots
- Site Development Permit
- Architectural Review Permit
- The Town and Applicant may choose to enter into an Affordable Housing and Development Agreement
- Encroachment Permit for work in the right-of-way

The Project would also require Local Agency Formation Commission (San Mateo LAFCo) approval of annexation into the West Bay Sanitary District for sewer.

The Vegetation Management Plan will be coordinated with the Woodside Fire Protection District.

Following discretionary approvals, the Project would require issuance of Building Permits, which is an administrative action.

Figure 3.1: Project Site and Vicinity
Source: Project Plan Set, dated November 2020, and PaleoWest (Appendix E)

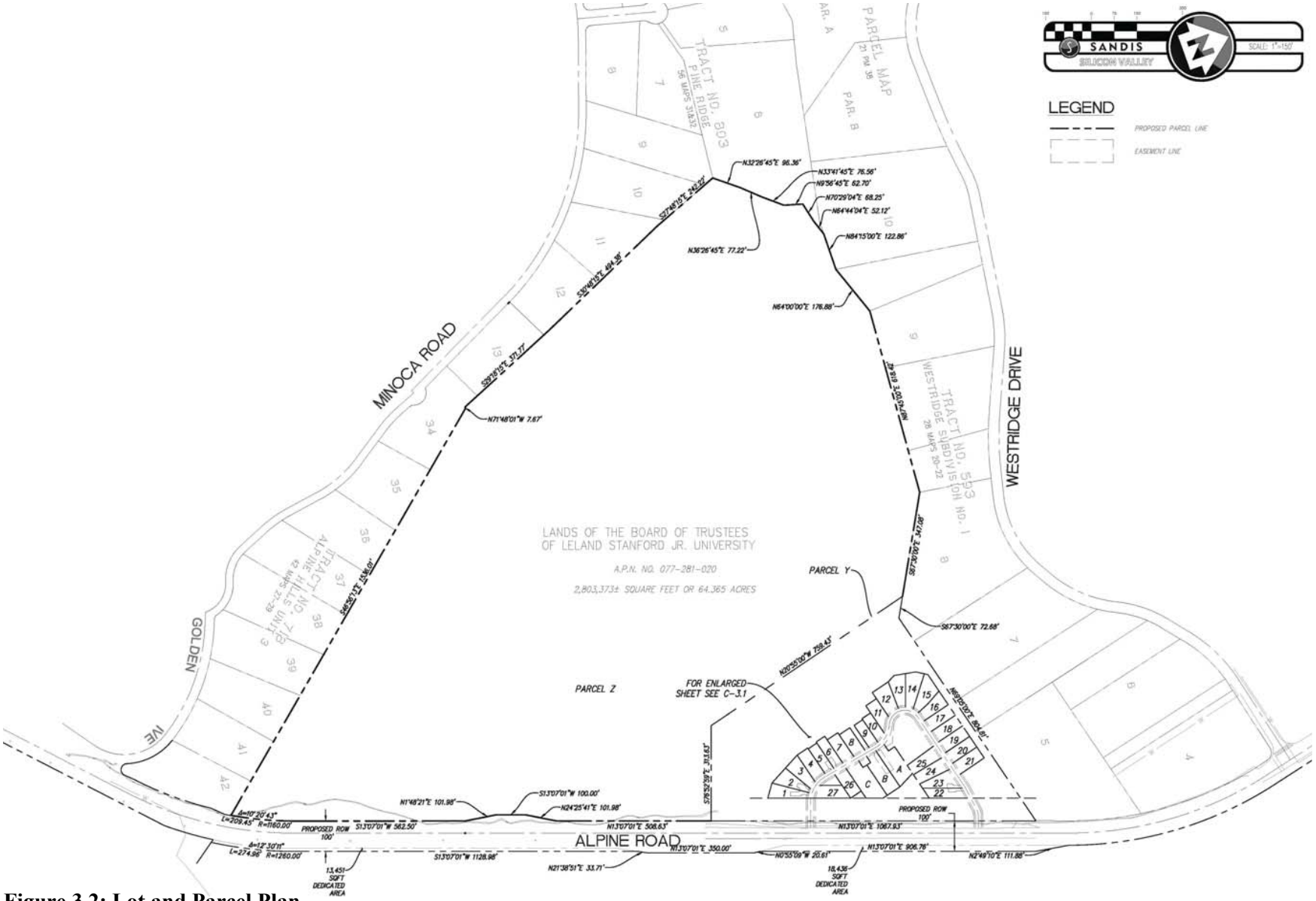

Figure 3.2: Lot and Parcel Plan
Source: Project Plan Set, dated November 2020

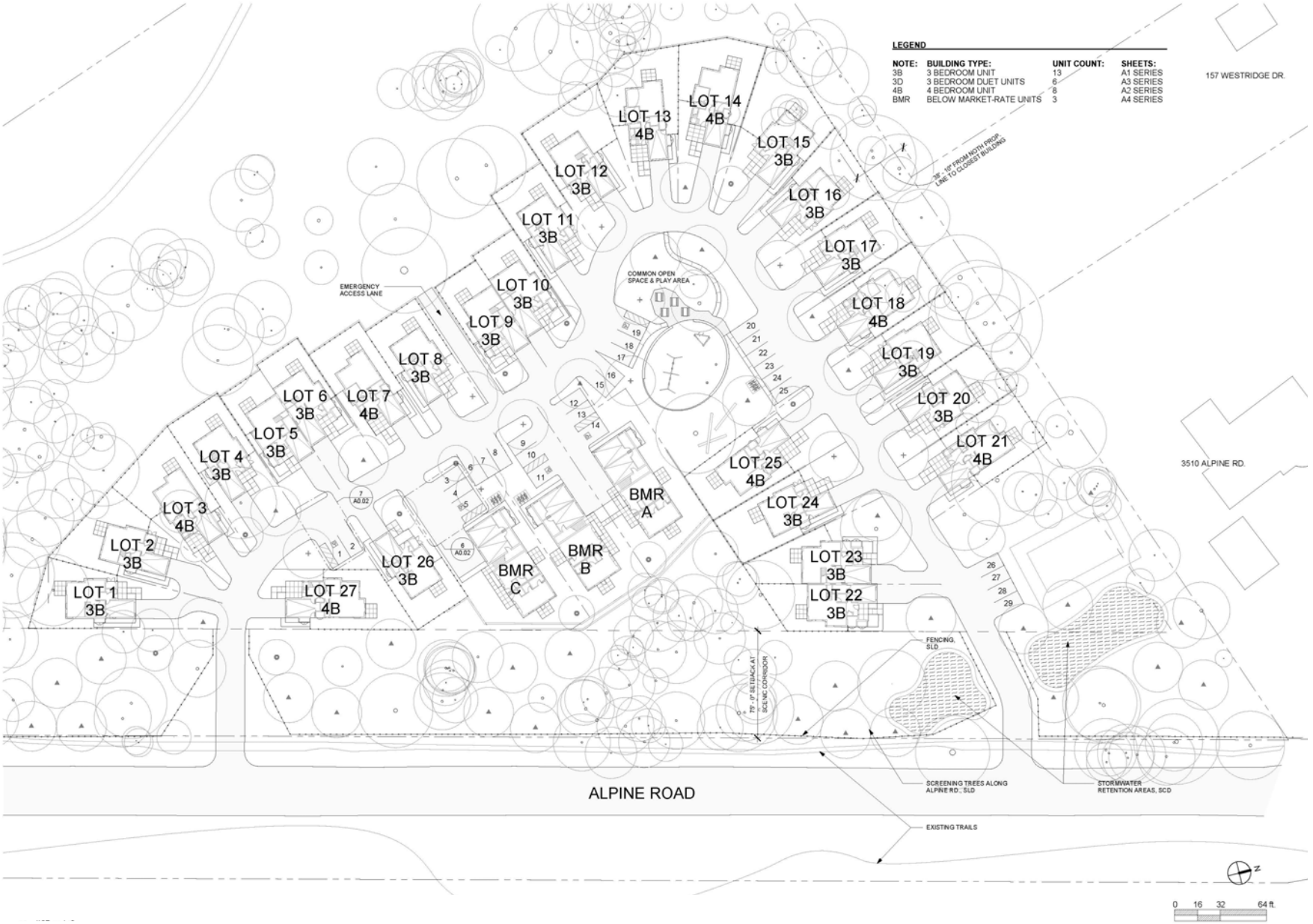

Figure 3.3: Architectural Site Plan
Source: Project Plan Set, dated November 2020

② STREETSCAPE ELEVATION 1
1/8" = 1'-0"

① STREETSCAPE ELEVATION 2
1/8" = 1'-0"

Figure 3.4: Streetscape (Internal Road) Elevations
Source: Project Plan Set, dated November 2020

B - INTERNAL NEIGHBORHOOD VIEW LOOKING AT THE COMMON OPEN SPACE
(EXISTING & PROPOSED TREES NOT SHOWN)

B - INTERNAL NEIGHBORHOOD VIEW LOOKING AT THE COMMON OPEN SPACE

A - INTERNAL NEIGHBORHOOD VIEW LOOKING NORTH
(EXISTING & PROPOSED TREES NOT SHOWN)

2 RENDERINGS - NEIGHBORHOOD INTERNAL VIEWS
WITHOUT EXISTING & PROPOSED TREES

A - INTERNAL NEIGHBORHOOD VIEW LOOKING NORTH

1 RENDERINGS - NEIGHBORHOOD INTERNAL VIEWS

Figure 3.5: Internal Renderings
Source: Project Plan Set, dated November 2020

PLANTING SCHEDULE

Sym	Botanical Name	Common Name	Qty	Size	Spacing
	New Trees				
AC	*Aesculus californica*	California Buckeye	11	36" Box	30 ' oc
QA	*Quercus agrifolia*	Coast Live Oak	34	36" Box	35 ' oc
QL	*Quercus lobata*	Valley Oak	10	36" Box	35 ' oc
			55	TOTAL	

Sym	Botanical Name	Common Name	Qty	Size	Spacing	%
	Screening Shrubs					
	Arctostaphylos regis 'Montana'	Manzanita	88	5 Gal.	96 " oc	
	Garrya elliptica 'Evie'	Coast silktassel	49	5 Gal.	96 " oc	
	Rhamnus crocea	Spiny Redberry	109	5 Gal.	60 " oc	
	Rhus integrifolia	Lemonade Berry	64	5 Gal.	96 " oc	
	Bioretention Areas					
7,938 sf	*Achillea millefolium*	Yarrow	242	plug	24 " oc	10%
	Juncus patens	California Grey Rush	994	plug	24 " oc	50%
	Leymus triticoides	Creeping Wild Rye	984	plug	24 " oc	40%
	Entry Planting Area					
4,915 sf	*Stipa pulchra*	Purple Needlegrass	1490	plugs	24 " oc	100%
	Common Open Areas					
43,083 sf	*Achillea millefolium*	Yarrow	215	1 Gal.	24 " oc	2%
	Arctostaphylos uva-ursi	Bearberry	345	1 Gal.	60 " oc	30%
	Arctostaphylos 'Pacific Mist'	Manzanita	162	1 Gal.	72 " oc	15%
	Epilobium 'Wayne's Silver'	California fushchia	323	1 Gal.	24 " oc	3%
	Eriogonum grande var. rubescens	Red Buckwheat	323	1 Gal.	24 " oc	3%
	Festuca california	California fescue	1292	plug	24 " oc	12%
	Iris douglasiana	Douglas iris	323	1 Gal.	24 " oc	3%
	Muhlenbergia rigens	Deer Grass	366	1 Gal.	48 " oc	15%
	Salvia 'Bee's Bliss'	Bee's Bliss Sage	310	1 Gal.	48 " oc	12%
	Salvia 'Pozo Blue'	Grey Musk Sage	172	1 Gal.	42 " oc	5%
	Salvia spathacea	Hummingbird sage	237	1 Gal.	36 " oc	5%
	Stipa pulchra	Purple Needlegrass	948	plug	18 " oc	5%
	Private Gardens					
28,600 sf	*Arctostaphylos uva-ursi*	Little Sur manzanita	229	1 Gal.	60 " oc	20%
	Arctostaphylos 'Pacific Mist'	Manzanita	107	1 Gal.	72 " oc	15%
	Epilobium 'Wayne's Silver'	California fushchia	215	1 Gal.	24 " oc	3%
	Erigeron glaucus 'Wayne Roderick'	Wayne Roderick Daisy	137	1 Gal.	30 " oc	3%
	Eriogonum grande var. rubescens	Red Buckwheat	215	1 Gal.	24 " oc	3%
	Festuca california	California fescue	215	1 Gal.	24 " oc	3%
	Heuchera maxima	Island Alum Root	215	1 Gal.	24 " oc	3%
	Iris douglasiana	Douglas iris	286	1 Gal.	24 " oc	4%
	Muhlenbergia rigens	Deer Grass	257	1 Gal.	48 " oc	15%
	Salvia 'Bee's Bliss'	Bee's Bliss Sage	206	1 Gal.	48 " oc	12%
	Salvia 'Pozo Blue'	Grey Musk Sage	206	1 Gal.	48 " oc	12%
	Salvia spathacea	Hummingbird Sage	120	1 Gal.	48 " oc	7%
	Private Lawns					
5,355 sf	Bolero Plus, available from Delta Bluegrass					

Figure 3.6: Planting Plan
Source: Project Plan Set, dated November 2020

Figure 3.7: Materials and Finishing Plan
Source: Project Plan Set, dated November 2020

Figure 3.8: Fire Access Plan
Source: Project Plan Set, dated November 2020

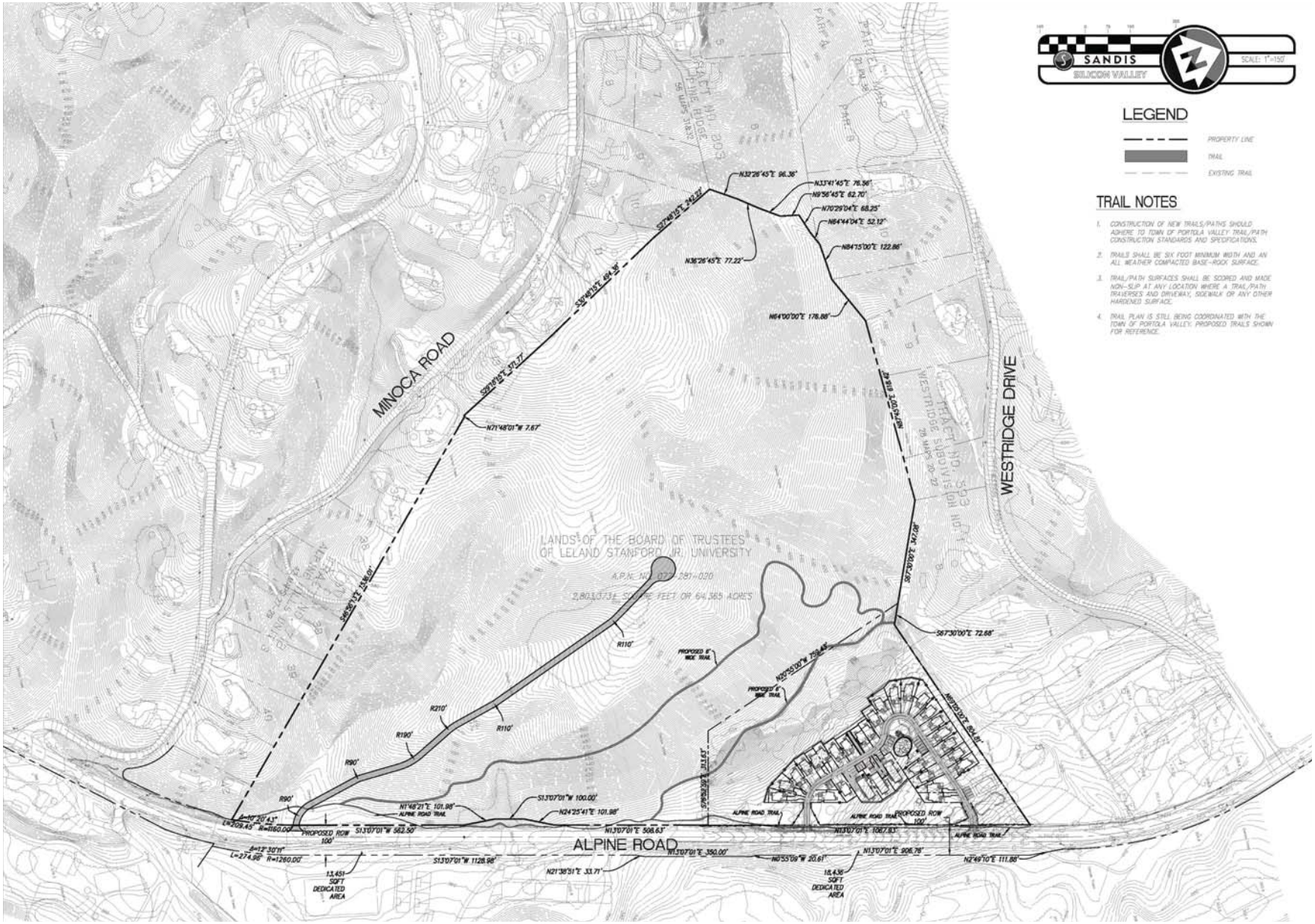

Figure 3.9: Trail Plan
Source: Project Plan Set, dated November 2020

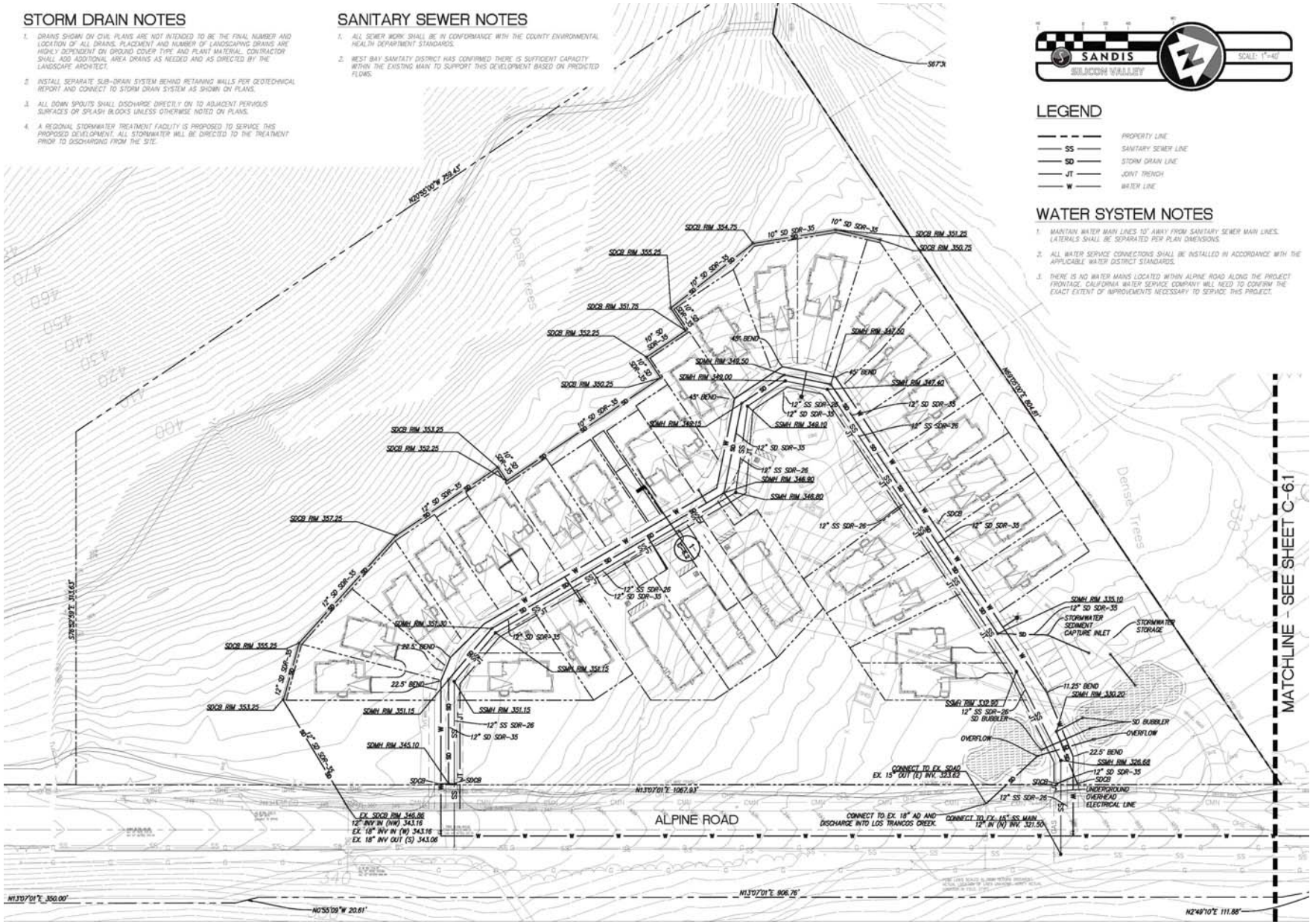

Figure 3.10a: Utility Plan
Source: Project Plan Set, dated November 2020

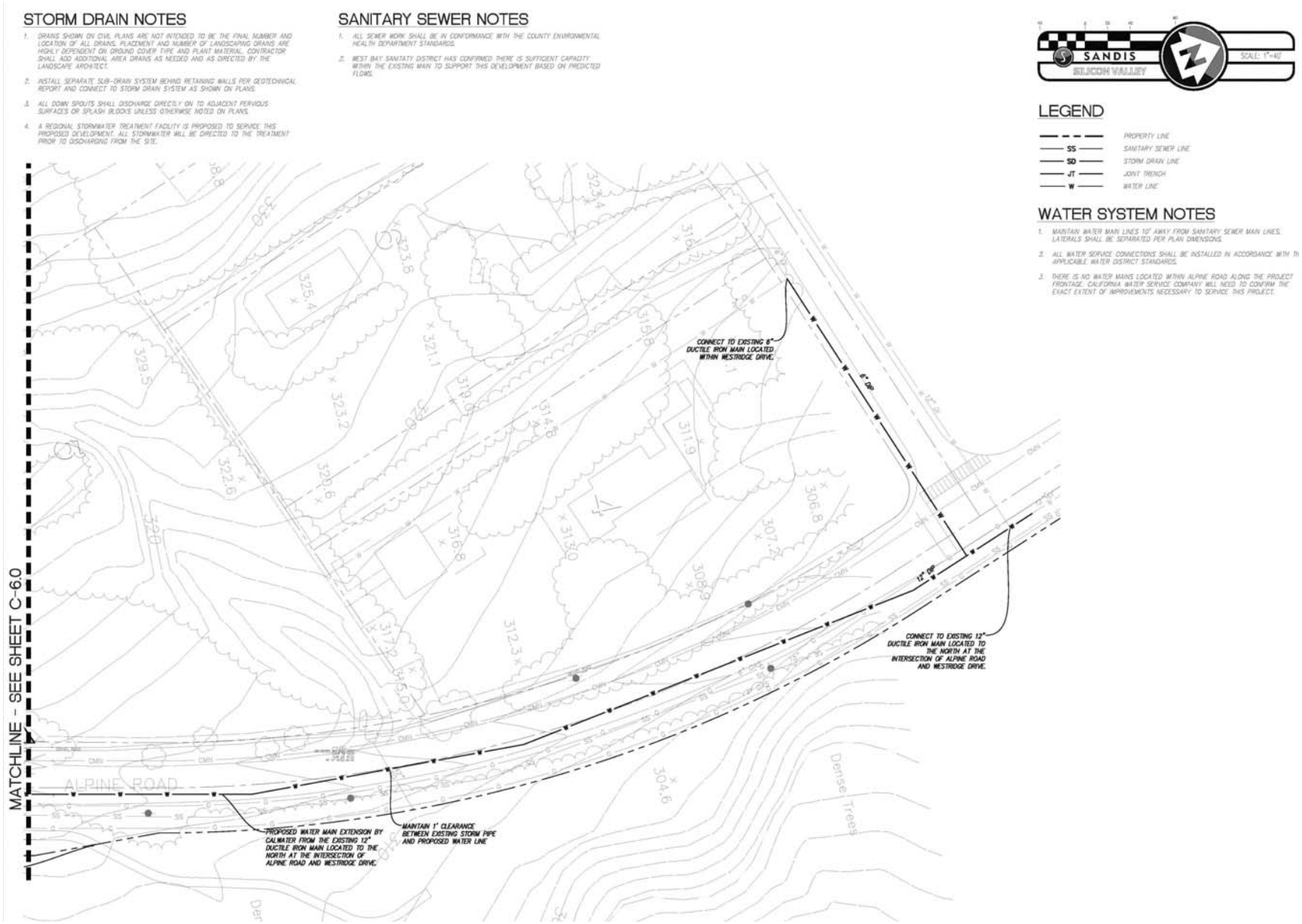

Figure 3.10b: Utility Plan
Source: Project Plan Set, dated November 2020

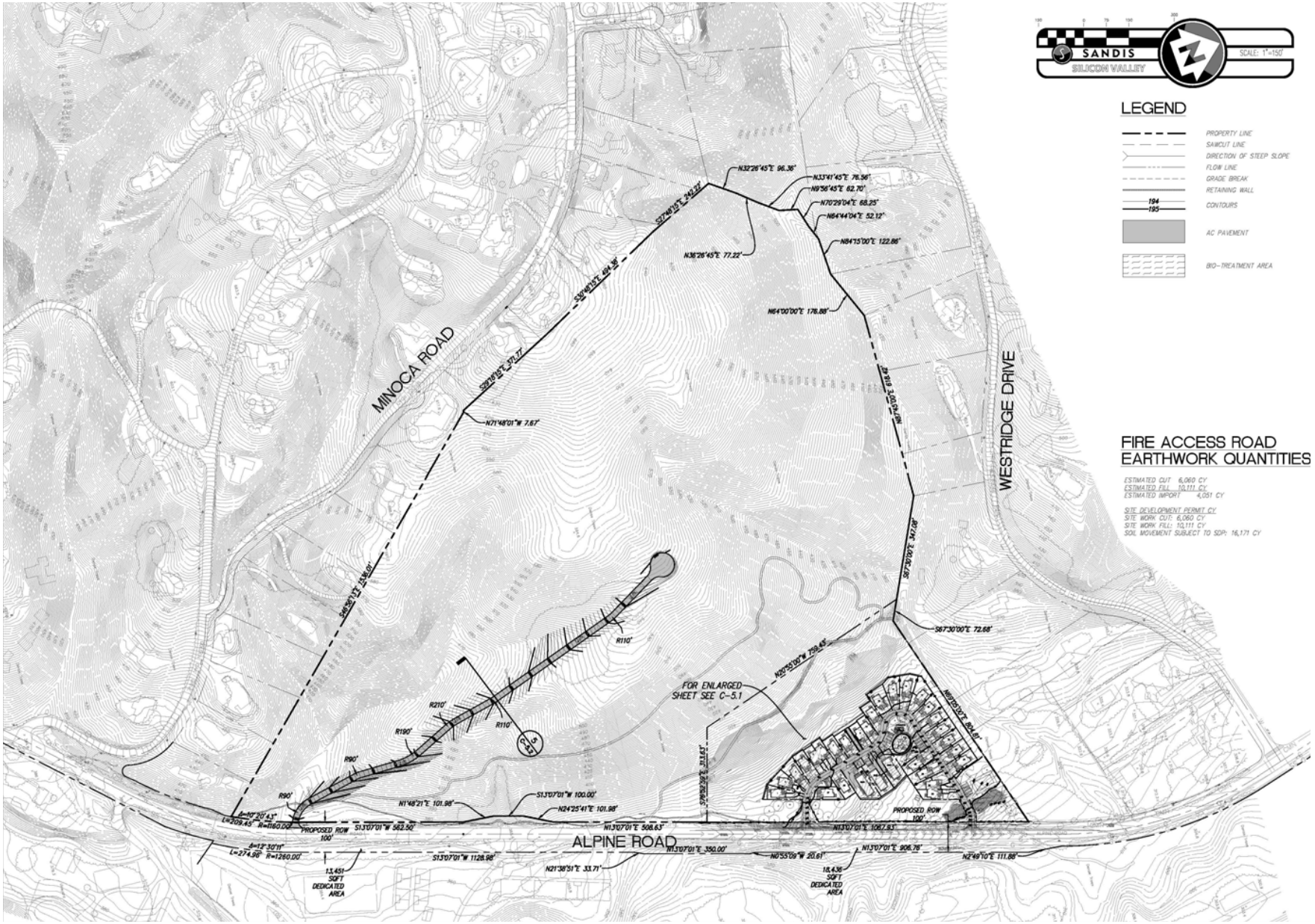

Figure 3.11: Grading and Drainage Plan
Source: Project Plan Set, dated November 2020

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4

AESTHETICS

INTRODUCTION

Development or redevelopment by its nature is a change to the way a site looks. The visual value of any given feature is subject to personal sensibilities and variations in subjective reaction to the features of a developed area. Objective or commonly agreed upon standards are difficult to establish, but an extensive body of literature is devoted to the subject of urban design and visual aesthetics.

This analysis of significance of the impacts of the proposed Project is based on the CEQA Environmental Checklist criteria contained within Appendix G of the CEQA Guidelines. In general, a project would be considered to have a significant aesthetic impact if it would result in substantial negative changes to visual resources considered to have aesthetic value. Such changes include visible alteration of significant landforms, visual clutter or disorder, or substantial disruption of the surrounding visual context, especially if such changes were to have more than temporary duration.

SETTING

Other than the frontage along Alpine Road, the Project site is adjacent to single-family residences to the north along Westridge Road, to the west along Cervantes Road, and to the south along Minoca Road. Across Alpine Road to the east is Glenoaks Stables, Felt Lake approximately 1,300 feet away, and Interstate 280 approximately 3,700 feet away.

The relatively flat northeastern portion of the site along Alpine Road is currently occupied by the Alpine Rock Ranch horse boarding facility and would be the location of the proposed residential development. The remainder of the site is covered with grasses, shrubs, and trees sloping upward from the horse boarding facility and bordered by single-family homes. Other than addition of an access road and ongoing vegetation management for fire reduction, this sloping portion would remain in its existing undeveloped state.

REGULATORY SETTING

STATE

Caltrans Scenic Highway Program

California's Scenic Highway Program is administered by the California Department of Transportation (Caltrans). The Scenic Highway Program was created by the Legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been officially designated.

LOCAL

Town of Portola Valley General Plan

The following General Plan includes the following Major Community Goals that could be related to the aesthetics of the Project site:

3. To conserve the rural quality of Portola Valley and maintain the town as an attractive, tranquil, family-oriented residential community for all generations compatible with the many physical constraints and natural features of the area. Rural quality as used in this plan includes the following attributes:
    a. Minimal lighting so that the presence of development at night is difficult to determine, so that the subtle changes between day and night are easily discernible and so that the stars may be readily seen at night.
    b. Minimal man-made noise so that the prevailing sense tends to be one of quiet except for the sounds of nature.
    c. Man-made features which blend in with the natural environment in terms of scale, materials, form and color.
    d. An overall impression of open space, natural terrain and vegetation, interrupted minimally by the works of people.
    e. Narrow roads bordered by natural terrain and native vegetation.
    f. Unobtrusive entrances to properties, primarily designed to identify addresses and provide safe access.
    g. Minimal use of fencing except when necessary to control animals and children on properties and then of a design which is minimally visible from off-site.
    h. The ability to maintain horses on private properties and to enjoy a trail system throughout the town.
    i. Paths and trails that allow for easy access throughout the town.
    j. Agricultural pursuits in appropriate locations.
4. To guide the location, design and construction of all development so as to:
    a. Minimize disturbances to natural surroundings and scenic vistas.
    b. Reduce the exposure of people and improvements to physical hazards such as earthquakes, landslides, fire, floods, traffic accidents and to provide evacuation routes for emergencies.
    c. Protect the watershed of the planning area.
    d. Ensure that projects complement and are subordinate to their natural surroundings.
9. To provide scenic roads, trails and paths to enhance enjoyment of the planning area and to increase convenience and safety.
16. To control the size, siting and design of buildings so that they, individually and collectively, tend to be subservient to the natural setting and serve to retain and enhance the rural qualities of the town.

The Scenic Roads and Highways element of the Portola Valley General Plan notes that within Portola Valley, Skyline Boulevard (Route 35) and Highway 280 are state scenic highways. Alpine Road and

Portola Road are additionally designated as local scenic roads. The General Plan has the following to say about Alpine Road:

3310 Alpine Road is now a route of great natural beauty and variety. The creeks it follows through the foothills are lined with tall trees, and the countryside has kept much of its rural tranquility. The mountain canyon is still wild and new views open up at each turn of the road. A superb scenic route already exists. It is threatened by change. The challenge is to find and pursue the ways that can protect and preserve this route through the mountains for our present enjoyment and the delight of future generations.

3311 The town has, since its incorporation, endeavored to protect the scenic quality of the Alpine corridor. From a policy statement adopted in July 1969:

3312 "The policy of the Town of Portola Valley has always been to maintain a tranquil, rural atmosphere, and to preserve a maximum of green open space. The Alpine Scenic corridor should be developed in accordance with the policy. The natural look and feeling of the land between the road and the creek should be maintained. Trees and natural growth should be preserved and increased. Recreational uses should be in keeping with a peaceful and rural atmosphere."

3313 In May, 1971, the town adopted the Alpine Parkway Plan, subsequently renamed the Alpine Scenic Corridor Plan, as a part of the town general plan which includes detailed description of the road and of related design policies (see part 6). Special provisions to implement the plan and to protect the corridor include:

1. Open space zoning for sections of the corridor.

2. Special setback lines along a major portion of Alpine Road.

3. An open space program which does and should include recommendations for land acquisition and regulations pertaining to the corridor.

4. The recreation element and the trails and paths element which include proposals for trails and paths in the corridor.

The Scenic Roads and Highways element includes the following objectives and principals:

Objectives

3302 1. To provide policies with respect to designation of highways within the planning area that are or may be eligible for scenic highway designation by the state.

2. To provide guidance regarding the maintenance of the scenic qualities of our major roads. Because Portola Valley is a place of unusual natural beauty, all roads in Portola Valley can be considered "scenic." However, it is possible that the pressure of increasing development and the resultant traffic could lead to the erosion of the aesthetic quality of our roadsides if care is not taken.

Principles

3303 These principles are intended to guide future actions of the town and private parties.

1. Regulate density and land use, as provided in the general plan and zoning ordinances, with special attention to the view from the road.

2. Give special consideration to site development, including controlled access for driveways and special setbacks for buildings.

3. Keep the amount of roadway cuts and fills required in road maintenance or construction to a reasonable minimum.
4. Contour and plant cut and fill slopes as an integral part of the road design, construction and maintenance process.
5. Carefully control earth moving, grading, contouring and replanting in areas adjacent to and visible from the road.
6. Keep traffic signs and markers to a minimum and place with consideration for the visual quality of the road. In addition, all commercial signs on scenic routes must be of such design as to be in keeping with a rural and natural atmosphere.
7. Control the design of all structures abutting scenic routes, including review by the Architectural and Site Control Commission.
8. Landscape all development along scenic routes and maintain such landscaping.
9. The town and user groups should be responsible for the regular pick up of trash in the rights of way of town scenic routes.
10. Encourage planting of native wildflowers, shrubs, and trees on public and private property. Wherever possible, remove aggressive exotic volunteers such as yellow star thistle, pampas grass, acacia, Scotch and French broom and eucalyptus.
11. Provide hiking and riding trails and bicycling paths separated from the pavement, where possible, as a part of future road improvements.
12. As a condition of their conditional use permit, require commercial developments along scenic roads to maintain a neat and tidy appearance. Surroundings of the buildings must be kept clean, and planted areas must be maintained.
13. Give high priority to placing underground all existing overhead utility lines, and structures to the extent possible, along the town scenic roads. Do not erect new or additional overhead facilities.

The General Plan includes the Alpine Scenic Corridor Plan, which is described and defined in the following excerpts, including a portion of the diagram including the project site as **Figure 4.1**:

6203 The Alpine Scenic Corridor is of particular importance since it serves as the gateway from the more developed urban peninsula to the rural setting of Portola Valley. The roadsides and creeksides in the corridor remain in a natural state through much of the route, although the lower section of Alpine Road is a busy thoroughfare linking Portola Valley, Ladera and other foothill communities to Midpeninsula employment and shopping centers. Residential properties, shopping centers, and tennis and swim clubs touch the roadway, yet most of the land is still rural in appearance with grassland pastures, rolling grass-covered hills studded with oaks, and steeper wooded hill and mountain sides. Low density building, generous setbacks and the native woods have preserved much of the natural setting and rural feeling. Magnificent stands of trees border the San Francisquito and Los Trancos creeks—oaks, bays and alders, 75 to 100 feet tall, many of them hundreds of years old. Small open meadows remain in bends of the creeks.

6207 The watershed landscape is a major unifying element of the corridor. The creeks and creekside trees, the valleys through which they flow, the canyons, the confining ridges and the mountain tops all relate to the watershed of the San Francisquito and its tributaries, including the Corte Madera and Los Trancos Creeks.

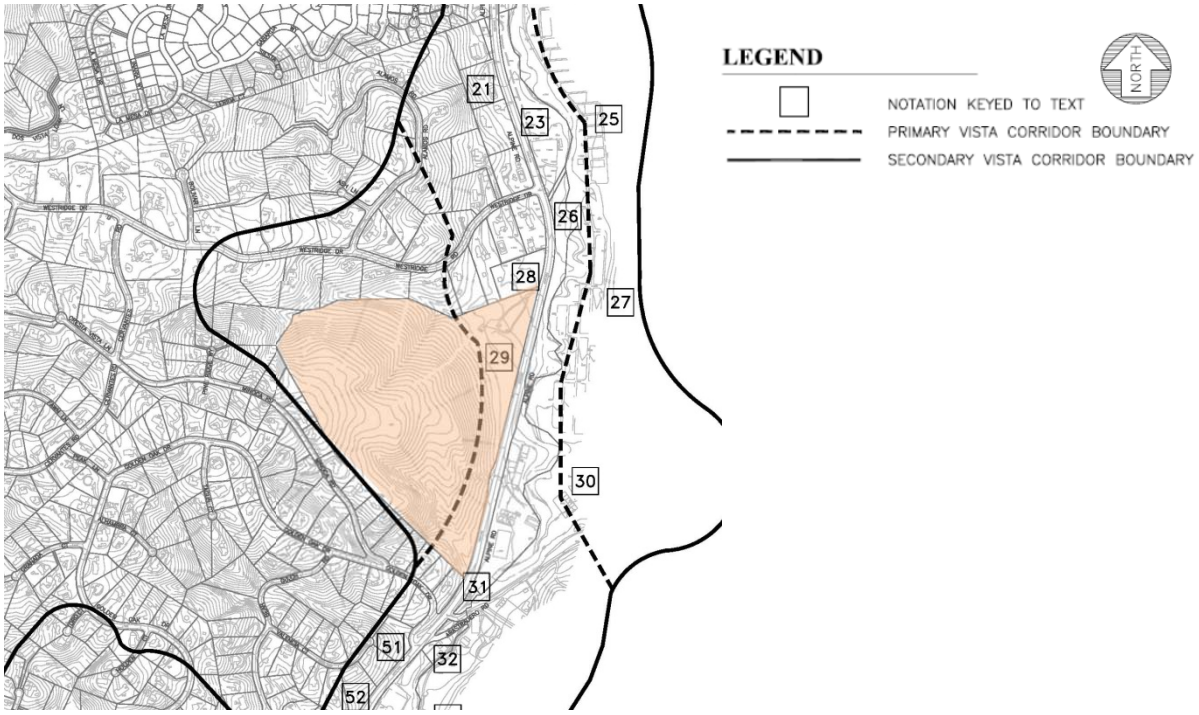

Figure 4.1: Project-Vicinity Portion of the Alpine Scenic Corridor Diagram

Modified to highlight the Project site in orange. The "29" notation indicates associated General Plan text.

Source: Portola Valley General Plan

6210 Although much of the scenic corridor is within the Town of Portola Valley, this scenic route is also of vital interest to the larger Midpeninsula community. Of prime concern are the creeks that form the common boundary of San Mateo and Santa Clara Counties. These creeks are not "wild" throughout their length, in the sense of remaining free flowing and unaltered by people, but they are largely unspoiled and offer opportunities by trail and path for education and enjoyment. They are a resource of great value, of a kind that is fast disappearing in our urban area. Therefore, these creeks and their immediate banks, including the well-defined band of trees along the creeksides and a suitable minimum width (at least 200') on either side of the creek, comprise a natural resource area which should be protected through public acquisition, stringent regulation and other appropriate means.

6211 The Alpine Scenic Corridor includes four areas of special concern: the Creekside environment, the immediate roadside, the primary vista corridor and secondary vista corridor. All four of these areas contribute to the natural quality of the scenic corridor. Distant views seen from the road are identified in the element but are not included within the corridor. While all structures and modifications to the natural environment within the corridor are of concern, the degree of concern with details decreases with distance from the road. Unless otherwise noted, the following items are of concern within the four areas described in Sections 6212, 6213 and 6214, but the degree of concern should be tempered based on the visual impact when viewed from areas along the road.

1. Points of access to Alpine Road should be limited to the maximum extent possible.
2. All utilities along Alpine Road should be underground.

3. Building setbacks along Alpine Road should be increased as necessary to reduce the feeling of encroachment on the road.
4. In commercial areas, particular attention should be given to signs, lighting, parking and planting so as to provide the least possible intrusion on the natural feeling of the corridor.
5. Buildings and structures should be subservient to the natural landscape in design, materials and color.
6. Planting should be in keeping with the natural landscape, leaving native trees and open space grasslands where possible and using native plant materials or other drought resistant plants in keeping with the natural scene.
7. Removal of trees or other native vegetation cover should be stringently controlled.
8. On-street parking should be limited to the maximum extent possible.
9. The effects of any building near a riparian corridor or any alteration to the riparian corridor must be minimized in the planning and/or building process.

The Immediate Roadside

6212 This band on either side of the roadway, generally 50 to 100 feet wide, extends to the nearby stands of trees at the edge of the roadside, or to fences, banks or other features tending to define the roadside area. No specific limits of this area are indicated on the plan diagram. This strip is of great importance to the scenic values of the corridor. Here buildings, grading, clearing, planting and access roads should be carefully regulated.

Primary Vista Corridor

6213 The lands in view beyond the roadside determine the character of the scenic corridor and are thus designated as the "Primary Vista Corridor." This corridor takes in the nearby ridges viewed from the road and includes the foreground, up to an arbitrary 1000', where long vistas extend up valleys beyond the corridor. It is not practical to prohibit all building within this corridor, but in the development of individual properties, building construction and planting should be designed to be compatible with and retain the natural and rural appearance of the area.

Secondary Vista Corridor

6214 In the secondary vista corridor, including hills in the middle distance and the land in view down open valleys, all major projects should be carefully reviewed and stringently regulated to prevent any significant alterations of the natural scene.

The Project site frontage including the development site is identified on the Alpine Scenic Corridor Diagram as within the Primary Vista Corridor and the remainder of the site is within the Secondary Vista Corridor (see definitions above). The following additional notation is indicated for the Project site:

29. Steep wooded canyon and hillside (Stanford land); extreme care needed in design and construction if lands are developed in the future; maintain as permanent open space if possible.

The Alpine Scenic Corridor Plan contains the following objectives:

1. To establish the San Francisquito Creek system as an important element in the Midpeninsula waterway system.
2. To protect the Alpine Scenic Corridor, providing a natural link between the mountains and the Bay plain, to add to the sense of order and well-being of those who live in the Midpeninsula – with intimate views of the creeks, the sight of rolling hills, and striking vistas of the Santa Cruz Mountains.
3. To retain the natural beauty of the scenic corridor, a route through which many people travel and will travel daily so that the corridor will continue to provide a welcome contrast with the nearby urban activity centers.
4. To define a scenic corridor that preserves the intrinsic qualities of the creeks and creeksides of the San Francisquito Creek system.
5. To provide for the use and enjoyment of the creeks, valleys and canyons in a manner consistent with preservation of their integrity as natural features.
6. To utilize the opportunity for passive and active recreation at appropriate locations within the corridor.
7. To provide a basis for interjurisdictional arrangements needed to protect and enhance the corridor.
8. To exercise extreme care to preserve the Corte Madera Creek riparian corridor when undertaking maintenance or improvement of Alpine Road between Willowbrook Drive and Ciervos Road. Particular attention should be given to utilizing biotechnical slope protection techniques.

The following future actions were identified for implementation of the Alpine Scenic Corridor Plan:

1. Additional open space acquisitions of land within the corridor are set forth in Open Space Element Appendix 2: Implementation of the Open Space Element.
2. Where acquisitions of land to protect the corridor are not appropriate, easements should be obtained to protect the corridor.
3. In any new developments with frontage on Alpine Road, care should be taken to preserve natural land forms and vegetation in close proximity to the road to protect the corridor.
4. Consideration should be given to adding the design review combining district of the zoning regulations to land along Alpine Road.
5. From Los Trancos Road to the southern town boundary, easements or dedications in fee should be secured as undeveloped acreage is subdivided. To the west of the road, implementation will be somewhat difficult because of the prevalence of small parcels of land. A combination of regulation and acquisition of easements or full fee title through purchase or dedication will be needed.

   For the trail and path system, easements for recommended trails should be acquired as part of the subdivision process. Some easements on the west may need to be purchased. A bicycle lane in the roadway is recommended. This will require more detailed design study.
6. It is recommended that the town request a resolution by San Mateo and Santa Clara County Supervisors declaring mutual concern in San Francisquito and Los Trancos

Creeks and their watersheds as valuable natural resources along their common boundary and designating these streams as "scenic streams." The San Mateo County Supervisors should be asked to also designate Corte Madera Creek as a "scenic stream." The entire corridor should be designated as an open space scenic preserve.

7. Change in creek flow of Los Trancos and San Francisquito Creeks should be investigated to determine whether there have been long term undesirable effects from diversion of waters and what remedial action, if any, may need to be taken. The need for creek bank protection in critical locations should be evaluated.
8. Advice of an ecologist or arborist should be sought for recommendations on tree care, particularly for large important trees. Valley oaks are reportedly not replacing themselves. Seeding, with protection of young trees from grazing cattle and other damage for a few years, could ensure perpetuation of these valuable groves on the hillsides. Introduced species of trees such as eucalyptus have seeded along the creek in some section and should be removed where undesirable. County cooperation should be sought.
9. The town should continue to pursue undergrounding of overhead lines through funds obtained from the utility companies.
10. Outside of the town, the town should seek the cooperation of other jurisdictions in the corridor to have overhead lines placed underground.
11. The town should cooperate with CRMP (Coordinated Resource Management and Planning) Process in its efforts to protect the San Francisquito Creek.
12. The town should sponsor programs for appropriate tree planting and for encouraging cooperative actions by residents and other property owners in landscaping and maintenance compatible with the scenic corridor.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project site as proposed would have a significant environmental impact if it were to:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. Substantially degrade of the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?
4. The creation of a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

SCENIC VISTAS OR RESOURCES

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

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

Impact Aesthetics-1: **Development along the Alpine Road Scenic Corridor.** There are no designated or eligible scenic highways in the vicinity of the Project site though the Project is within the locally-designated Alpine Road Scenic Corridor. The Project is consistent with General Plan objectives related to development along the Alpine Road Scenic Corridor and the environmental impact of the Project with respect to scenic vistas or scenic resources would be ***less than significant***.

Within Portola Valley, Highway 280 and State Route 35 are designated or eligible state scenic highways under the California State Scenic Highway Program.[1] The Project site is over 3 miles from State Route 35 and almost 4,000 feet from Highway 280 and not prominent in the views from these state scenic highways. There are no other designated or eligible state scenic highways in the general vicinity of the Project.

Portola Valley's General Plan identifies Alpine Road as a local scenic road and includes the Alpine Scenic Corridor Plan to define and protect the natural beauty of the scenic corridor within the context of development under the General Plan. There are no other identified scenic vistas or roadways in the vicinity of the Project site.

The view toward the Project site from Alpine Road is shown in **Figures 4.2, 4.3a, 4.3b, 4.4a** and **4.4b** under existing conditions and then visually modeled to include the Project. The majority of the approximately 2,630-foot Project site frontage along the Alpine Road Project site is characterized by undeveloped wooded hillside under existing conditions and would remain as such with Project implementation. Approximately 880 feet is currently frontage for the horse boarding facility and would become frontage for the Residential Development Area. Both the horse boarding facility and Residential Development Area are set back from the roadway and visible mostly from the driveways (one under existing conditions and two under proposed Project conditions) and in glimpses through the trees along that frontage. Views onto the site would change as drivers or trail users proceed to and past the site. The viewpoint locations contained in the figures were chosen to provide views toward the Project driveways, which would represent the greatest change in views of the Project site from Alpine Road.

The Alpine Scenic Corridor Plan identifies four areas of special concern: the Creekside Environment, the Immediate Roadside, the Primary Vista Corridor, and the Secondary Vista Corridor as discussed below in relation to the Project.

The "Creekside Environment" is described as a major unifying element of the corridor and the creeks and their immediate banks, including the well-defined band of trees along the creeksides, "…comprise a natural resource area which should be protected through public acquisition, stringent regulation and other appropriate means." The Portola Valley Municipal Code codifies required setbacks from the major creeks in Portola Valley (Section 18.59.020).

The intermittent stream to the north of the Project boundary is an unnamed tributary to Los Trancos Creek and is not included within the setback provisions. This intermittent stream is channelized under Alpine Road and the stream corridor is not obvious from the roadway through other existing trees along the roadway. As noted, the intermittent stream is not located on the Project site within the scenic corridor, but rather to the north of the Project boundary. While a setback from the intermittent

[1] California Department of Transportation Scenic Highway Program website: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways.

stream is not specified under Town regulations, the Project proposes a 25-foot setback of residential lots from their northern property line, with the intermittent stream beyond. Biological areas associated with streams are called riparian habitat. While the intermittent stream itself is not located on the Project site, the biological analysis included in Chapter 7 of this document mapped the associated riparian habitat and determined that the Project would not substantially impact the associated riparian habitat. While there are other ephemeral or intermittent streams on the Project site, these are not within or adjacent to the Residential Development Area and would generally remain in a natural state as even vegetation management to reduce wildfire risk is limited in sensitive riparian habitats.

The "Immediate Roadside" is a band on either side of Alpine Road, generally 50 to 100 feet wide, that is considered of great importance to the scenic values of the corridor in which buildings, grading, clearing, planting and access roads should be carefully regulated. For the portion of Alpine Road along which the Project is located, the Town's Municipal Code further specifies a 75-foot scenic setback in which no structure shall be located.

The Project plans include the specified 75-foot scenic setback from Alpine Road in which no structures are proposed. While no structures are proposed within the 75-foot scenic setback, two driveways would connect to Alpine Road (there is one under existing conditions) and as the low part of the site, the area around the northern driveway would include landscaped bioretention areas to help retain stormwater during heavy rains. There is also an existing horse trail along this entire frontage within the scenic setback, including an existing approximately 3.5-foot tall split rail fence. The horse trail and fencing would be retained with minor modifications to accommodate site driveways and a connection to the new hillside site trail. The majority of the existing trees along this frontage would be undisturbed except for regular vegetation management to reduce wildfire risk. Some trees (approximately 20) would be removed from the scenic setback along Alpine Road within the Residential Development Area, primarily to provide the required safe sight distance for the two driveways.

The "Primary Vista Corridor" is the land in view beyond the roadside that determines the character of the scenic corridor. The General Plan notes that, "It is not practical to prohibit all building within this corridor, but in the development of individual properties, building construction and planting should be designed to be compatible with and retain the natural and rural appearance of the area." As shown on **Figure 4.1**, the Primary Vista Corridor extends up the slope near the roadway and includes the entire Residential Development Area.

Figures 4.2 through **4.4b** demonstrate the changes in views from Alpine Road at the driveways.

The most obvious signs of development at the site would be at the driveways, which require tree removal for safe sight distances and allow glimpses into the development for travelers along the roadway and roadside trails. As shown in the figures, travelers along Alpine Road would be able to see into the driveways to the residential development beyond. In either direction of travel along Alpine Road, the home closest to the roadway is most prevalent in views with farther homes being largely hidden by the curve of the internal roadway and site landscaping.

The Project has been designed such that residential lots are clustered along an internal roadway rather than accessing Alpine Road directly. This has reduced the driveway connections to two driveways on Alpine Road. Without clustering, allowable site development could involve many more driveway connections to Alpine Road, which would likely result in more visibility of site development from along Alpine Road. Other than related to the two driveways, existing trees between the proposed structures and Alpine Road as well as along the undeveloped portion of the site would largely be retained and would provide a natural appearance along the roadway between driveways.

Figure 4.2: Viewpoint Locations
Source: Environmental Vision

Figure 4.3a: Viewpoint 1 from Alpine Road at the Northern Project Driveway, Existing
Source: Environmental Vision

Figure 4.3b: Viewpoint 1 from Alpine Road at the Northern Project Driveway, Proposed
Source: Environmental Vision

Figure 4.4a: Viewpoint 2 from Alpine Road at the Southern Project Driveway, Existing
Source: Environmental Vision

Figure 4.4b: Viewpoint 2 from Alpine Road at the Southern Project Driveway, Proposed
Source: Environmental Vision

The "Secondary Vista Corridor" includes hills in the middle distance and encompasses the remainder of the Project site. The General Plan notes for the Secondary Vista Corridor that, "all major projects should be carefully reviewed and stringently regulated to prevent any significant alterations of the natural scene."

The majority of the existing trees outside the Residential Development Area would be undisturbed except for minimal disturbance for construction of an access road and trails and regular vegetation management to reduce wildfire risk.

Alpine Road is considered a local scenic corridor and the roadway and nearby trails would be considered public locations from which the scenic vista of the corridor could be viewed. That being said, development is not precluded along the corridor, but rather indicated for consideration of natural and rural appearance and scenic character when development otherwise allowed under the General Plan is proposed. The Project is generally consistent with the General Plan guidelines related to development along the Alpine Road Scenic Corridor.

As discussed in more detail above, by clustering the development along an internal road to minimize the number of driveway entrances, setting the majority of the development back from Alpine Road, retaining the majority of the natural sloping treescape along the Alpine Road frontage and up the slope, and compliance with architectural review in keeping with the natural and rural environment, the Project is consistent with General Plan objectives related to aesthetics of development within the Alpine Road Scenic Corridor and the impact of the Project with respect to scenic vistas or scenic resources would be ***less than significant***.

Note that there are other considerations involved in project approvals than those related to environmental impacts alone and a determination of less than significant with respect to an environmental impact does not preclude the Town from otherwise interpreting and implementing their requirements and policies.

VISUAL CHARACTER

3. *Would the project substantially degrade of 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?*

Impact Aesthetics-2: **Modified Visual Character.** The Project proposes residential redevelopment of a portion of the site. While this would change the look of that portion of the site, the proposed development is generally consistent with plans and regulations for development of the site and would not represent a substantial degradation of visual character. The impact of the Project with respect to visual character would be ***less than significant***.

Public views of the Project site would be largely constrained to those along Alpine Road and the adjacent trails. Views toward the site from more distant roadways or trails would be largely obscured by intervening topography, trees, development, and distance.

Any development or redevelopment on a site would change the visual character of that site in some way. The standard of significance is whether the change would constitute a substantial degradation of the existing visual character or quality of the site and its surroundings.

The project site is zoned to allow for residential development and identified in the General Plan Housing Element as a location for affordable housing development (Site 40). Surrounding areas to the west of Alpine Road are already largely developed with residential uses, including adjacent lots along Westridge Drive, Cervantes Road, Minoca Road and the Ladera neighborhood about 1/3 mile to the north. Because residential development is the designated use at the site as well as in surrounding areas, it can be concluded that a residential development at the site would not generally be considered a substantial degradation. The next step is to consider the proposed development more specifically.

The Project is generally consistent with applicable plans and regulations and allowable under the existing General Plan designation and zoning with the required application of the State Affordable Housing Density Bonus and requested approvals. Chapter 13: Land Use includes a detailed assessment of the Project against other relevant General Plan Objectives and Principals and demonstrates that the Project would not conflict with plans or policies in any way that could have a significant adverse environmental impact.

As discussed in more detail under the Scenic Vistas or Resources heading above and shown on **Figures 4.2** through **4.4b**, the Alpine Road Scenic Corridor Plan provides guidance for development along the corridor depending on the characteristics of the site and relationship to the roadway. The majority of the approximately 2,630-foot Project site frontage along Alpine Road Project site is characterized by undeveloped wooded hillside under existing conditions and would remain as such with Project implementation. Approximately 880 feet is currently frontage for the horse boarding facility and would become frontage for the Residential Development Area. Both the horse boarding facility and Residential Development Area are set back from the roadway and visible mostly from the driveways (one under existing conditions and two under proposed Project conditions) and in glimpses through the trees along that frontage. As shown in the figures, travelers along Alpine Road would be able to see into the driveways to the residential development beyond. In either direction of travel along Alpine Road, the home closest to the roadway is most prevalent in views with farther homes being largely hidden by the curve of the internal roadway and site landscaping. The Project is generally consistent with the Alpine Road Scenic Corridor Plan and minimizes visual changes from Alpine Road through setbacks from the roadway and clustering to limit the number of driveway connections to Alpine Road as well as to preserve the undeveloped hillside.

The proposed Project would ultimately redevelop the site for residential uses, which would be a change in the visual character at the site. However, as discussed above, such a change would be generally consistent with the plans, policies, and regulations applicable to the site and would not be considered a "substantial degradation" of the existing visual character (***less than significant impact***).

LIGHT AND GLARE

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

Impact Aesthetics-3: **Low-Impact Site Lighting.** The Project proposes residential redevelopment of a portion of the site, which would include lighting. Proposed lighting fixtures are designed to provide targeted lighting at focused locations without substantial spillover into adjacent areas or into the sky and the proposed architectural finishes are consistent with rural residential development and do not include substantial glass or other reflective materials that could be a source of substantial glare. The impact of the Project with respect to light and glare would be ***less than significant***.

The proposed lighting would follow the Town's Municipal Code relative to outdoor lighting by providing dark sky compliant light fixtures and their equivalent throughout the developed area.

The same views as modeled during the daytime under the Scenic Vistas or Resources heading above (Figures 4.2 through 4.4b) were modeled during the nighttime as **Figures 4.5a, 4.5b, 4.6a** and **4.6b**. Specifics of the proposed lighting fixtures and elements and their locations on the site were modeled onto nighttime views. For a conservative demonstration of the proposed lighting at the site, the existing nighttime photos were taken on a low-light night with no vehicle headlights in the immediate vicinity. Additionally, it was assumed that indoor lights would be on with no curtains drawn.

As can be seen in **Figures 4.5a** through **4.6b**, the Project's lighting plan utilizes outdoor lighting fixtures that provide targeted lighting at focused locations without substantial spillover into adjacent areas or into the sky. Additionally, the proposed architecture incorporates standard window sizes and distributions rather than larger picture windows, which would additionally have the effect of minimizing indoor light from windows. The retention of trees as feasible along the 75-foot setback from Alpine Road and on the undeveloped portion of the site as well as proposed landscaping on the development site would also serve to minimize the visual impact of on-sites lights from off-site viewpoints. The proposed lighting is approximately the same or less bright in the nighttime than the lighting from development in the surrounding area, which may have been constructed when less strict lighting rules were in place.

The Town's Municipal Code-required dark sky compliant light fixtures are also by their nature low-glare fixtures and the Project does not include substantial glass or other reflective materials that could be a source of substantial glare.

As discussed above and shown in **Figures 4.5a** through **4.6b**, the Project would add lighting to the site, some of which could be visible from off-site locations; however, residential development is explicitly allowed on this site under the existing General Plan and zoning and some lighting would be assumed with such development. Therefore, the threshold from an environmental analysis perspective is not whether there is any light or glare from the site at all, but whether such light is consistent with applicable regulations and expected light levels in the vicinity. The proposed lighting would be consistent with applicable regulations and has been designed to minimize the impact of light from off-site viewpoints or into the sky. Light and glare levels are consistent with those from modern residential development and would be the same or less than surrounding development (which may have been completed under less strict lighting regulations). Therefore, the Project would not result in substantial light or glare that would adversely affect daytime or nighttime views in the area and the Project impact in this regard would therefore be ***less than significant***.

Note that there are other considerations involved in project approvals than those related to environmental impacts alone and a determination of less than significant with respect to an environmental impact does not preclude the Town from otherwise interpreting and implementing their requirements and policies.

Figure 4.5a: Viewpoint 1 from Alpine Road at the Northern Project Driveway, Nighttime Existing

Source: Environmental Vision

Figure 4.5b: Viewpoint 1 from Alpine Road at the Northern Project Driveway, Nighttime Proposed

Source: Environmental Vision

Figure 4.6a: Viewpoint 2 from Alpine Road at the Southern Project Driveway, Nighttime Existing

Source: Environmental Vision

Figure 4.6b: Viewpoint 2 from Alpine Road at the Southern Project Driveway, Nighttime Proposed

Source: Environmental Vision

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AGRICULTURAL, FOREST, AND MINERAL RESOURCES

INTRODUCTION

This chapter of the Draft EIR contains discussion regarding the CEQA topic areas of Agricultural, Forest, and Mineral Resources.

AGRICULTURAL AND FOREST RESOURCES

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project area as proposed would have a significant environmental impact if it were to result in:

1. Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
2. A conflict with existing zoning for agricultural use, or a Williamson Act contract;
3. A 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));
4. The loss of forest land or conversion of forest land to non-forest use; or
5. 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.

AGRICULTURAL RESOURCES

1. *Would the project result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*
2. *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*
5. *Would the project result in 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]?*

"Farmland" (including Prime Farmland, Unique Farmland, or Farmland of Statewide Importance) is classified and mapped by the California Resources Agency (specifically the State Department of Conservation, Division of Land Resource Protection) according to soil quality and irrigation status for the purposes of analyzing impacts on California's agricultural resources. The latest version of this

map for San Mateo County does not include the Project site in any of the farmland classifications – rather it is a mix of the following non-farmland designations:[1]

Urban and Built-up Land

Urban and built-up land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.

Other land

Other land is land not included in any other mapping category. Common examples include low density rural developments, brush, timber, wetland, and riparian areas not suitable for livestock grazing, confined livestock, poultry, or aquaculture facilities, strip mines, borrow pits, and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as other land.

The proposed development is confined to the previously-disturbed portion of the site and the wooded slope will be maintained in its current state other than required ongoing vegetation management for wildfire risk reduction. The site is not currently being managed for the production of forest or agricultural resources. The entire site is zoned "Residential Estate" and while agricultural uses are generally allowed within residentially-designated areas in Portola Valley, the site is not reserved as agricultural land, forest land or timberland by the zoning or through Williamson Act contracts.

Therefore, the Project would have ***no impact*** on agricultural resources.

FOREST RESOURCES

3. *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?*
4. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*
5. *Would the project result in 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?*

Impact Ag-1: **Oak Woodlands**. The Project site contains Oak Woodlands, which while not used as productive forest land, and not under Williamson Act contract, a conservation plan, or conservation easement, and not indicated on state mapping as grazing land, could be considered potential rangeland. The Project is consistent with applicable identified protection opportunities under the state's latest Forests and Rangelands Assessment and applicable provisions of the Oak Woodland Conservation Act related to tree removal permits. This is a ***less than significant*** impact.

[1] State of California, Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program, *San Mateo County Important Farmland, 2018*, September 2019.

Public Resources Code section 4526: "Timberland" means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis. The Project site is owned by Stanford University and is neither used for commercial tree crops nor zoned Timberland Production.

Public Resources Code section 12220(g): "Forest land" is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. . . . (l) "Woodlands" are forest lands composed mostly of hardwood species such as oak.

For over 30 years, state law (PRC 4789) has mandated periodic assessments of California's forest and rangeland resources. In 2008, the Federal Farm Bill added a provision to federal law that required states to do assessments of forest resources. To comply with these requirements, the California Department of Forestry and Fire Protection prepare periodic assessments of California's Forests and Rangelands, the latest of which is the 2017 Assessment.[2] The 2017 Assessment notes that California's forestland "comprises 32 million acres, almost a third of the state. Forestlands provide a wide range of benefits (e.g. water, recreation, wildlife habitat, forest products, grazing, carbon storage and sequestration) and face numerous threats (e.g. wildfire, development, pests, climate change)…" The 2017 Assessment focuses on productive forest lands (those managed for timber or tree crops) and notes, "Conversion of timberland to urban or agricultural uses is a relatively minor issue in California. However, working forests are also impacted by subdivision of large parcels, which can result in holdings too small to be effectively managed for timber. Conservation easements are an increasingly effective tool for preserving timberlands with important environmental or social values, and for protecting working forests from conversion or being subdivided."

While not active timberland or productive forest land as discussed above, the majority of the Project site outside the Residential Development Area contains Oak Woodlands (totaling 64.55 acres). The Residential Development Area is largely confined to the area currently occupied by the horse boarding facility and considered as developed land under existing conditions. (See Chapter 7: Biological Resources for details).

Oak woodlands are also identified in the 2017 Assessment as a type of rangeland. "California rangelands encompass over 57 million acres of grasslands, savannas, shrublands, deserts, wetlands, and woodlands that are dominated by grasses, grass-like plants, forbs and shrub species... Rangelands are defined (in PRC 4789.2(i)) as '…lands on which existing vegetation, whether it grows naturally or through management, is suitable for grazing or browsing of domestic livestock for at least a portion of the year.'… Rangelands provide a wide range of benefits (e.g. livestock grazing, water, recreation, open space, wildlife habitat, carbon storage and sequestration) and face numerous threats (e.g. wildfire, development, pests, climate change)… From 1992–2012, the Farmland Mapping and Monitoring Program recorded the net loss of rangelands to urban averaged about 25,000 acres per year statewide." Note that the Farmland Mapping and Monitoring Program does not identify the Project site as rangeland (which would be a Grazing Land on that map).

[2] State of California, Department of Forestry and Fire Protection, Fire and Resource Assessment Program, *California's Forests and Rangelands 2017 Assessment*, August 2018.

Oak woodlands are described in the 2017 Assessment as follows: "Oak woodland is an iconic vegetation type that many residents consider symbolic of California. The vegetation type has consequently received a significant amount of educational, research and regulatory attention. Most oak woodlands are privately owned and most are utilized for livestock grazing. The primary threats to oak woodland include disease and insects (sudden oak death, gold spotted oak borer and polyphagous shot borer) and land development. Lack of adequate regeneration has also been identified as an issue affecting sustainability of some oak woodlands."

The 2017 Assessment identifies opportunities to improve the sustainability of rangeland production and ecosystem services including use of Williamson Act contracts to reduce development pressure, funding for rangeland conservation easements to improve profitability of working rangeland, strategic scheduling of available rangeland, augment livestock processing facilities, support for niche marketing of rangeland products, funding for rangeland watering infrastructure, and targeted grazing to control invasive plants, reduce fuel loads and meet other land-owner objectives. The majority of these opportunities are not applicable to the Project site, which does not involve the processing of livestock or marketing of livestock products and isn't under Williamson Act contract or conservation easements. Consistent with the last objective, as part of the Vegetation Management Plan, the Project proposes targeted grazing by goats to manage wildfire risk at the site. While not under requirements of a Williamson Act Contract or conservation plan or easement, the Project proposes to conserve the majority of the site outside of the Residential Development Area as open space.

In response to development threats, the Oak Woodland Conservation Act was passed in 2004. Oak woodland management plans can be adopted at the county level to help conserve oak woodlands and to qualify them for conservation funding from the Wildlife Conservation Board; however, no such plan has been adopted by San Mateo County. This act also requires permits for removal of qualifying oak trees, which have been incorporated into Portola Valley's requirements under Municipal Code 15.12.275: Protection of Significant Trees (see Chapter 7: Biological Resources).

The 2017 Assessment also identifies opportunities to protect forest and rangelands from impacts of population growth and development, including: funding for Williamson Act contracts and conservation easements, promotion of "smart growth" type high-density development, promotion of fire-wise development, addition of conservation plans as needed to address newly listed threatened or endangered species. The Project site is not under Williamson Act contract or a conservation plan or easement. While not high-density, consistent with these opportunities, the Project proposes clustering of units to create a more compact "smart growth" type of development and allow for preservation of the majority of the site as open space while incorporating wildfire reduction measures (see Chapter 18: Wildfire).

In summary, the Project site is not used as timberland or productive forestland, but it does include oak woodlands, which is indicated in the 2017 Assessment as a land type appropriate for rangeland (grazing) but which does not include restrictions on conversion or requirements for mitigation. Additionally, the Farmland Mapping and Monitoring Program does not designate the site as Grazing Land. As discussed above, while most of the identified opportunities to project forestland and rangeland are not applicable to the particulars of the Project site and use, the Project would be consistent with applicable opportunities and would comply with applicable requirements for permits to remove any oaks under the Town's requirements. Therefore, the Project impact with respect to forest resources would be ***less than significant***.

MINERAL RESOURCES

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project site as proposed would have a significant environmental impact if it were to result in:

1. Loss of availability of a known mineral resource that would be of future value to the region and the residents of the state; or.
2. Loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Mineral resources of concern include metals, industrial minerals (e.g., aggregate, sand and gravel), oil and gas, and geothermal resources that would be of value to the region and residents of the state.

Loss of mineral resources would primarily be the result of conversion of lands underlain by these resources to other uses, or within close proximity to the resources, such that the construction and occupancy of the Project would restrict or eliminate sage and environmentally sound measures to implement extractive operations. Loss of access could also be the result of changes in land ownership.

Important mineral resource areas are recognized at the federal and state levels through environmental resource management plans and adopted mineral resource mapping, and at the local level through land use planning documents such as General Plans that incorporate such information.

Mineral resources in the region include gold, silver, lead, mercury, magnesium, and aggregate (traprock), but there are no known mineral resources at the Project site close enough as to cause interference. [3] The Project site has not been delineated as a locally important mineral recovery site on the City of Portola Valley General Plan, on any specific plan, or on any other land use plan. Therefore, the proposed Project would have ***no impact*** on mineral resources.

[3] USGS, Mineral Resources Data System, last updated 2011, available at http://tin.er.usgs.gov/mrds/.

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AIR QUALITY

INTRODUCTION

This chapter discusses the potential impacts of the implementation of the proposed Project on the local and regional air quality. Residential development projects generally contribute to air quality pollutants through construction-phase emissions and dust and operational emissions including vehicle emissions.

The discussion of criteria pollutants and toxic air contaminants in this chapter is based on the Air Quality Technical Report prepared for this EIR by Illingworth & Rodkin, included in Appendix C.

SETTING[1]

METEOROLOGY

The Project site is located in the Peninsula subregion of the San Francisco Bay Area Air Basin. The Peninsula subregion extends from northwest of San Jose to the Golden Gate. The Santa Cruz Mountains run up the center of the peninsula, with elevations exceeding 2000 feet at the southern end, decreasing to 500 feet in South San Francisco. Coastal towns experience a high incidence of cool, foggy weather in the summer. Cities in the southeastern peninsula experience warmer temperatures and fewer foggy days because the marine layer is blocked by the ridgeline to the west.

The blocking effect of the Santa Cruz Mountains results in variations in summertime maximum temperatures in different parts of the peninsula. Mean minimum temperatures during the winter months are in the high-30's to low-40's on the eastern side of the Peninsula.

Annual average wind speeds range from 5 to 10 mph throughout the peninsula, with higher wind speeds usually found along the coast. On the east side of the mountains, winds are generally from the west, although wind patterns in this area are often influenced greatly by local topographic features.

Air pollution potential is highest along the southeastern portion of the peninsula. This is the area most protected from the high winds and fog of the marine layer. Pollutant transport from upwind sites is common. In the southeastern portion of the peninsula, air pollutant emissions are relatively high due to motor vehicle traffic as well as stationary sources.

CRITERIA AIR POLLUTANTS

Ambient air quality standards have been established by state and federal environmental agencies for specific air pollutants most pervasive in urban environments. These pollutants are referred to as criteria air pollutants because the standards established for them were developed to meet specific health and welfare criteria set forth in the enabling legislation. The criteria air pollutants emitted by development, traffic and other activities anticipated under the proposed Project include ozone, ozone

[1] Setting information is based on Bay Area Air Quality Management District CEQA Guidelines, May 2017.

precursors oxides of nitrogen and reactive organic gases (NO_x and ROG), carbon monoxide (CO), nitrogen dioxide (NO_2), and suspended particulate matter (PM_{10} and $PM_{2.5}$). Other criteria pollutants, such as lead and sulfur dioxide (SO_2), would not be substantially emitted by the proposed development or traffic, and air quality standards for them are being met throughout the Bay Area so these are not further discussed here. A brief description of adverse health impacts of relevant criteria air pollutants is provided below.

Ozone and Ozone Precursors Oxides of Nitrogen (NO_x) and Reactive Organic Gasses (ROG)

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation potentially harmful to humans, when it reaches elevated concentrations in the lower atmosphere it can be harmful to the human respiratory system and to sensitive species of plants. Ozone concentrations build to peak levels during periods of light winds, bright sunshine, and high temperatures. Short-term ozone exposure can reduce lung function in children, make persons susceptible to respiratory infection, and produce symptoms that cause people to seek medical treatment for respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Sensitivity to ozone varies among individuals, but about 20 percent of the population is sensitive to ozone, with exercising children being particularly vulnerable.

Ozone is not generally emitted directly into the environment, but is formed in the atmosphere by a complex series of photochemical reactions between "ozone precursors" that are two families of pollutants: NO_x and ROG. While state and national ambient air quality standards relate to ozone levels, ozone levels are regulated indirectly through regulation of its precursors NO_x and ROG. NO_x and ROG are emitted from a variety of stationary and mobile sources, with vehicle emissions being the single largest source of ozone precursors. Other than NO_2, an oxide of nitrogen, which is discussed below, the health effects of NO_x and ROG are indirect, relating to the formation of ozone and its potential health effects (discussed above).

Carbon Monoxide (CO)

CO is an odorless, colorless gas formed by the incomplete combustion of fuels. The single largest source of CO in the Bay Area is motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death. People with cardiovascular diseases, chronic lung disease or anemia, as well as fetuses, are even more sensitive to high concentrations of CO.

Emission controls placed on automobiles and the reformulation of vehicle fuels have resulted in a sharp decline in CO levels, especially since 1991.

Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. High concentration of NO_2 can irritate airways in the respiratory system. Such exposure over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma and potentially increase susceptibility to respiratory infections such as colds, flu, and bronchitis. People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NO_2.

NO_2, along with other NO_x, is an ozone precursor compound and contributes indirectly to health impacts related to ozone, as discussed above. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels, potentially reducing visibility.

Particulate Matter (PM)

Respirable particulate matter, PM_{10}, and fine particulate matter, $PM_{2.5}$, consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled and cause adverse health effects. PM_{10} and $PM_{2.5}$ are a health concern, particularly at levels above the federal and State ambient air quality standards. $PM_{2.5}$ (including diesel exhaust particles) is thought to have greater effects on health because minute particles are able to penetrate to the deepest parts of the lungs. Scientific studies have suggested links between fine particulate matter and numerous health problems including asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing. Children are more susceptible to the health risks of $PM_{2.5}$ because their immune and respiratory systems are still developing. Very small particles of certain substances (e.g., sulfates and nitrates) can also directly cause lung damage or can contain absorbed gases (e.g., chlorides or ammonia) that may be injurious to health.

Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as mining and demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. In addition to health effects, particulates also can damage materials and reduce visibility. Dust comprised of large particles (diameter greater than 10 microns) settles out rapidly and is more easily filtered by human breathing passages. This type of dust is considered more of a soiling nuisance rather than a health hazard.

In 1983, the California Air Resources Board (CARB) replaced the standard for "suspended particulate matter" with a standard for suspended PM_{10} or "respirable particulate matter." This standard was set at 50 $\mu g/m^3$ for a 24-hour average and 30 $\mu g/m^3$ for an annual average. CARB revised the annual PM_{10} standard in 2002, pursuant to the Children's Environmental Health Protection Act. The revised PM_{10} standard is 20 $\mu g/m^3$ for an annual average. $PM_{2.5}$ standards were first promulgated by the EPA in 1997, and were recently revised to lower the 24-hour $PM_{2.5}$ standard to 35 $\mu g/m^3$ for 24-hour exposures and revoked the annual PM_{10} standard due to lack of scientific evidence correlating long-term exposures of ambient PM_{10} with health effects. CARB has adopted an annual average $PM_{2.5}$ standard, which is set at 12 $\mu g/m^3$ and is more stringent than the Federal standard of 15 µg/m3.

TOXIC AIR CONTAMINANTS (TACS)

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants under the Federal Clean Air Act and Toxic Air Contaminants (TACs) by CARB. TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer). TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source. Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and federal level.

Diesel particulate matter (DPM) from the exhaust of diesel-fueled vehicles and equipment is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complicated scientific issue. Some of the chemicals in diesel exhaust, such as

benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent California State Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015 and were used in this analysis.[2]

ODORS

Odor refers to the perception or sensation experienced when one or more volatilized chemical compounds come in contact with receptors on the olfactory nerves. Odorant refers to any volatile chemical in the air that is part of the perception of odor by a human. The difference in sensory and physical responses experienced by individuals is responsible for the significant variability in the individual sensitivity to the quality and intensity of an odorant.

Some land uses commonly associated with odors include agriculture, wastewater treatment plants, food processing and rendering facilities, chemical plants, composting facilities, landfills, waste transfer stations, and dairies. In addition, the occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they can still be unpleasant, leading to distress and often generating citizen complaints to local governments and regulatory agencies.

SENSITIVE RECEPTORS

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. Infants and small children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Therefore, for a worst case analysis, residential locations are assumed to include infants and small children. All other populations would have the same or lessened risk levels than those of infants and small children. The closest sensitive receptors to the site are residents in the single-family homes adjacent to the northern property border. Once constructed, the Project would introduce new sensitive receptors (i.e., residents) to the area.

REGULATORY FRAMEWORK

UNITED STATES

In 1990, the federal Clean Air Act Amendments (CAAA) established a number of requirements, including new deadlines for attaining clean air standards and the development of State Implementation Plans (SIPs). The EPA administers the CAAA, and has established National Ambient Air Quality Standards (NAAQS) for several air pollutants on the basis of human health and welfare criteria. To date, NAAQS have been established for CO, O_3, SO_2, NO_2, PM_{10}, $PM_{2.5}$ and Pb (lead).

[2] OEHHA, *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,* February 2015.

CALIFORNIA

Under the California Clean Air Act (CCAA), the CARB is responsible for research activities, the establishment of California Ambient Air Quality Standards (CAAQS), guidelines for air quality management, and the regulation of both stationary and mobile emission sources. The CAAQS are generally more stringent than corresponding federal standards.

In July 2007, the CARB adopted the In-Use Off-Road Diesel Vehicle Regulation and amended it in December 2011.[3,4] The regulation requires owners of off-road mobile equipment powered by diesel engines 25 horsepower or larger to meet the fleet average or BACT requirements for NOX and PM emissions by January 1 of each year. The regulation also establishes idling restrictions, limitations on buying/selling of older off-road diesel vehicles (Tier 0), reporting requirements, and retrofit and replacement requirements. The requirements and compliance dates vary by fleet size, with performance requirements for large fleets beginning in 2014, medium fleets in 2017, and small fleets in 2019.

STATE OF CALIFORNIA AND FEDERAL AIR QUALITY STANDARDS

As noted above, both the California Air Resource Board and the U.S. Environmental Protection Agency have established ambient air quality standards for common pollutants, including ozone, CO, NO_2, PM_{10} and $PM_{2.5}$. These ambient air quality standards represent levels that avoid specific adverse health effects associated with each pollutant. Individuals vary widely in their sensitivity to air pollutants, and standards are set to protect more pollution-sensitive populations (e.g., children and the elderly). National and state standards are reviewed and updated periodically based on new health studies. California ambient standards tend to be at least as protective as national ambient standards, and are often more stringent. National and California ambient air quality standards are shown in **Table 6.1**.

Table 6.1: Health-Based Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	National Standard
Ozone	1 Hour	0.09 ppm	---
	8 Hour	0.070 ppm	0.070 ppm
Carbon Monoxide	1 Hour	20 ppm	35 ppm
	8 Hour	9.0 ppm	9 ppm
Nitrogen Dioxide	1 Hour	0.18 ppm	0.100 ppm
	Annual	0.030 ppm	0.053 ppm
Particulates	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$
< 10 microns	Annual	20 $\mu g/m^3$	---
Particulates	24 Hour	---	35 $\mu g/m^3$
< 2.5 microns	Annual	12 $\mu g/m^3$	12 $\mu g/m^3$

Concentrations: ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter

Source: Bay Area Air Quality Management District, Bay Air Quality Standards and Attainment Status, available at http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status.

[3] California Air Resources Board (CARB), 2011b. Regulation for In-Use Off-Road Diesel-Fueled Fleets. Title 13, California Code of Regulations, Section 2449.

[4] California Air Resources Board (CARB), 2012. In-Use Off-Road Diesel Vehicle Regulation.

SAN FRANCISCO BAY AREA

For planning purposes, regions like the San Francisco Bay Area are given an air quality status designation by the federal and state regulatory agencies. Areas with monitored pollutant concentrations that are lower than ambient air quality standards are designated "attainment" on a pollutant-by-pollutant basis. When monitored concentrations exceed ambient standards within an air basin, it is designated "nonattainment" for that pollutant.

In general, the Bay Area experiences low concentrations of most pollutants when compared to federal and state standards. The Bay Area is considered "attainment" (or unclassified) for all of the national standards, with the exception of ozone and the 24-hour $PM_{2.5}$ standard. For State air quality standards, the Bay Area is considered "nonattainment" for all averaging times for ozone and particulate matter (PM_{10} and $PM_{2.5}$).[5]

Clean Air Plan

In 1991, BAAQMD, Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) prepared the Bay Area 1991 Clean Air Plan. This air quality plan addresses the California Clean Air Act. The plan was meant to demonstrate progress toward meeting the more stringent 1-hour ozone CAAQS. The latest update to the plan, which was adopted in April 2017, is referred to as the Bay Area 2017 Clean Air Plan (CAP).[6] The 2017 CAP includes a multi-pollutant strategy represented by 85 control strategies to simultaneously reduce emissions and ambient concentrations of ozone, fine particulate matter, and toxic air contaminants, as well as greenhouse gases that contribute to climate change.

The 2017 CAP includes the Bay Area's first-ever comprehensive Regional Climate Protection Strategy, which identifies potential rules, control measures, and strategies that the BAAQMD can pursue to reduce greenhouse gasses in the Bay Area. Measures of the 2017 CAP addressing the transportation sector are in direct support of Plan Bay Area, which was prepared by ABAG and MTC and includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan. Highlights of the 2017 CAP control strategy include:

- Limit Combustion: Develop a region-wide strategy to improve fossil fuel combustion efficiency at industrial facilities, beginning with the three largest sources of industrial emissions: oil refineries, power plants, and cement plants.
- Stop Methane Leaks: Reduce methane emissions from landfills and oil and natural gas production and distribution.
- Reduce Exposure to Toxics: Reduce emissions of toxic air contaminants by adopting more stringent limits and methods for evaluating toxic risks at existing and new facilities.
- Put a Price on Driving: Implement pricing measures to reduce travel demand.
- Advance Electric Vehicles: Accelerate the widespread adoption of electric vehicles.
- Promote Clean Fuels: Promote the use of clean fuels and low or zero carbon technologies in trucks and heavy-duty vehicles.

[5] BAAQMD, Ambient Air Quality Standards and Bay Area Attainment, via website http://www.baaqmd.gov/pln/air_quality/ambient_air_quality.htm , accessed February 27, 2009.

[6] Bay Area Air Quality Management District, *Clean Air Plan 2017: Spare the Air, Cool the Climate*, Adopted April 2017.

- Accelerate Low Carbon Buildings: Expand the production of low-carbon, renewable energy by promoting on-site technologies such as rooftop solar and ground-source heat pumps.
- Support More Energy Choices: Support community choice energy programs throughout the Bay Area.
- Make Buildings More Efficient: Promote energy efficiency in both new and existing buildings.
- Make Space and Water Heating Cleaner: Promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

To achieve the goals of the CAP, it identifies 85 emissions control measures for implementation by BAAQMD in collaboration with local government agencies, the business community, and Bay Area residents. The control measures target the following emissions sources: stationary sources (40 measures); transportation (23 measures); energy (2 measures); buildings (4 measures); agriculture (4 measures); natural and working lands (3 measures); waste management (4 measures); water (2 measures); super-GHGs (3 measures); and further study (miscellaneous stationary, building, and agriculture sources) (11 measures).

BAAQMD Guidelines

BAAQMD also provides a document titled *California Environmental Quality Act Air Quality Guidelines* ("BAAQMD Guidelines"), which provides guidance for consideration by lead agencies, consultants, and other parties evaluating air quality impacts in the San Francisco Bay Area Air Basin conducted pursuant to CEQA. The document provides guidance on evaluating air quality impacts of development projects and local plans, determining whether an impact is significant, and mitigating significant air quality impacts. The most recent version of the Guidelines is dated May 2017.[7]

TOWN OF PORTOLA VALLEY

Portola Valley General Plan

Portola Valley's General Plan includes goals, policies, and actions to reduce exposure of the town's population to exposure of air pollution and toxic air contaminants or TACs. The following goals, policies, and actions are applicable to the proposed Project:

Sustainability Goal: New Buildings - Encourage, and where feasible, require new buildings to adhere to "green" building design standards.

> Objective 1. Require all new buildings to achieve a minimum level of sustainability based on an accepted "green" rating system

Sustainability Goal: Transportation – Provide for transportation needs by methods that reduce greenhouse gas emissions.

> Objective 3. Reduce motor vehicle trips in the town.
>
> Objective 4. Encourage and enable use of energy efficient low or zero emission vehicles and /or those powered by non-petroleum-based alternative fuels.

[7] Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017.

CURRENT AND HISTORICAL AIR QUALITY MONITORING

BAAQMD monitors air quality at several locations within the San Francisco Air Basin, although none are located in Portola Valley. The monitoring site closest to the Project site is located in Redwood City. **Table 6.2** presents a summary of air quality trends in the area for the most recent years available, 2017 through 2019, represented as the number of days air quality standards were exceeded at the Redwood City monitoring station and throughout the Bay area. The table shows that ambient air quality standards are generally met in the Bay area, with a few days of exceedances, usually related to $PM_{2.5}$ and ozone.

Table 6.2: Summary of Criteria Air Pollution Monitoring Data

Pollutant	Standard	Monitoring Site	Days Standard Exceeded		
			2017	2018	2019
Ozone	State 1-Hour	Redwood City	2	0	0
		SF Bay Area	6	2	6
Ozone	Federal 8-Hour	Redwood City	2	0	2
		SF Bay Area	6	3	9
Ozone	State 8-Hour	Redwood City	2	0	2
		SF Bay Area	6	3	9
PM_{10}	Federal 24-Hour	Redwood City	-	-	-
		SF Bay Area	0	1	0
PM_{10}	State 24-Hour	Redwood City	-	-	-
		SF Bay Area	6	6	5
$PM_{2.5}$	Federal 24-Hour	Redwood City	6	13	0
		SF Bay Area	18	18	1
Carbon Monoxide	State/Federal 8-Hour	Redwood City	0	0	0
		SF Bay Area	0	0	0
Nitrogen Dioxide	Federal 1-Hour	Redwood City	0	0	0
		SF Bay Area	1	0	0
Nitrogen Dioxide	State 1-Hour	Redwood City	0	0	0
		SF Bay Area	0	0	0

Notes: Dash (-) indicates pollutant is not monitored at that site.
Source: Bay Area Air Quality Management District Air Pollution Summaries (http://www.baaqmd.gov/about-air-quality/air-quality-summaries). As of January 2022, the 2019 data is the latest available data.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project site as proposed would have a significant environmental impact if it were to result in the following:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
3. Expose sensitive receptors to substantial pollutant concentrations; or
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The CEQA Guidelines state that, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the

above determinations. The analysis in this chapter is based on the thresholds presented in the latest BAAQMD Guidelines (May 2017), as detailed under each impact discussion below.

CONSISTENCY WITH CLEAN AIR PLAN

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

BAAQMD recommends analyzing a project's consistency with current air quality plan primary goals and control measures. The impact would be significant if the Project would conflict with or obstruct attainment of the primary goals or implementation of the control measures.

The primary goals of the Bay Area 2017 Clean Air Plan are:

- Attain all state and national air quality standards
- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants
- Reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050. [This standard is addressed in the Greenhouse Gas Emissions chapter of this EIR.]

The Project is consistent with all applicable rules and regulations related to emissions and health risk and as detailed in this chapter, would not result in a new substantial source of emissions or TACs.

Many of the Clean Air Plan's control measures are targeted to government-driven area-wide improvements, large stationary source reductions, or large employers and these are not directly applicable to the proposed Project. However, the Project would not conflict with any control measures and would support the following control measures directly or indirectly:

- Energy Control Measure EN1 and Water Control Measure WR2: the Project would meet current standards of energy and water efficiency, which support these control measures with those objectives.
- Building Control Measures BL1 and BL2: The Project would meet the Town's current "Green Building" requirements including all-electric residences, which support these control measures to decarbonize and green buildings.
- Waste Management Control Measures WA3 and WA4: The Project would meet all recycling and green waste requirements, which support these control measures to promote these activities.
- Transportation Control Measures TR2 and TR8: These control measures promote employer trip reduction and carpooling/vanpooling. While the proposed Project is a residential project, many of the homes would be for Stanford University faculty, who would have access to the university's transportation demand management program for employees including free transit passes, priority carpool and vanpool parking, commute club, ride matching, and discounts on car shares or rentals. Stanford University's commuter benefits program (which would apply to the faculty living at the Project site) supports Control Measures TR2 and TR8.
- Transportation Control Measure TR14: The Project includes an electric vehicle charging station in the garage of each single-family home, supporting this control measure for the promotion of electric vehicles.

As described above and under the below topics in this chapter, the Project is consistent with all applicable control measures and with all applicable rules and regulations related to emissions and

health risk. Therefore, there would be ***no impact*** in relation to inconsistency with the applicable air quality plan.

AIR QUALITY STANDARDS

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

For the purpose of assessing impacts of a proposed Project on air quality standards, the BAAQMD-recommended thresholds are:

- Average daily emissions of 54 pounds per day of NOx, ROG or $PM_{2.5}$, and 82 pounds per day of PM_{10} during the construction period.
- Average daily emissions as listed above during the operational period.
- Annual emissions of 10 tons per year of NOx, ROG or $PM_{2.5}$, and 15 tons per year of PM_{10} during the operational period.

Construction Period

Impact Air-1: **Construction Period Dust and Emissions.** Construction activities would generate exhaust emissions from vehicles and equipment and fugitive dust particles that could affect local air quality. Although emissions would be below threshold levels, the impact is considered ***potentially significant*** unless basic control measures are implemented.

Construction emissions for all stages of construction were estimated using the most recent version 2016.3.2 of the California Emission Estimator Model (CalEEMod), the land-use model recommended by the BAAQMD for CEQA analyses, as updated with the most recent emissions factors (EMFAC2017). Sources of general construction emissions include off-gassing from pavement and architectural coating, exhaust from off-road and on-road construction vehicles and equipment, and fugitive emissions (dust) associated with site grading (see full report in Appendix C for detailed methodology, inputs, and results).

As shown in **Table 6.3** below, predicted construction period emissions would not exceed the applicable BAAQMD significance thresholds.

Table 6.3: Construction Period Emissions

Description	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Total construction emissions (tons)	0.8 tons	1.9 tons	0.11 tons	0.10 tons
Average daily emissions (pounds)[1]	3.3 lbs./day	8.4 lbs./day	0.5 lbs./day	0.4 lbs./day
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. BAAQMD does not have a quantifiable threshold of significance for fugitive dust

impacts, but instead regards fugitive dust impacts as mitigated if appropriate management practices are implemented, as included in Mitigation Measure Air-1.

Mitigation Measure Air-1: **Basic Construction Management Practices.** The Project shall demonstrate proposed compliance with all applicable regulations and operating procedures prior to issuance of demolition, building or grading permits, including implementation of the following BAAQMD "Basic Construction Mitigation Measures".

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mile per hour.
- 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.
- 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.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the 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 BAAQMD significance thresholds for construction dust impacts are based on the appropriateness of construction dust controls. With implementation of the Basic Construction Management Practices listed in Mitigation Measure Air-1, impacts related to construction period emissions would be considered ***less than significant with mitigation***. Because construction-period emissions do not exceed applicable significance thresholds, which have been set to avoid adverse health impacts to sensitive populations as discussed in the setting section above, additional construction mitigation measures would not be required to mitigate impacts.

Operation

Regional Air Quality

Operational air emissions from the Project would be generated primarily from vehicles driven by future residents. While a small portion of overall emissions, evaporative emissions from architectural

coatings and maintenance products (classified as consumer products) are also factored into the quantification of emissions for residential uses.

Operational-period emissions for criteria pollutants and precursors have been calculated using CalEEMod as discussed above (full details are included in Appendix C), with results summarized in **Table 6.4**.

Table 6.4: Operational Period Emissions

Description	ROG	NOx	PM_{10}	$PM_{2.5}$
Project Annual Operational Emissions (*tons/year*)	0.48 tons	0.22 tons	0.30 tons	0.09 tons
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	*No*	*No*	*No*	*No*
Project Daily Operational Emissions (*lbs/day*)	2.7 lbs.	1.2 lbs.	1.6 lbs.	0.5 lbs.
BAAQMD Thresholds (lbs/day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	*No*	*No*	*No*	*No*

As indicated in the table above, predicted operational period emissions would not exceed the BAAQMD significance thresholds and would therefore be a ***less than significant*** impact.

Carbon Monoxide Hotspots

Emissions and ambient concentrations of carbon monoxide have decreased greatly in recent years. These improvements are due largely to the introduction of cleaner burning motor vehicle engines and motor vehicle fuels. No exceedances of the State or National CO standard have been recorded at any of the Bay Area's monitoring stations since 1991. The Bay Area has attained the State and National CO standard.

However, elevated CO concentrations are generally fairly localized. Heavy traffic volumes and congestion can lead to high levels of CO, or "hotspots", while concentrations at the closest air quality monitoring station may be within State and National standards.

BAAQMD presents the screening level that localized carbon monoxide concentrations should be studied at affected intersections where traffic is increased to more than 44,000 vehicles per hour (or 24,000 vehicles per hour where mixing is substantially limited, such as in a tunnel). This screening level represents the volume of traffic at which a significant impact related to carbon monoxide would be possible. Based on traffic volumes in the vicinity, which show relatively low-volume roadways (e.g., the Alpine Road and Westridge Drive intersection carries just over 1,000 vehicles during the busiest peak hour), the Project would not affect intersections of that volume (see Chapter 14 for additional details) and therefore, the impact related to carbon monoxide is ***less than significant***.

SENSITIVE RECEPTORS

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

Impact Air-3: **Exposure of Sensitive Receptors.** The Project would result in emissions that could contribute to increased health risks during both the construction period and operations. However, the Project's contribution would not be substantial and is below applicable screening and threshold levels and the impact would be considered ***less than significant.***

This impact is described in more detail by construction and operational periods below.

Construction Period Exposure

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. Although it was concluded in the previous sections that construction exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations, construction exhaust emissions could still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. DPM from diesel exhaust poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the Project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$ using emissions results from CalEEMod and BAAQMD-recommended U.S. EPA AERMOD dispersion model utilizing local meteorological data (full details are included in Appendix C), with results summarized in **Table 6.5**.

Table 6.5: Construction Risk Impacts at the Off-site Receptors (Maximum)

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	4.7 (infant)	0.03	<0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*

As indicated in the table above, results of this community health risk assessment indicate that the maximum increased health risks would not exceed the BAAQMD significance thresholds and would therefore be a ***less than significant*** impact.

Community health risk assessments typically also look at all substantial sources of TACs that can affect sensitive receptors and are located within 1,000 feet of the Project site (i.e. influence area). These sources include railroads, freeways or highways, high-volume surface streets, and stationary sources identified by BAAQMD. A review of the Project area indicates that traffic on Alpine Road does not exceed the average daily traffic (ADT) threshold of 10,000 vehicles for consideration as a high-volume roadway. Likewise, the other roadways within the area are below the 10,000 ADT threshold. Additionally, there are no stationary sources of TACs located within the 1,000-foot influence area according to BAAQMD's Permitted Stationary Sources 2018 GIS website. Therefore, an additional cumulative community risk impact analysis is not warranted and the cumulative risk would also be ***less than significant***.

Operational Period Exposure

As a residential project, operation of the Project is not expected to cause any localized emissions that could expose sensitive receptors to unhealthy air pollutant levels. When operating, the Project would generate automobile traffic and infrequent truck traffic; however, these emissions are anticipated to result in fairly low impacts in terms of TAC or $PM_{2.5}$ exposure and there would be no other operational sources of TAC or $PM_{2.5}$, so operational sources of health risk would not be substantial and were not further evaluated. No stationary sources of TACs, such as generators, are proposed as part of the Project.

While not considered an impact to the environment under CEQA, the potential health risk to proposed new on-site sensitive receptors is sometimes presented as an information item. However, because there are no roadways near the Project with an ADT of 10,000 or greater and because there are no stationary sources of TACs within 1,000 feet of the Project, as discussed above, it can be concluded that health risk to proposed new on-site sensitive receptors (residents) would be below significance threshold levels.

ODORS

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

As described by the BAAQMD in its 2017 CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard. 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 ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Odor impacts should be considered for any proposed new odor sources located near existing receptors, as well as any new sensitive receptors located near existing odor sources. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts.

BAAQMD has identified typical sources of odor, a few examples of which include manufacturing plants, rendering plants, coffee roasters, wastewater treatment plants, sanitary landfills, and solid waste transfer stations. The Project is a residential project with an odor profile similar to other area residential development and would not include any of the above potential sources of objectionable odors or otherwise be considered a substantial source of objectionable odors or other emissions adversely affecting a substantial number of people (***no impact***).

7

BIOLOGICAL RESOURCES

INTRODUCTION

This chapter provides information on biological resources in the Project area, identifies impacts on biological resources that may result from the Project, and identifies mitigation measures to avoid, minimize, or compensate for potential significant impacts to biological resources. The chapter also presents a discussion of federal, state, and local laws, policies, and regulations that influence the protection of such biological resources.

The discussion and analysis in this chapter is based upon peer review of the following reports and documentation, which was peer reviewed by WRA, Inc. for this analysis:

Biological Resources Report for the Stanford Wedge Project, prepared by H. T. Harvey and Associates, for the applicant dated September 8, 2020, which was based upon field surveys (both reconnaissance-level and focused plant surveys) conducted in April, May and June 2020. (The full Biological Resources Report is included in Appendix D.)

KNOWN CONCERNS

Concerns have been expressed by neighbors regarding the effect of Project noise and light on biological resources. These concerns have been addressed in this analysis.

REGULATORY SETTING

FEDERAL

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects federally listed wildlife species from harm or "take", which is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Take can also include habitat modification or degradation that directly results in death or injury of a listed wildlife species. An activity can be defined as "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA only if they occur on federal lands.

The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened, and endangered species under FESA. The USFWS also maintains lists of proposed and candidate species. Species on these lists are not legally protected under FESA, but may become listed in the near future and are often included in their review of a project.

Project Applicability: No federally-listed plants are present on the Project site. One federally listed animal species, the California red-legged frog (Rana draytonii), may occasionally disperse onto the Project site, though it is expected to do so rarely and in low numbers (if at all). If it occurs on the Project site, it would most likely occur in the intermittent stream along the northern edge of the Project site.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described by the USFWS in its June 14, 2018 memorandum "Destruction and Relocation of Migratory Bird Nest Contents". Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

In its June 14, 2018 memorandum, the USFWS clarified that the destruction of an active nest "while conducting any activity where the intent of the action is not to kill migratory birds or destroy their nests or contents" is not prohibited by the MBTA. On February 3, 2020, the USFWS published a proposed rule to codify the scope of the MBTA as it applies to activities resulting in the injury or death of migratory birds (85 FR 5915-5926); the USFWS is currently considering comments on the proposed rule.

Project Applicability: All native bird species that occur on the Project site are protected under the MBTA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act), 16 U.S.C. Section 668, provides for the protection of the bald eagle and the golden eagle (Aquila chrysaetos) (as amended in 1962) by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S.C. 668(a); 50 CFR 22). "Take" includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb (16 U.S.C. 668c; 50 CFR 22.3).

Project Applicability: Bald eagles (Haliaeetus leucocephalus) that nest east of the Project site, near Felt Lake, are protected under the Bald and Golden Eagle Protection Act. However, no eagle nests are known or expected to occur close enough to Project site, for proposed activities to result in take of eagles, and therefore we do not expect that an eagle take permit would be needed for these activities.

Clean Water Act

The Clean Water Act (CWA) functions to maintain and restore the physical, chemical, and biological integrity of waters of the U.S., which include, but are not limited to, tributaries to traditionally navigable waters currently or historically used for interstate or foreign commerce, and adjacent wetlands. Historically, in non-tidal waters, U.S. Army Corp of Engineers (USACE) jurisdiction extends to the ordinary high water (OHW) mark, which is defined in Title 33, Code of Federal Regulations (CFR), Part 328.3. If there are wetlands adjacent to channelized features, the limits of USACE jurisdiction extend beyond the OHW mark or high tide line to the outer edges of the wetlands.

On June 22, 2020, the Navigable Waters Protection Rule (NWPR) went into effect. The NWPR is intended to provide clear categories of regulated waters of the U.S., as well as regulating traditional navigable waters and the core tributary systems that provide perennial or intermittent flow into them. Under the NWPR, ephemeral streams or features adjacent to such features are not waters of the U.S.; however this determination would only occur after completing an Approved Jurisdictional Determination process with the USACE.

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit would be effective in the absence of Section 401 Water Quality Certification. The State Water Resources Control Board (SWRCB) is the state agency (together with the Regional Water Quality Control Boards [RWQCBs]) charged with implementing water quality certification in California.

Project Applicability: Portions of the Project site contain two ephemeral streams that are unlikely to be claimed as waters of the U.S. by the USACE under the NWPR. However, the intermittent stream, which is a tributary to Los Trancos Creek, is likely to be claimed as waters of the U.S by the USACE. No streams occur within the Residential Development Area or in the areas that would be impacted by the permanent fire access road and trails, and vegetation management activities are not expected to impact waters of the U.S.. Therefore, a Section 404 permit from the USACE would not be required for proposed Project activities. (See Environmental Setting section below including Figure 7.1.)

STATE

Clean Water Act Section 401/Porter-Cologne Water Quality Control Act

The SWRCB works in coordination with the nine RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and may approve, with or without conditions, or deny projects that could affect waters of the State. Their authority comes from the CWA and the State's Porter-Cologne Water Quality Control Act (Porter-Cologne). Porter-Cologne broadly defines waters of the State as "any surface water or groundwater, including saline waters, within the boundaries of the state."

Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the State include headwaters, wetlands, and riparian areas. Moreover, the San Francisco Bay Region RWQCB's Assistant Executive Director, has stated that, in practice, the RWQCBs claim jurisdiction over riparian areas. Where riparian habitat is not present, such as may be the case at headwaters, jurisdiction is taken to the top of bank.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures describe riparian habitat buffers as important resources that may both be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs if impacted.

Pursuant to the CWA, projects that are regulated by the USACE must also obtain a Section 401 Water Quality Certification permit from the RWQCB. This certification ensures that the proposed Project would uphold state water quality standards. Because California's jurisdiction to regulate its water resources is much broader than that of the federal government, proposed impacts on waters of the State

require Water Quality Certification even if the area occurs outside of USACE jurisdiction. Moreover, the RWQCB may impose mitigation requirements even if the USACE does not. Under the Porter-Cologne, the SWRCB and the nine regional boards also have the responsibility of granting CWA National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements for certain point-source and non-point discharges to waters. These regulations limit impacts on aquatic and riparian habitats from a variety of urban sources.

Project Applicability: Portions of the Project site contain streams and associated riparian areas that may be claimed as waters of the State by the RWQCB, regardless of the jurisdictional determination by the USACE. Such areas would fall under jurisdiction of the San Francisco RWQCB. A Section 401 Water Quality Certification would be required if any impacts on waters of the U.S. (i.e., the intermittent stream) would occur, whereas Porter-Cologne Waste Discharge Requirements would be required if any impacts on the ephemeral streams or riparian habitats, which are not regulated by the USACE, were to occur. However, as proposed, the Project would not impact any waters of the State and therefore is not expected to need a permit from the RWQCB. (See Environmental Setting section below including Figure 7.1.)

California Endangered Species Act

The California Endangered Species Act (CESA; California Fish and Game Code, Chapter 1.5, Sections 2050-2116) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered. In accordance with CESA, the CDFW has jurisdiction over state-listed species (Fish and Game Code 2070). The CDFW regulates activities that may result in "take" of individuals (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the California Fish and Game Code. The CDFW, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification."

Project Applicability: No suitable habitat for any state listed plant species occurs on the Project site. Thus, no state listed plant species are expected to occur on the Project site. The state listed bald eagle occurs at nearby Felt Lake and the Project vicinity. However, no eagle nests are known or expected to occur close enough to the Project site for proposed activities to result in take of eagles. The mountain lion (Puma concolor), which is a candidate for state listing, could potentially occur on the site on occasion. However, this species is unlikely to den on the site given the extent of human activity in the adjoining residential areas, and no take of this species, as defined by CESA, is expected to occur as a result of Project activities. (See Environmental Setting section below including Figure 7.1.)

California Fish and Game Code

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under CDFW jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A stream is defined in Title 14, California Code of Regulations Section 1.72, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, the CDFW extends its jurisdiction to encompass riparian habitats that function as part of a watercourse. California Fish and Game Code Section 2786 defines riparian habitat as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of the CDFW can be measured in several ways, depending on the

particular situation and the type of fish or wildlife at risk. At minimum, the CDFW would claim jurisdiction over a stream's bed and bank. In areas that lack a vegetated riparian corridor, CDFW jurisdiction would be the same as USACE jurisdiction. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats.

Pursuant to California Fish and Game Code Section 1603, the CDFW regulates any project proposed by any person that would "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds."

California Fish and Game Code Section 1602 requires an entity to notify the CDFW of any proposed activity that may modify a river, stream, or lake. If the CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared. The LSAA sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA. The applicant may then proceed with the activity in accordance with the final LSAA.

Specific sections of the California Fish and Game Code describe regulations pertaining to protection of certain wildlife species. For example, Code Section 2000 prohibits take of any bird, mammal, fish, reptile, or amphibian except as provided by other sections of the code.

The California Fish and Game Code Sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected in California under Code Section 3503.5. Section 3503.5 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."

Bats and other non-game mammals are protected by California Fish and Game Code Section 4150, which states that all non-game mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of non-game mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered "take" by the CDFW.

Project Applicability: Portions of the Project site contain streams and associated riparian areas that may be regulated by the CDFW under California Fish and Game Code Section 1603. A very small area of riparian habitat is located on the Residential Development Area, and two ephemeral streams and their associated riparian areas are located on the remaining portion of the site. Such areas would fall under jurisdiction of the CDFW, and a Lake and Streambed Alteration Agreement (LSAA) would be required if any impacts on these waters or riparian vegetation would occur. No streams would be impacted directly by any Project components. Although riparian habitat impacts would be avoided to the extent feasible, there is some potential for riparian habitat to be impacted by vegetation management activities, which would necessitate an LSAA. Most native bird, mammal, and other wildlife species that occur on the Project site and in the immediate vicinity are protected by the California Fish and Game Code. (See Environmental Setting section below including Figure 7.1.)

California Environmental Quality Act

Section 15380(b) of the State CEQA Guidelines provides that a species not listed on the federal or state lists of protected species may be considered rare if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definitions in FESA and CESA and the section of

the California Fish and Game Code dealing with rare or endangered plants and animals. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW or species that are locally or regionally rare.

The CDFW has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists". Species on these lists are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Thus, their populations should be monitored. They may receive special attention during environmental review as potential rare species, but do not have specific statutory protection. All potentially rare or sensitive species, or habitats capable of supporting rare species, are considered for environmental review per the CEQA Section 15380(b).

The California Native Plant Society (CNPS), a non-governmental conservation organization, has developed California Rare Plant Ranks (CRPRs) for plant species of concern in California in the Inventory of Rare and Endangered Plants (CNPS 2020). The CRPRs include lichens, vascular, and non-vascular plants, and are defined as follows:

- CRPR 1A Plants considered extinct.
- CRPR 1B Plants rare, threatened, or endangered in California and elsewhere.
- CRPR 2A Plants considered extinct in California but more common elsewhere.
- CRPR 2B Plants rare, threatened, or endangered in California but more common elsewhere.
- CRPR 3 Plants about which more information is needed - review list.
- CRPR 4 Plants of limited distribution-watch list.

The CRPRs are further described by the following threat code extensions:

- seriously endangered in California;
- fairly endangered in California;
- not very endangered in California.

Although the CNPS is not a regulatory agency and plants on these lists have no formal regulatory protection, plants appearing as CRPR 1B or 2 are, in general, considered to meet CEQA's Section 15380 criteria, and adverse effects on these species may be considered significant. Impacts on plants that are listed by the CNPS as CRPR 3 or 4 are also considered during CEQA review, although because these species are typically not as rare as those of CRPR 1B or 2, impacts on them are less frequently considered significant. The analysis in this chapter follows this convention by considering the rarity of the species and further considers the percent of the population that could be impacted without affecting the viability of that population.

Compliance with CEQA Guidelines Section 15065(a) requires consideration of natural communities of special concern, in addition to plant and wildlife species. Vegetation types of "special concern" are tracked in Rarefind (CNDDB 2019). Further, the CDFW ranks sensitive vegetation alliances based on their global (G) and state (S) rankings analogous to those provided in the CNDDB. Global rankings (G1–G5) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas S rankings reflect the condition of a habitat within California. If an alliance is marked as a G1–G3, all the associations within it would also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's currently accepted list of vegetation alliances and associations (CDFW 2009).

Project Applicability: All potential impacts on biological resources are considered in this analysis and the associated Appendix D as required under CEQA.

LOCAL

Town of Portola Valley General Plan

The Town of Portola Valley General Plan includes goals and objectives relevant to the environmental factors potentially affected by the proposed Project, including the following:

4212 Vegetation [Conservation Element, Principals]

1. Removal of native vegetation should be minimized, and replanting required where necessary to maintain soil stability, prevent erosion and maximize reoxygenation.
2. Forest resources should be protected from harvesting.
3. Mature native trees and shrubs should be conserved.
4. Plantings in public trail easements or public road rights of way shall be of native plants and trees and shall not interfere with the use of the easements for public purposes such as equestrians, hikers, pedestrians, bicyclists, runners and vehicles.
5. The town should encourage restoration of unique or rare vegetation and habitats.
6. Along creeks, indigenous vegetation should be protected and, where necessary, restored and enhanced.
7. Management of native vegetation for the purpose of fire safe management practices should be done only to the extent necessary to meet reasonable fire safety objectives while still seeking to protect the biological resources of the environment.

4214 Wildlife [Conservation Element, Principals]

1. An environmental impact report or study, prepared by a qualified biologist, should be required to determine if the habitat of wildlife is being impacted, particularly of endangered species, by any proposed public or private project where such encroachment appears likely.
2. All subdivision and site development proposals should be reviewed to ensure that they do not obstruct wildlife access to important water, food and breeding areas.
3. Designate creek corridors as sensitive areas which provide important aquatic and terrestrial wildlife habitat. Setback requirements should be established by zoning for all new development along creeks. All new subdivisions and site development proposals should contain setback area sufficient to buffer wildlife inhabiting the creek corridor from the impacts of development.
4. Protect lands and habitat that support endangered or protected species wherever possible and consistent with state and federal requirements.
5. Give attention to restoring native habitat for wildlife when reviewing development proposals and initiating town projects.

4426 Goal: Water Resources - Protect and conserve water resources in the town including imported water.

Objectives

1. To protect the watershed from pollution, debris, excess sediment and invasive plants.
2. To reduce consumption of water through conservation and more efficient appliances and fixtures.
3. To use drought resistant native plants in developments.
4. To maximize the collection and recycling of natural-sourced and public water.
5. To protect and preserve ground water resources and aquifer recharge areas.

4427 Goal: Living Environment - Protect the natural environments for plants, animals and humans.

Objectives

1. To protect the interdependent plants and animals that together comprise a balanced ecosystem in our forests, grasslands, chaparral areas, and creek systems.
2. To protect extensive areas of native vegetation that support wildlife.
3. To protect forests and forms of vegetation that help contribute to air quality by absorbing carbon dioxide.
4. To protect the creek systems in the town.
5. To promote rehabilitation of ecosystems.
6. To control, reduce and eliminate invasive species.

Additionally, the Project site is directly addressed as part of the Alpine Scenic Corridor Plan, which contains the following text: "Steep wooded canyon and hillside (Stanford land); extreme care needed in design and construction if lands are developed in the future; maintain as permanent open space if possible."

Project Applicability: The Project is located within the Town of Portola Valley General Plan area and would need to conform to all applicable requirements. Not every requirement will be applicable to a given project site and interpretation of General Plan requirements often involves weighing competing objectives. For example, while a vegetation management plan would remove some vegetation at the site, management of a site to reduce wildfire risk is ultimately intended to protect those areas from being lost to wildfire.

Town of Portola Valley Redwood Guidelines

The Redwood Guidelines were adopted by the Town of Portola Valley on September 11, 2013 and has the following to say about the removal of existing redwoods:

"The Conservation Committee is tasked with reviewing the removal of significant trees in the Town of Portola Valley. Significant redwoods are any tree with a trunk or multiple trunks with a total circumference of 54 inches or a diameter greater than 17.2 inches.

"The Committee would need a compelling safety reason to approve the removal of redwoods growing in appropriate planting locations. They are an iconic part of our landscape and heritage and are to be treasured.

"Existing redwoods in Portola Valley that are not in appropriate planting locations were planted in the past before the current understanding of sustainable appropriate planting, view preservation and minimizing water use were established. As redwoods grow, they often cause problems with obstruction of neighbors' views, and their roots may damage buildings, septic systems, roads and other infrastructure. Whether or not these trees should be removed requires a balancing of esthetic, safety, neighborly and economic considerations. If homeowners and neighborhoods desire to remove existing redwoods planted in inappropriate locations, the Committee has no objection, subject to an appropriate permit review."

Project Applicability: If removal of qualifying redwoods is proposed at any point, the Project would need approval of the Conservation Committee.

Portola Valley Municipal Code

The Town of Portola Valley Municipal Code contains all ordinances for Portola Valley. Title 15, Buildings and Construction, and Title 18, Zoning, includes regulations relevant to biological resources on the Project site as discussed below.

Significant Trees. Chapter 15.12, Site Development and Tree Protection, establishes regulations for the preservation of significant trees, defined as:

- Coast live oak (Quercus agrifolia), 11.5 inches in diameter or greater
- Black oak (Quercus kelloggii), 11.5 inches in diameter or greater
- Valley oak (Quercus lobata), 11.5 inches in diameter or greater
- Blue oak (Quercus douglasii), 5 inches in diameter or greater.
- Coast redwood (Sequoia sempervirens), 17.2 inches in diameter or greater
- Douglas fir (Pseudostuga menziesii), 17.2 inches in diameter or greater.
- California bay (Umbellularia californica), 11.5 inches in diameter or greater
- Big leaf maple (Acer macrophyllum), 7.6 inches in diameter or greater
- Madrone (Arbutus menziesii), 7.6 inches in diameter or greater

To protect significant trees, Section 15.12.080 requires a development permit application if significant tree removal is proposed, which includes the site location of trees, proximity to structures, health and general conditions, and necessity for removal or other anticipated action. Following submission, the planning coordinator would refer the application to a member of the conservation committee. The planning coordinator, or the appropriate approving authority, may issue the permit with appropriate conditions upon receipt of requested reports.

Project Applicability: The Residential Development Area and the area that would be impacted by the fire access road, vegetation management activities, and hiking and equestrian trails include trees that qualify as significant trees under the Town ordinance. If any trees that qualify as significant trees were to be removed, a permit from the Town would need to be obtained. Vegetation management activities would generally avoid significant trees in the majority of the Project site. However, according to the VMP, some trees which qualify as "significant" under the Town ordinance may need to be removed in areas of defensible space within 100 feet of structures. Removal of those trees would require a permit from the Town. (See discussion under Impact Bio-14 later in this chapter for a discussion of tree removal.)

Creek Setbacks. Chapter 18.59, Creek Setbacks, establishes regulations for development adjacent to specific creeks within the Town of Portola Valley. Section 18.59.020 defines the following creeks as subject to creek setback provisions: Los Trancos Creek, Corte Madera Creek, and Sausal Creek. For these creeks, Section 18.59.030 discusses setback requirements:

For building permits and site development permits, setbacks may be measured from either the top of creek bank or ordinary high water mark (see definitions under Sections 18.59.040 and 18.59.050 below) at the option of the property owner:

1. Parcels less than one acre in size - Thirty feet from top of bank, or thirty-five feet from ordinary high water mark.
2. Parcels of one acre to two and one-half acres—Forty-five feet from top of bank or fifty feet from ordinary high water mark.
3. Parcels of two and one-half acres or more—Fifty-five feet from top of bank or sixty feet from ordinary high water mark.

For planned unit developments, setbacks may be modified by the planning commission to achieve better consistency with the purposes of this chapter as part of the planned unit development process to increase safety as well as protect the natural environment. For new subdivisions, parcels shall have a minimum creek setback of fifty-five feet from the top of creek bank, but this setback may be required to be enlarged as part of the subdivision process to increase safety as well as protect the natural environment. Sensitive habitats, floodplains, and eroding creek banks should be included within the setback area. Persons proposing development along creeks should consult Section 18.32, F-P (Floodplain) Combining District Regulations, contained in the zoning regulations as these provisions affect development in the floodplains along creeks.

Project Applicability: None of the three creeks specified in the ordinance occur within the Project site. Although Los Trancos Creek is present east of the Residential Development Area (across Alpine Road from the site), the distance between the Project site and Los Trancos Creek exceeds the maximum required creek setback. Therefore, no riparian setback is required by the Town of Portola Valley (though see Impact Bio-8).

ENVIRONMENTAL SETTING

The Project area is generally characterized as forested foothills intermingled with rural residential development. The site is bounded by rural residential development to the north, west and south, and Alpine Road to the east. Los Trancos Creek and Felt Lake are located on Stanford lands just beyond Alpine Road to the east.

The Project site is largely undeveloped, but the Residential Development Area is currently occupied by the Alpine Rock Ranch, a horse boarding facility with stables.

BIOTIC HABITATS

Reconnaissance-level surveys identified six habitat types/land uses on the Project site: coast live oak woodland (48.36 ac), blue oak woodland (16.19 ac), rural residential (5.18 ac), chamise chaparral (4.69 ac), mixed riparian forest (1.72 ac), and streams, including intermittent (450 linear feet) and ephemeral (2,333 linear feet) streams. These habitats are described in detail below and shown on **Figure 7.1**.

Coast Live Oak Woodland

This habitat type occurs throughout the majority of the Project site, typically on steeper north and east facing slopes. The vegetation is dominated by mature coast live oak trees. In many areas, the canopy is co-dominated by blue oak; however, the primary constituent tree within this habitat type is always coast live oak. Sparse California buckeye (Aesculus californica) and California bay also occur in the canopy layer. The canopy in this habitat type is fairly continuous, however small open areas do occur which are characterized by herbaceous vegetation dominated by ripgut brome (Bromus diandrus), Torrey's melica (Melica torreyana), Italian thistle (Carduus pycnocpehalus), and Ithuriel's spear (Triteleia laxa). Other open areas contained a dense shrub layer consisting primarily of poison oak (Toxicodendron diversilobum) and sticky monkeyflower (Diplacus aurantiacus). Beneath the tree canopy, the understory layer is sparse, with a species composition similar to more open areas of this habitat type. This habitat type extends a short distance into the Residential Development Area, along the northern and western edges of the Residential Development Area, and it is present along portions of the proposed fire access road as well.

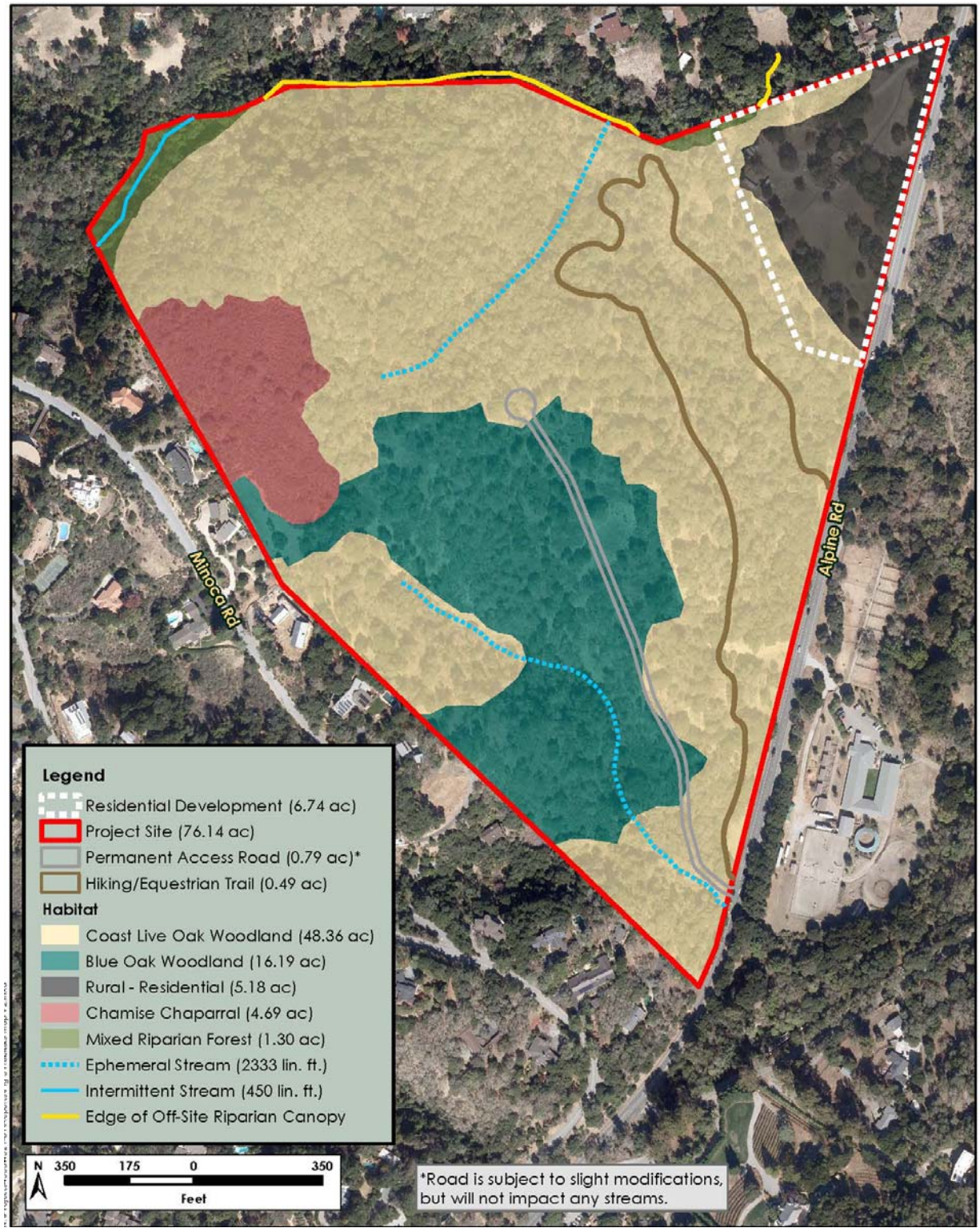

Figure 7.1: On-Site Habitat Types

Source: HT Harvey January 2021

Woodlands dominated by oaks typically support diverse animal communities in California. Coast live oaks provide abundant food resources, including acorns and invertebrates, as well as substantial shelter for animals in the form of cavities, crevices in bark, and complex branching growth. The oak woodlands on the Project site are extensive and support large numbers of woodland-associated species. Thus, a variety of common wildlife species are expected to occur here. Leaf litter and fallen logs provide cover and foraging habitat for California slender salamanders (Batrachoseps attenuatus) and western fence lizards (Sceloporus occidentalis), and reptiles such as the northern alligator lizard (Elgaria multicarinata) are also expected to occur in this habitat. The trees and shrubs provide habitat for breeding birds such as the Bewick's wren (Thryomanes bewickii), chestnut-backed chickadee (Poecile rufescens), Anna's hummingbird (Calypte anna), dark-eyed junco (Junco hyemalis), California scrub-jay (Aphelocoma californica), Steller's jay (Cyanocitta stelleri), oak titmouse (Baeolophus inornatus), Hutton's vireo (Vireo huttoni), and western screech-owl (Megascops kennicottii), as well as wintering birds including the hermit thrush (Catharus guttatus), ruby-crowned kinglet (Regulus calendula), and Townsend's warbler (Setophaga townsendi). Mammals, including the native raccoon (Procyon lotor) and nonnative eastern gray squirrel (Sciurus carolinensis) and eastern fox squirrel (Sciurus niger), may occur in the coast live oak forest, and mule deer (Odocoileus hemionus) were observed in this habitat during the site visit. Additionally, a large number of oak trees on the site support suitable day roost habitat for crevice-roosting bats including pallid bat (Antrozous pallidus), Yuma myotis (Myotis yumanensis), and California myotis (Myotis californicus).

Blue Oak Woodland

Blue oak woodland generally occurs on south facing slopes, near the top of the small hill within the Project site. This habitat type is not present on the Residential Development Area, though it is present along portions of the proposed fire access road. The canopy here is dominated by blue oaks, although it does contain some component of coast live oaks, which varies from uncommon to somewhat frequent depending on slope, exposure, and water availability. The canopy here is significantly more open that the adjacent coast live oak woodland, containing fairly large expenses of high quality grassland and shrub stands between mature blue oak trees. Herbaceous vegetation within the grassland is characterized by ripgut brome, foxtail barley (Hordeum murinum), blue eyed grass (Sisyrinchium bellum), blue dicks (Dichelostemma capitatum), and sparse Coast Range mule ears (Wyethia glabra). The occasional dense shrub layer primarily consists of California sagebrush (Artemesia californica) and sticky monkeyflower.

Blue oak woodlands produce acorns used as forage by a variety of species, including acorn woodpeckers (Melanerpes formicivorus), Nuttall's woodpeckers (Dryobates nuttallii), California scrub-jays, and mule deer. Snags and trees containing cavities provide nesting habitat for birds such as the western bluebird (Sialia mexicana), western screech-owl (Megascops kennicottii) and northern flicker (Colaptes auratus) as well as potential roost sites for bats. Raptors, including the red-tailed hawk (Buteo jamaicensis), American kestrel (Falco sparverius), and great horned owl (Bubo virginianus), may also nest in these woodlands, and coyotes (Canis latrans) and bobcats (Lynx rufus) may forage here.

Rural Residential

The rural residential land use type within the Project site consists of the Alpine Rock Ranch, a horse boarding stable. Numerous horse paddocks and horse pastures are scattered in this area, and include outbuildings to store supplies and hay. A number of trailers are also stored here. The tree canopy is sparse, and dominated by mature coast live oak, blue oak, and valley oak individuals. Understory vegetation consists of non-native herbaceous plants, including significant amounts of Italian thistle, milk thistle (Silybum marianum), wild radish (Raphanus sativus), ripgut brome, wild oat (Avena sp.),

and Italian rye grass (Festuca perennis). The understory vegetation is mowed on a yearly basis in order to control fuel accumulation, and this constant disturbance precludes the establishment of much native vegetation.

The structures within the rural residential habitat provide nesting sites for several bird species including barn swallows (Hirundo rustica), black phoebes (Sayornis nigricans), Bewick's wrens, and mourning doves (Zenaida macroura). No suitable roosting habitat for bat maternity colonies or large bat roosts was observed in the structures, but individual bats such as Yuma myotis and California myotis may occasionally day-roost in crevices observed on the structures. Scattered oak trees in the rural residential area provide habitat for small numbers of wildlife species described in Woodlands sections above.

Chamise Chaparral

This habitat type occurs at the relatively flat top of the small hill in the western portion of the Project site. This habitat type is not present on the Residential Development Area, but it is present at the northwestern end of the proposed fire access road. The area is characterized by dense, tall chamise (Adenostoma fasciculatum) with occasional poison oak. Scattered, isolated mature coast live oak trees also occur. The shrub layer here is 6-10 feet tall and is a near monoculture of chamise in many areas, likely owing to the long history of fire exclusion in this region.

Amphibians are typically scarce in the chamise chaparral habitats because of the very dry conditions, and many other wildlife species that occur in chaparral habitats, such as the California pocket mouse (Chaetodipus californicus), either derive moisture directly from their food or synthesize their water metabolically from seeds.

Mammals that forage in chaparral habitat and use it for cover include the coyote, bobcat, and brush rabbit (Sylvilagus bachmani). Bird species that nest in chaparral habitat include the California thrasher (Toxostoma redivivum), California towhee (Pipilo crissalis), spotted towhee (Pipilo maculatus), California quail (Callipepla californica), wrentit (Chamaea fasciata), and Anna's hummingbird. Yellow-rumped warblers (Setophaga coronata) and several species of sparrows forage in chaparral habitat during the winter. Reptiles that occur in this habitat include the gopher snake (Pituophis catenifer), western rattlesnake (Crotalus oreganus), southern alligator lizard (Elgaria multicarinata), striped racer (Masticophis lateralis), and western fence lizard.

Mixed Riparian Forest

The major riparian zone occurs just to the north of the Project site, and is associated with an unnamed intermittent stream that is a tributary of Los Trancos Creek. Two small areas of this riparian zone intersect the Project site, one in the northwest corner, and one along the north side of the Project site. The vegetation within this habitat primarily consists of a mature overstory of California bay, California buckeye, and coast live oak individuals. Understory vegetation includes California blackberry (Rubus ursinus), poison oak, and pacific sanicle (Sanicula crassicaulis).

Mixed riparian forest barely extends into the northwestern corner of the Residential Development Area, although no stream channels are present on this portion of the site. Mixed riparian forest is present adjacent to the northern end of the proposed hiking/equestrian trails, but not within this Project feature's impact areas. Mixed riparian forest is also present in the northwest portion of the Project site that would be subjected to vegetation management activities.

Mixed riparian forest and woodland habitats in California generally support rich animal communities and contribute disproportionately to landscape-level species diversity. The presence of water during a

large portion of the year and abundant invertebrate fauna provide foraging opportunities for many animal species, and the diverse habitat structure provides cover and breeding opportunities. As a result, the mixed riparian forest and woodland habitat on the Project site provides cover and foraging habitat for a wide variety of terrestrial vertebrates (e.g., amphibians, reptiles, and mammals), as well as several guilds of birds, including insectivores (e.g., warblers, flycatchers), seed-eaters (e.g., finches), and raptors. Cavity-nesting birds (e.g., swallows and woodpeckers) may nest in the large sycamores in this habitat type.

Several species of amphibians and reptiles occur in the mixed riparian forest and woodland habitats. Leaf litter, downed tree branches, low-growing forbs, and fallen logs provide cover for the ensatina (Ensatina eschscholtzii), California newt (Taricha torosa), western toad (Anaxyrus boreas), and Pacific chorus frog (Pseudacris regilla). Reptile species found in this habitat include the western fence lizard, western skink (Eumeces skiltonianus), southern alligator lizard, and ringneck snake (Diadophis punctatus) among others. Among the species of birds that use the mixed riparian forest and woodland habitat on the site for breeding are the Pacific-slope flycatcher (Empidonax difficilis), California scrub-jay, and bushtit (Psaltriparus minimus). Trees in this habitat provide limited nesting opportunities for smaller raptors, such as the Cooper's hawk (Accipiter cooperii) and red-shouldered hawk (Buteo lineatus), but no existing nests of raptors were observed during the reconnaissance survey.

Small mammals, such as the ornate shrew (Sorex ornatus) and broad-footed mole (Scapanus latimanus), use the mixed riparian forest and woodland for breeding and foraging. Medium-sized mammals such as the raccoon, striped skunk (Mephitis mephitis), bobcat, and nonnative Virginia opossum (Didelphis virginiana) are also present in this habitat. Mule deer are common in the surrounding habitats and use mixed riparian forest and woodland areas for access to water and foraging. Several species of bats, including the Yuma myotis and Mexican free-tailed bat (Tadarida brasiliensis), forage over mixed riparian forest and woodland habitats.

Intermittent and Ephemeral Streams

One unnamed intermittent stream occurs on the northwest corner of the Project site in mixed riparian habitat. This stream generally flows west to east, and is a tributary of Los Trancos Creek, located on the east side of Alpine Road. This stream ranges in width from approximately 3 to 5 feet wide. This stream contained slowly flowing, shallow water during the April 2019 survey, and based upon its characteristics, would be expected to be completely dry during dryer years/times of the year. Bank heights vary along the stream, but in many places the channel is very deep, with a vertical relief of up to 10 feet. The banks of this stream are sparsely vegetated in some areas and more densely vegetated in other areas with a mixture of native and non-native grasses and herbs including ripgut brome, miner's lettuce (Claytonia perfoliata), poison oak, and maidenhair fern (Adiantum jordanii).

Two ephemeral streams also occur on the Project site. These streams are relatively small and only flow following precipitation events. The centrally-located stream generally flows north to southwest. The southern stream generally flows northwest to south. Both streams range in width from approximately 1 to 2 feet wide. A dense layer of native and non-native grasses and herbs including ripgut brome, miner's lettuce, and cleavers (Galium aparine) overhang the channel banks of both ephemeral streams.

Because ephemeral streams only flow during or shortly after precipitation events, these habitats do not support populations of fishes. Also, they do not support breeding amphibians due to lack of ponding depth and limited duration of flows. However, amphibians such as Sierran chorus frog (Hyliola regilla) and western toad (Anaxyrus boreas) may occasionally occur in the ephemeral streams during the wet seasons.

Intermittent streams support water seasonally; thus, compared to ephemeral streams, they have more value to wildlife and a greater variety of wildlife species may be present in this habitat. Due to the very shallow nature of the intermittent stream on the Project site, fish are not expected to occur there. Among the species of birds that use the intermittent stream habitat, green herons (Butorides virescens) may occasionally forage in the intermittent stream, and insectivorous birds forage aerially on insects over the stream when water is present. Animals that are present in the surrounding coast live oak woodland habitats, such as dusky-footed woodrat and mule deer, may also use these habitats opportunistically, utilizing the temporarily flowing water for drinking. Several species of bats, including the Yuma myotis (Myotis yumanensis) and Mexican free-tailed bat (Tadarida brasiliensis), forage over stream habitat for aquatic insects. Amphibians such as the sierra chorus frog and western toad may occasionally disperse through the stream during wet periods.

SPECIAL STATUS SPECIES

For this assessment, special status species are defined as: those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA); those listed or proposed for listing as rare, threatened, or endangered by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA); plants occurring on Lists 1A, 1B, 2, 3 or 4 of the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2011); animals designated as a California "Species of Special Concern" by the CDFW; and animals listed in the California Fish and Game Code as fully protected species (fully protected birds are provided in Section 3511, mammals in Section 4700, reptiles and amphibians in Section 5050, and fish in Section 5515).

Plants

The CNDDB was queried for potential occurrences of special status plants in the vicinity of the Project site, generating a list of 74 different species. All but 10 of the species can be eliminated from consideration because of lack of suitable habitat types or specific requirements (such as serpentine soils or coastal influence or elevation). The species not anticipated to occur on the site are not further discussed in this chapter, but additional detail can be found in Appendix D.

Based on an assessment of site conditions, it was determined that the Residential Development Area did not provide suitable habitat for Michael's rein orchid (Piperia michaelii) or Brewer's calandrinia (Calandrinia breweri). The remaining 8 species were further evaluated based on a focused survey of the Residential Development Area during the flowering period. These plants include: bent-flowered fiddleneck (Amsinckia lunaris), western leatherwood (Dirca occidentalis), woodland woollythreads (Monolopia gracilens), Santa Cruz clover (Trifolium buckwestiorum), California androsace (Androsace elongata ssp. acuta), Oakland star-tulip (Calochortus umbellatus), bristly leptosiphon (Leptosiphon acicularis), and California bottle-brush grass (Elymus californicus). No special status plant species were observed in the Residential Development Area during the focused survey. Nevertheless, these 10 species have some potential to occur on the remainder of the approximately 75.4-acre site, including the entirety of the areas that would be impacted by vegetation management activities. In addition, all 10 species could potentially occur within the area where the fire access road and hiking/equestrian trails would be constructed.

Animals

The CNDDB has recorded occurrences of several special status animal species in the region. Most of the special-status species occurring in the larger vicinity are not expected to occur on the Project site

because it lacks suitable habitat, is outside the known range of the species, and/or is isolated from the nearest known populations by development or otherwise unsuitable habitat. The species not anticipated to occur on the site are not further discussed in this chapter, but additional detail can be found in Appendix D.

Yellow warblers (Setophaga petechia) and long-eared owls (Asio otus) are considered California species of special concern only when breeding, yet these species would occur on the Project site only as migrants or dispersants (or in the case of long-eared owls, potential winter visitors). Bald eagles are known to nest in large eucalyptus near Felt Lake, but suitable nest sites and foraging habitat are absent from the Project site and its immediate vicinity. The monarch butterfly (Danaus plexippus) and mountain lion may also occur on the Project site as visitors. However, milkweeds (Asclepias spp.), which serve as the larval hostplant for monarch butterflies, were not observed on the site during surveys, and this species is a scarce breeder on the San Francisco peninsula, so monarchs are expected to occur only as foragers during dispersal and migration. Similarly, mountain lions are not expected to den or breed on the site due to the level of human activity associated with the surrounding residential development, so this species is not expected to occur on the Project site other than as an occasional visitor.

Three special-status animal species, the white-tailed kite (Elanus leucurus), pallid bat (Antrozous pallidus), and San Francisco dusky-footed woodrat (Neotoma fuscipes annectens) have the potential to breed on the Project site, and may therefore be affected by Project activities. Two additional special-status animal species, the California red-legged frog and western pond turtle (Actinemys marmorata), have the potential to occur on the Project site. Although they are not expected to breed or to occur regularly or in large numbers due to a lack of suitable breeding or nesting habitat on the site, they may breed nearby, and they therefore warrant special consideration.

SENSITIVE NATURAL COMMUNITIES, HABITATS, AND VEGETATION ALLIANCES

Natural communities have been considered part of the Natural Heritage Conservation triad, along with plants and animals of conservation significance, since the state inception of the Natural Heritage Program in 1979. The CDFW determines the level of rarity and imperilment of vegetation types, and tracks sensitive communities in its Rarefind database. Global rankings (G) of natural communities reflect the overall condition (rarity and endangerment) of a habitat throughout its range, whereas state (S) rankings reflect the condition of a habitat within Natural communities are defined using NatureServe's standard heritage program methodology as follows:

- G1/S1: Critically imperiled
- G2/S2: Imperiled
- G3/S3: Vulnerable
- G4/S4: Apparently secure
- G5/S4: Secure

In addition to tracking sensitive natural communities, the CDFW also ranks vegetation alliances, defined by repeating patterns of plants across a landscape that reflect climate, soil, water, disturbance, and other environmental factors. If an alliance is marked G1-G3, all of the vegetation associations within it will also be of high priority. The CDFW provides the Vegetation Classification and Mapping Program's (VegCAMP) currently accepted list of vegetation alliances and associations. Impacts on CDFW sensitive natural communities, vegetation alliances/associations, or any such community identified in local or regional plans, policies, and regulations, would be considered impacts under CEQA. Furthermore, aquatic, wetland and riparian habitats are also protected under applicable federal, state, or local regulations, and are generally subject to regulation, protection, or consideration by the USACE, RWQCB, CDFW, and/or the USFWS.

Sensitive Natural Communities

A query of sensitive habitats in Rarefind identified five sensitive habitats as occurring in the region: serpentine bunchgrass (G2/S2.2), valley oak woodland (G3/S2.1), northern coastal salt marsh (G3/S3.2), North Central Coast steelhead/sculpin stream (unranked), and North Central Coast California roach/stickleback/steelhead stream (unranked). Serpentine bunchgrass occurs only on serpentine soils, which do not occur on the Project site. Valley oak woodland is characterized by an open, savannah like canopy structure consisting of predominately valley oak with few other tree species present. While valley oak does occur on the Project site, generally in the vicinity of the Alpine Rock Ranch, the tree layer is co-dominated by coast live oak. Thus, valley oak woodland is considered absent from the Project site. Northern coastal salt marsh occurs along sheltered inland margins of bays, often co-dominated by pickleweed (Salicornia spp.), cordgrass (Spartina spp.), and sometimes saltgrass (Distichlis spicata). The Project site does not occur along the margins of the bay, nor does it contain any of the aforementioned species. Therefore, northern coastal salt marsh is considered absent from the Project site. The last two sensitive natural communities, North Central Coast steelhead/sculpin stream (unranked), and North Central Coast California roach/stickleback/steelhead stream (unranked), only occur on the western slope of the Santa Cruz Mountains, and are therefore considered absent from the Project site.

Sensitive Vegetation Alliances

The following four vegetation alliances occur within the Project site: coast live oak woodland alliance (G5/S4), blue oak woodland alliance (G4/S4), Umbellularia californica forest alliance (S3/G4), and chamise chaparral shrubland alliance (G5/S5). Of these alliances, only the Umbellularia californica forest alliance is considered sensitive by CDFW. This association is represented by the mixed riparian forest mapped along the northern edge the Project site, as well as in narrow bands along the ephemeral streams mapped in the center of the Project site.

Sensitive Habitats (Waters of the U.S./State)

The intermittent stream occurring on the northern portion of the Project site may be considered waters of the U.S./state. Any placement of fill into verified waters of the U.S./state within the Project site would require a Section 404 permit from the USACE and Section 401 Water Quality Certification from the San Francisco RWQCB. Additionally, the mixed riparian forest associated with the intermittent stream, as well as the two ephemeral streams, are expected to fall under the jurisdiction of the San Francisco RWQCB and CDFW, and any impacts to those habitats would require both Porter-Cologne Waste Discharge Requirements and a Lake and Streambed Alteration Agreement.

IMPACTS AND MITIGATION MEASURES

CRITERIA OF IMPACT SIGNIFICANCE

The California Environmental Quality Act (CEQA) and the CEQA Guidelines provide guidance in evaluating project impacts and determining which impacts will be significant. CEQA defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed Project." Under CEQA Guidelines section 15065(a)(1) and Appendix G, a project's effects on biotic resources may be significant when the project would:

1. 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

2. have a substantial adverse effect on any riparian habitat or other sensitive natural community (e.g., oak woodland) identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service

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

4. 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

5. conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

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

SPECIAL STATUS SPECIES

1. Would the project 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?

Special Status Plants

Impact Bio-1: **Impacts on Special-Status Plants**. While there are no special-status plant species in the Residential Development Area, ten species have the potential to occur on the remainder of the site and could be impacted by construction and use of the fire access road and hiking/equestrian trails and/or vegetation management activities. This impact is ***less than significant with mitigation***.

As discussed under the environmental setting above, eight special-status plant species were thought to have some potential to occur within the Residential Development Area: bent-flowered fiddleneck, western leatherwood, woodland woollythreads, Santa Cruz clover, California androsace, Oakland star-tulip, bristly leptosiphon, and California bottle-brush grass. None of these eight species, nor any other special-status plants, were observed within the Residential Development Area of the Project site during either the reconnaissance survey or focused rare plant surveys during the flowering periods of the aforementioned species and therefore no impacts to special-status plant would occur on the Residential Development Area.

However, there is the potential for ten special-status plant species to occur in the remainder of the site that would be disturbed by construction of the fire access road, construction of the hiking/equestrian trails, and implementation of the VMP. These species include the above listed eight species plus Michael's rein orchid or Brewer's calandrinia.

If these species are present, grading for the fire access road or hiking/equestrian trails could impact special-status plants through:

- direct removal/destruction of individuals; permanent loss of habitat due to construction of the road and/or trails;

- temporary disturbance of habitat in areas adjacent to the road and/or trails that would be subject to grading;
- degradation of suitable habitat due to alteration of hydrology and soil compaction;
- introduction of non-native species (e.g., seeds introduced to the activity area as a result of contaminated machinery, equipment, or clothing), which can threaten native plant species through competition for resources and the physical or chemical alteration of the habitat; and
- minor fuel and oil spills that may occur during refueling of construction equipment.

In a similar fashion, proposed vegetation management activities, such as mastication, chipping, and/or tilling of vegetation could impact special-status plants through:

- direct removal or destruction of individuals,
- alteration of sun/shade microhabitat near the currently suitable habitat due to tree removal, or
- covering of occupied habitat in a layer of vegetation debris causing the habitat to become unsuitable.
- Temporary impacts could also include dust deposition on the leaves of rare plants, affecting photosynthesis and gas exchange, or trampling that does not kill the plants or prevent seed set.

Impacts from vegetation management activities may be permanent if habitat conditions are disturbed to the extent that conditions for special-status plants are no longer suitable, or they may only be temporary, with plants regrowing or recolonizing after initial vegetation management activities. The VMP Implementation Plan indicates how treatment would occur in high- priority areas without ground-disturbing activities, and with implementation of other measures to minimize impacts on special-status plants. For example, if wood-chipping is necessary as part of these initial treatment activities, wood chips would be distributed so that they are no more than 1 inch deep to allow seed germination and growth of special-status plants.

If more than 10% of the population of any CRPR List 1B species, or more than 20% of the population of any CRPR List 4 species ("population" referring to the occurrence on the Project site) would be impacted by construction of the fire access road and hiking/equestrian trails, and/or implementation of vegetation management activities, this impact would be significant under CEQA due to the regional rarity of these species. These percentages were selected based on the rarity of the species and related percent of the population that could be impacted without affecting the viability of that population.

Mitigation Measures

Bio-1a: **Survey (outside the Residential Development Area): Special-Status Plants**. Prior to the initiation of grading for the fire access road and/or hiking/equestrian trails, or the implementation of initial ground disturbance or vegetation removal activities in areas outside the Residential Development Area that has been surveyed for special- status plants, a qualified biologist shall conduct, in areas outside the Residential Development Area that has been surveyed, a focused survey during the appropriate bloom season for potentially occurring special-status plant species, including:

- California bottle-brush grass (Elymus californicus; CRPR 4.3; May through August)
- Western leatherwood (Dirca occidentalis; CRPR 1B.2; January through March)
- Bent-flowered fiddleneck (Amsinckia lunaris; CRPR 1B2; March through June)
- Woodland woolly threads (Monolopia gracilens; CRPR 1B.2; March through July)

- Santa Cruz clover (Trifolium buckwestiorum; CRPR 1B.1; April through October)
- California androsace (Androsace elongata ssp. acuta; CRPR 4.2; March through June)
- Brewer's calandrinia (Calandrinia breweri; CRPR 4.2; March through June)
- Oakland star-tulip (Calochortus umbellatus; CRPR 4.2; March through May)
- Bristly leptosiphon (Leptosiphon acicularis; CRPR 4.2; April through July)
- Michael's rein orchid (Piperia michaelii; CRPR 4.2; April through August)

Ground disturbance associated with vegetation management activities that could potentially impact sensitive plant species if they are present, necessitating focused plant surveys, would include all vegetation management activities except initial vegetation management treatments that are implemented prior to construction of the fire access road (Panorama Environmental 2020b). These initial treatments include (1) removing trees and large shrubs through hand removal methods to avoid ground disturbance, and minimizing dragging out material; (2) minimization of soil disturbance through use of low compacting equipment (e.g., masticator or chipper) that would reduce rutting from machine turns and minimize soil compaction; and (3) limiting the spread of chipped or masticated materials to 1-inch in depth or less (Panorama Environmental 2020b). Therefore, focused surveys shall be conducted prior to all ground disturbance associated with vegetation management activities including and following construction of the fire access road, including a surrounding 50-foot buffer area on site and to the extent access to adjacent properties may be permitted. Surveys shall take place no more than 3 years before ground disturbance or vegetation removal for these vegetation management activities and should be conducted in a year with near-average or above-average precipitation. Alternatively, these surveys may be conducted in a year of below-average precipitation and the surveyor should attempt, if possible, to identify a nearby reference population that is flowering and detectable despite the below-average rainfall. The purpose of the survey shall be to assess the presence or absence of the potentially occurring species. If none of the target species are found in the impact area or surrounding 50-foot buffer, then no further mitigation measures shall apply. Otherwise, Mitigation Measure Bio-1b shall be additionally implemented.

Bio-1b: **Avoidance and Minimization: Special-Status Plants**. If any individual special-status plants are found in the impact area or 50-foot buffer, then in consultation with a qualified botanist or plant ecologist, the project shall be designed to avoid direct and indirect impacts to the species to the extent feasible. If avoidance of special-status plants reduces the impacts so that less than 10% for CRPR List 1B species of either individuals or occupied area within the population would be impacted, or less than 20% for CPRP List 4 species, then the impact would be considered less than significant, and no further mitigation is necessary. Otherwise, Mitigation Measure Bio-1c shall be additionally implemented.

Bio-1c: **Compensatory Mitigation if Avoidance is Infeasible: Special-Status Plants.** If, even with project redesign to minimize impacts, more than 10% of the population for CRPR List 1B species, or more than 20% of the population for CRPR List 4 species would be impacted, compensatory mitigation shall be provided via the

management of currently occupied habitat or the establishment of a new population for the species impacted. The mitigation habitat shall be of equal or greater habitat quality compared to the impacted areas, as determined by a qualified plant ecologist, in terms of soil features, extent of disturbance, vegetation structure, and dominant species composition, and shall contain at least as many individuals of the species as are impacted by project activities. A Habitat Mitigation and Management Plan (HMMP) shall be developed by a qualified plant or restoration ecologist and implemented for the mitigation lands. The HMMP shall be approved by the Town of Portola Valley prior to the start of ground-disturbing activities. The HMMP shall include, at a minimum, all of the following information:

- Summary of habitat impacts and the proposed mitigation;
- Description of the location and boundaries of the mitigation site and description of existing site conditions;
- Description of measures to be undertaken to enhance (e.g., through focused management that may include removal of invasive species in adjacent suitable but currently unoccupied habitat) the mitigation site for the focal special-status species;
- Description of measures to transplant individual plants or seeds from the impact area to the mitigation site, if appropriate (which shall be determined by a qualified plant or restoration ecologist);
- Proposed management activities to maintain high-quality habitat conditions for the focal species;
- Description of habitat and species monitoring measures on the mitigation site, including specific, objective final and performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc. At a minimum, performance criteria shall include demonstration that any plant population fluctuations over the monitoring period do not indicate a downward trajectory in terms of reduction in numbers and/or occupied area for the preserved mitigation population that can be attributed to management (e.g., that are not the result of local weather patterns, as determined by monitoring of a nearby reference population, or other factors unrelated to management); and
- Annual monitoring should be conducted for a period of 5 years following transplantation of individuals, if plants are transplanted, or following the initiation of monitoring (e.g., for a mitigation site where the species is already present) to ensure that the population is healthy.
- Description of the management plan's adaptive component, including potential contingency measures for mitigation elements that do not meet performance criteria.

With surveys prior to disturbance, avoidance and minimization of any impacts to special-status plants, and compensatory mitigation if substantial impacts would occur as outlined in Mitigation Measures Bio-1a, Bio-1b, and Bio-1c, the Project's impact related to impacts on special-status plants would be reduced to ***less than significant***.

Special-Status Animals

As discussed under the environmental setting above, five special-status animal species breed on or nearby the Project site: California red-legged frog, western pond turtle, white-tailed kite, pallid bat, and San Francisco dusky-footed woodrat. Potential impacts to these special-status animal species are discussed individually below and additional detail can be found in the full biological assessment included as Appendix D of this report.

California Red-legged Frogs

Impact Bio-2: **Loss of Individual California Red-legged Frogs**. While there is no breeding habitat on the Project site for the California red-legged frog, there is the potential for infrequent individuals to visit the site and these could be impacted directly or indirectly by construction, operation, and vegetation management activities. Despite the low potential for individuals to be impacted, loss of any individual California red-legged frogs resulting from the proposed project activities would constitute a significant impact due to the species' regional rarity. This impact is ***less than significant with mitigation***.

While no breeding habitat for the California red-legged frog is present on the Residential Development Area or fire access road, or in the unnamed drainage to the north, there are records of this species in the vicinity and individuals may occasionally disperse onto the site. If they do, such individuals are most likely to occur in the riparian corridors associated with the intermittent stream along the northern edge of the Project site, though this would be expected to occur very infrequently, if at all.

Project activities, including construction and initial vegetation management activities followed by residential use and trail use and ongoing vegetation management activities, would not result in the loss of breeding habitat for the California red-legged frog, or any direct impacts on the intermittent tributary to Los Trancos Creek where this species is most likely to occur if it were to disperse onto the site. Due to the infrequency with which California red-legged frogs might occur in the impact areas (owing the lack of any known breeding populations or high-quality breeding habitat in the immediate vicinity of the site), and the relatively limited extent of project impacts, the Project would not substantially affect California red-legged frog habitat availability in the region.

However, in the rare chance that an individual frog moved into Project impact areas and was present during construction or initial vegetation management activities, it could result in injury or mortality of individuals either directly through contact with equipment or fuels/solvents or indirectly through putting them at greater risk of predation (by attracting predators or disturbing refuges with noise and vibrations).

Additionally, once the Residential Development Area and hiking and equestrian trails are constructed, increased human presence could introduce litter, which may attract wild predators, such as raccoons, striped skunks, and common ravens into the riparian and stream habitats where those predators may harass or prey on frogs. Increased numbers of domestic pets such as dogs and free-roaming cats may also result in an increase in predation risk for frogs that may disperse onto the site. Although the Residential Development Area, fire access road, and hiking/equestrian trails would avoid impacts to stream and riparian habitats, there is some potential for increased human presence to introduce pathogens that could be detrimental to amphibians.

Annual vegetation management activities involving goat grazing would have little to no effect on potentially- occurring California red-legged frogs in that this activity would not involve any ground

disturbance or operation of large equipment (e.g., masticator) on the site. Likewise, periodic manual removal of trees and branches is not expected to impact potentially-occurring California red-legged frogs. However, if off-road mechanical support is necessary for long-term maintenance, there is potential for California red-legged frogs to be impacted in the same manner as with initial vegetation management activities described above.

Mitigation Measures

Bio-2a: **Survey and Avoidance (all Construction Activities and the Initial Vegetation Management Activities): Red-legged Frogs .** Before any construction or initial vegetation management activities begin, the following measures shall be completed and/or included in construction contracts as ongoing measures:

i. *Pre-activity Survey*. A qualified biologist shall conduct a preconstruction survey for the California red-legged frog no more than 24 hours prior to initial ground disturbing activities within 100 feet of any riparian area. If a California red-legged frog is encountered in the work area, all activities with the potential to result in the harassment, injury, or death of the individual shall be immediately halted and shall not resume until the individual leaves the project site of its own accord.

ii. *Worker Environmental Awareness Program*. Before any construction activities begin, Stanford shall hire a qualified biologist to conduct a training session for all construction personnel. At a minimum, the training shall include descriptions of all special-status species potentially occurring on the project site and their habitats, the importance of these species, the general measures that are being implemented to conserve them as they relate to the proposed project, and the boundaries within which project activities may be accomplished.

iii. *Construction Timing*. Because California red-legged frogs are most active at night, nighttime earthmoving and other construction activities shall be avoided to the extent practicable within 100 feet of any riparian area. Further, to the extent practicable, ground-disturbing activities shall be avoided during the wet season, from mid-October through mid-April, when red-legged frogs are most likely to be moving through upland areas.

Bio-2b: **Survey and Avoidance (Initial and Ongoing Vegetation Management Activities**): **Red-legged Frogs**. Before any construction or vegetation management activities (initial or ongoing) begin, the following measures shall be included in construction/vegetation management contracts:

i. *Vegetation Stockpiles*. Because California red-legged frogs could move into areas under debris piles, where they could then be injured or killed when the debris piles are disposed of, debris intended for burning, mastication, or other disturbance, should not be piled on the ground within 100 feet of any riparian area unless the piles would be treated on the same day that they are created. If vegetation piles cannot be treated or removed daily, they should be dispersed on the site, to the extent feasible.

ii. *Trash Containment during Construction and vegetation management Activities*. Because human trash associated with construction activities and

vegetation management activities has the potential to attract predators, all trash shall be contained in sealed containers and disposed of on a daily basis.

iii. *Mechanical Support for Vegetation Management*. If off-road mechanical support is necessary for ongoing vegetation management activities, Mitigation Measure Bio-2a shall be implemented for the off-road mechanical support activities.

Bio-2c: **Avoidance, Operational Prohibition of Nighttime Access to Trails: Red-Legged Frogs**. Signage shall be installed at trailheads indicating that nighttime access to trails and all access off trails is prohibited.

With measures to minimize the potential loss of individual California red-legged frogs during construction, vegetation management activities, and on an ongoing basis, as identified in Mitigation Measures Bio-2a, Bio-2b, and Bio-2c, the potential for impacts to the California red-legged frog would be reduced to ***less than significant***. Note that while the Project proposes to avoid the riparian habitat during all activities and this has been assumed in this analysis, avoidance of direct impacts to the riparian habitat is further detailed in Mitigation Measure Bio-8a, discussed under the Sensitive Habitats section below.

Western Pond Turtle

Impact Bio-3: **Loss of Individual Western Pond Turtles**. While there is no suitable habitat on the Project site for the western pond turtle, there is a low potential for individual western pond turtles to visit the site and these could be impacted directly or indirectly by construction or vegetation management activities. Despite the low potential for individuals to be impacted, loss of any individual western pond turtle resulting from the proposed Project activities would constitute a significant impact due to the species' regional rarity. This impact is ***less than significant with mitigation***.

While the Project site does not contain suitable habitat for the western pond turtle, a California species of special concern, they are known to occur at Felt Lake, approximately 0.25 mile east of the site, and elsewhere in the Project vicinity in San Francisquito Creek and Lagunita approximately 2.25 miles to the north. Western pond turtles are expected to occur in Los Trancos Creek, just east of the site, as well. Despite the lack of suitable aquatic and upland habitat, dispersing individuals could potentially cross Alpine Road from Los Trancos Creek and make their way on to the site on rare occasions. Therefore, there is a low probability of this species using the Residential Development Area or the eastern end of the fire access road area, especially near the riparian corridors, for dispersal. Therefore, Project activities would not result in the loss of any aquatic habitat for the western pond turtle or in a substantial loss of upland dispersal habitat.

However, individuals could make their way on to the site on rare occasions and if individuals are present during construction or off-road mechanical vegetation management activities, potentially-occurring western pond turtles would be at risk for injury or mortality. As described above for the California red-legged frog, annual vegetation maintenance activities involving goat grazing and periodic manual tree removal/maintenance would have little to no effect on potentially-occurring western pond turtles because this activity would not involve any ground disturbance or operation of large equipment on the site. However, if off-road mechanical support is necessary for long-term maintenance there is potential for western pond turtles to be impacted in the same manner as with initial vegetation management activities described above.

Mitigation Measure

Bio-3: **Survey and Avoidance (all Construction Activities and Vegetation Management Activities Involving Off-Road Mechanical Equipment): Western Pond Turtles.** Before any construction or vegetation management activities involving off-road mechanical equipment begin, a qualified biologist shall conduct a preconstruction survey for western pond turtles no more than 24 hours prior to initial ground disturbing activities within 100 feet of any stream. If a western pond turtle is encountered in the work area, all activities with the potential to result in the harassment, injury, or death of the individual shall be immediately halted, and the individual shall be captured and relocated to a safe location outside of the work area by a qualified biologist, after which work may proceed.

With measures to minimize the potential loss of individual western pond turtles during construction and off-road mechanical vegetation management activities, as identified in Mitigation Measure Bio-3, the potential for impacts to the western pond turtle would be reduced to ***less than significant***. Note that while the Project proposes to avoid the riparian habitat during all activities and this has been assumed in this analysis, avoidance of direct impacts to the riparian habitat is further detailed in Mitigation Measure Bio-8a, discussed under the Sensitive Habitats section below.

White-tailed Kite

Impact Bio-4: **Disturbance of White-tailed Kites**. Suitable nesting habitat is available on site for no more than one pair of white-tailed kites. Construction or off-road mechanical vegetation management activities during breeding season could result in destruction or disturbance of active nests. However, because no more than one pair of kites could possibly be impacted, and because this species is relatively widespread in the region, the loss of reproductive effort associated with one pair of kites, and the loss of habitat suitable to support one pair, would be a ***less than significant*** impact on this species.

The white-tailed kite, a state fully protected species, may nest in trees anywhere from 3 to 50 meters in height and forage in open grassland, ruderal, or agricultural habitats. Kites have been observed in the Project vicinity during the nesting season, and suitable nesting habitat is present for this species on and adjacent to the Residential Development Area of the Project site and limited open areas on the remainder of the site. White- tailed kites are widespread and common in the region, but due to the relatively sparse nature of open, grassy habitat on the Project site, no more than one pair is likely to nest on the site.

Vegetation removal during the breeding season (generally February 1 through August 31) could result in the destruction or disturbance of active nests, possibly leading to the loss of eggs or young. Heavy ground disturbance, noise, and vibrations caused by construction activities could potentially disturb foraging, roosting, or nesting white-tailed kites and cause them to move away from work areas, possibly leading to abandonment of active nests. Similarly, vegetation management activities involving off-road mechanical support could also disturb nesting white-tailed kites through indirect disturbance created by noise or vibrations of equipment used.

However, because no more than one pair of kites could possibly be impacted, and because this species is relatively widespread in the region, the loss of reproductive effort associated with one pair of kites, and the loss of habitat suitable to support one pair, would represent only a very small proportion of this species' regional populations and habitat availability. The impact would not rise to the CEQA standard

of having a substantial adverse effect and would therefore be less than significant with respect to special status species.

Note that this species is protected by the federal Migratory Bird Treaty Act and the California Fish and Game Code, and it is considered a fully protected species by the state (meaning that kites, and their eggs and young, cannot be physically taken for development purposes). See discussion of this issue under the Wildlife Corridor and Nursery Sites section and Mitigation Measures Bio-13a and Bio-13b.

Dusky-footed Woodrat

Impact Bio-5: **Disturbance of Dusky-footed Woodrats**. Hundreds of woodrat nests are expected to be present in the coast live oak woodland, blue oak woodland, mixed riparian forest, and chamise chaparral areas throughout the Project site, including at least 13 in the Residential Development Area. While dusky-footed woodrats and their habitat are relatively common in the region, woodrats are very important ecologically in that they provide an important prey source for raptors and predatory mammals, and their nests provide habitat for a wide variety of small mammals, reptiles, and amphibians. Loss of multiple woodrat nests would be considered a significant impact due to the ecological impact that the loss of nests would represent both to the woodrat and to the other species that benefit from its presence. This impact is ***less than significant with mitigation***.

At least 13 nests of the San Francisco dusky-footed woodrat, a California species of special concern, are located in the coast live oak woodland, mixed riparian forest, and rural-residential habitats along the perimeter of the Residential Development Area. Additional woodrat nests were also observed outside the Residential Development Area and hundreds are expected to be present in the coast live oak woodland, blue oak woodland, mixed riparian forest, and chamise chaparral in areas throughout the Project site.

Proposed construction and initial vegetation management activities may result in injury or mortality of dusky-footed woodrats and removal of woodrat nests due to construction, staging, Project vehicle traffic, and equipment use. Heavy ground disturbance, noise, and vibrations caused by construction activities could potentially cause woodrats to abandon their nests, possibly leading to abandonment of young as well. Additionally, thinning of trees and vegetation around nests in the surrounding vegetation and canopy layer would increase their internal temperatures through increased sun exposure, which could also lead to nest abandonment. Removal of vegetation around nests would also result in the loss of foraging habitat, which would reduce the carrying capacity of the population on site.

Annual vegetation maintenance activities involving goat grazing would not directly impact nests, but this activity could denude cover and food plants around nests if the goats are allowed to graze for excessive periods, reducing the habitat quality, and possibly leading to nest abandonment. Furthermore, if off-road mechanical support is necessary, periodic tree removal and maintenance could result in injury or mortality of dusky- footed woodrats and removal of woodrat nests if nests are located near or within a tree that is to be removed.

San Francisco dusky-footed woodrats are relatively common in suitable habitat regionally and have high reproductive capabilities. As a result, even given the loss of nests from the Residential Development Area and potential to disturb many more with vegetation management activities, the Project impacts on dusky-footed woodrats would not have a substantial effect on regional populations. However, woodrats are very important ecologically in that they provide an important prey source for raptors (particularly owls) and for predatory mammals, and their nests provide habitat for a wide

variety of small mammals, reptiles, and amphibians. As a result, the loss of multiple woodrat nests would be considered a significant impact due to the ecological impact that the loss of nests would represent both to the woodrat and to the other species that benefit from its presence.

Mitigation Measures

Bio-5a: **Survey and Avoidance (all Construction Activities and Vegetation Management Activities Involving Off-Road Mechanical Equipment): Dusky-footed Woodrats.** Before any construction or vegetation management activities involving off-road mechanical support begin, the following measures shall be completed and/or included in construction contracts:

i. *Pre-activity Survey*. No more than 30 days prior to any initial ground disturbance or vegetation removal activities, a pre-activity survey for woodrat nests shall be conducted by a qualified biologist within areas where ground disturbance or vegetation removal shall be conducted and within 10 feet of the disturbance and vegetation removal areas.

ii. *Disturbance-Free Buffers*. If feasible, a minimum 10-ft buffer shall be maintained between project construction activities and each nest to avoid disturbance. In some situations, a smaller buffer may be allowed if in the opinion of a qualified biologist, removing the nest would be a greater impact than that anticipated due to project activities. Environmentally sensitive area (ESA) fencing shall be installed to mark the buffer area around potentially impacted woodrat nests to keep workers, construction equipment, and construction materials out of the area where the nests are located.

iii. *Woodrat Relocation Plan*. Due to the large number of nests that could be impacted and infeasibility of avoiding impact to all nests at the site, a woodrat relocation plan shall be prepared by a qualified biologist prior to initial ground disturbance or vegetation removal activities. At a minimum, the plan shall include woodrat nest relocation methods, relocation site habitat requirements, appropriate relocation sequence with respect to vegetation management activities, spacing of nests, timing of relocations, and recommended protective buffers around nests proposed to remain in place. The plan shall also include a map of all woodrat nests, and proposed relocation areas. Relocation of nest materials shall follow the following guidance:

> If it is determined that disturbance of woodrat nests cannot be avoided, the woodrats shall be evicted from their nests prior to the removal of the nests and onset of ground-disturbing activities to avoid injury or mortality of the woodrats. Relocation activities shall follow methods outlined in the Woodrat Relocation Plan. A qualified biologist shall monitor and direct all activities associated with the removal of dusky-footed woodrat nests (structures). Only as necessary and to the minimum extent possible, project site vegetation shall be removed to provide access to the woodrat nest(s). Following the removal of vegetation required to access woodrat nests, a fiber-optic camera shall be used to observe inside the nest to determine its occupancy prior to beginning the dismantling process. If young are not observed, the nest shall be fully dismantled and materials shall be relocated, as described below. If dependent young are present, the protocol

for active nests below shall be followed to dismantle the structure over a two-week period.

Except where dependent young are present, woodrat structures or nests shall slowly and progressively be dismantled during a single site visit. Appropriate personal protective equipment (e.g. respirator, gloves, and Tyvek suit) shall be used while dismantling and relocating woodrat nest material to protect against disease carried by rodents (e.g., hantavirus). Where feasible, nesting material or food caches shall be moved to a new location at least 30 feet outside the disturbance area, preferably next to a large tree or similar structure in a riparian or oak woodland habitat, in an area where it can be used by woodrats to construct new nests. If no suitable structure is present, a log pile structure may be constructed to support the nest materials.

If young are uncovered within the nest prior to or during the dismantling process, dismantling of the nest shall be suspended for a period of two weeks to allow young to develop eyesight and become mobile. Nest materials shall be placed back on top of the nest to re-cover the exposed young. After the two-week period, the above removal procedures shall be resumed. Within 24 hours of vegetation removal and completion of nest dismantling, an additional survey shall be conducted to confirm no new woodrat nests were constructed.

Bio-5b: **Avoidance, Implement Overgrazing Management Strategy for Annual Vegetation Management: Dusky- footed Woodrat**. To ensure that annual grazing activities do not result in excessive disturbance of, or habitat loss around, San Francisco dusky- footed woodrat nests, grazing shall be performed so that goats will not graze in any one area too long. If no off-road mechanical support of annual vegetation management is required, Mitigation Measure Bio-5a would not also be required for this activity.

With measures to minimize the potential loss of individual dusky-footed woodrats during construction and off-road mechanical-supported vegetation management activities identified in Mitigation Measure Bio-5a, and during to prevent potentially damaging overgrazing during annual grazing as identified in Mitigation Measure Bio-5b, the potential for impacts to the dusky-footed woodrat would be reduced to ***less than significant***.

Pallid Bat

Impact Bio-6: **Disturbance of Pallid Bats**. Construction in or demolition of buildings could result in destruction of maternity roosts, hibernacula, day roosts, and/or night roosts of bat species, including pallid bat. This impact is ***less than significant with mitigation***.

The pallid bat, a California species of special concern, may forage throughout the more open areas of the Project site. In addition, several trees with small to moderate-sized cavities were observed throughout the Project site during the reconnaissance survey. These trees provide suitable roosting and breeding habitat for the pallid bat, and removal of such trees could result in the loss of pallid bat roost sites if they are occupied. Although ostensibly suitable roost sites for pallid bats, such mature trees with large cavities are widespread regionally and pallid bat numbers are low and the species' maternity

roosts are sparsely dispersed. As a result, the loss of potential habitat or potential (but unoccupied) roost trees for this species would not represent a significant impact. However, the loss of an occupied maternity roost would represent a significant impact because that roost site, coupled with the characteristics of the surrounding area (e.g., foraging habitat, thermal characteristics, lack of human disturbance) that attracted pallid bats to that roost, would be regionally important to this species' populations.

When trees containing roosting colonies or individual pallid bats are removed or modified during construction, or initial and long-term vegetation management activities, individual bats could be physically injured or killed; could be subjected to physiological stress from being disturbed during torpor; or could face increased predation because of exposure during daylight. Even if roost trees are not directly impacted, Project-related disturbance near a maternity roost of pallid bats could cause females to abandon their young. Such impacts would be significant because the species' populations are limited locally and regionally and because loss of individuals may have a substantial adverse effect on local and regional populations of the species.

Mitigation Measure

Bio-6: **Survey and Avoidance (all Construction Activities and Vegetation Management Activities Involving Off-Road Mechanical Equipment): Pallid Bats.** Before any structure removal, construction, or vegetation management activities involving off-road mechanical support begin, the following measures shall be completed and/or included in construction contracts to be overseen by a qualified bat biologist:

i. *Potential Roost Habitat Removal September through February, Outside Pallid Bat Maternity Season*. Potential roost habitat trees may be removed outside the maternity season, during a two-day tree removal process, to encourage day-roosting bats to leave potential roost trees ahead of tree removal. This process involves removing small branches and small limbs containing no day-roost habitat (e.g., crevices) on habitat trees on Day 1, using chainsaws only. The following day (Day 2), the remainder of the tree is to be removed. The disturbance caused by chainsaw noise and vibration, combined with the physical modification of the tree, is expected to cause day- roosting bat species to abandon the roost tree after nightly emergence for foraging. Trimmed habitat trees must be removed the next day to prevent re-occupation of trimmed trees.

   If potential habitat trees are not proposed for removal but would undergo a specific treatment (e.g., thinning, crown raising), disturbance shall be scheduled to take place outside the maternity roost season. If treatment activities cannot occur outside the maternity season, a pre-activity evening survey shall be conducted by a qualified biologist to determine if the tree is occupied by a maternity colony. If no bats are detected, work may proceed without any additional surveys. If a maternity colony is present, work shall be postponed until the end of the maternity season (August 31).

ii. *Pre-activity Survey for Work within Pallid Bat Maternity Season (March through August)*. Prior to any initial ground disturbance or off-road mechanical vegetation removal activities to occur during Pallid Bat Maternity Season, a pallid bat roost habitat assessment shall be conducted for all trees and structures on and within 150 feet of the location of the activity, during the

appropriate time of year when bats would be detectable (March 1 – August 31). A qualified bat biologist shall conduct the survey to look for evidence of bat use within suitable habitat. If evidence of use is observed, or if high-quality roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or a nocturnal acoustic survey may be necessary to determine if a bat colony is present and to identify the specific location of the bat colony.

iii. *Avoidance*. If an active pallid bat maternity colony or non-breeding roost is located, construction work or vegetation activities shall be redesigned to avoid disturbance of the roost, if feasible.

iv. *Eviction and Alternative Roost Habitat*. If an active pallid bat maternity colony or non-breeding bat roost is located and construction work cannot be redesigned to avoid removal or disturbance of the occupied roost, the individuals shall be safely evicted by a qualified bat biologist between August 1 and October 15 or between February 15 and March 15, with the timing determined by a qualified bat biologist.

If eviction is necessary, alternative roost habitat shall be provided at least 30 days prior to eviction of bats from the roost. A qualified bat biologist shall determine the appropriate location for the alternative roost structure, based on the location of the original roost and habitat conditions in the vicinity, and oversee installation of a new roost structure. The structure shall be placed as close to the affected roost site as feasible, taking into account potential for disturbance during construction on the site (e.g., the roost might be placed elsewhere on the larger project site). The roost structure either shall be built to specifications determined by a qualified bat biologist or shall be purchased from an appropriate vendor (though a qualified bat biologist should approve the type of structure purchased). Stanford University shall monitor the roost for up to three years (or until occupancy is determined, whichever occurs first) to determine use by bats. If, by Year 3, pallid bats are not using the structure, a qualified bat biologist, in consultation with CDFW, shall identify alternative roost designs or locations for placement of the roost, place the new roost at the agreed-upon location, and monitor the new roost for an additional three years (or until occupancy has been verified).

With removal of potential habitat outside the maternity season or pre-activity surveys and follow-up as appropriate, as detailed in Mitigation Measure Bio-6, the potential for impact to pallid bats would be reduced to ***less than significant***.

Indirect Impacts on Wildlife from Artificial Lighting

Impact Bio-7: **Indirect Lighting Impacts on Wildlife**. While the project would bring artificial lighting to the Project site, such lighting is appropriately designed to avoid substantial impacts to surrounding habitat that could support sensitive species, and the impact of Project artificial lighting on wildlife would be ***less than significant***.

Many animals are sensitive to light cues, which influence their physiology and shape their behaviors, particularly during the breeding season. While it is difficult to extrapolate results of experiments on captive birds to wild populations and other species, it is known that photoperiod (the relative amount of

light and dark in a 24-hour period) is an essential cue triggering physiological processes as diverse as growth, metabolism, development, breeding behavior, and molting. This holds true for birds, mammals, and other taxa as well, suggesting that increases in ambient light may interfere with these processes across a wide range of species, resulting in impacts on wildlife populations.

Artificial lighting may indirectly impact mammals and birds by increasing the nocturnal activity of predators such as owls, hawks, and mammalian predators. The presence of artificial light may also influence habitat use by rodents and by breeding birds by causing avoidance of well-lit areas, resulting in a net loss of habitat availability and quality.

Currently, there is no permanent artificial lighting (e.g., light posts, string lights, and spot lights) on the Project site due to its rural nature. As described above, the Project site may support sensitive species. If lighting in the Project site were so bright that it increased illumination of the surrounding habitat such as the intermittent tributary or coast live oak woodland, such an increase in lighting could potentially have adverse effects on special-status and sensitive species in the area. However, the Project includes several dark sky-compliant measures to minimize the degree to which natural habitats on and surrounding the Project site are illuminated by Project lighting. For example, exterior lights would be composed of a variety of shielded light fixtures that would be mounted on the sides of the buildings, and primarily situated on the interior side of the development, such that the lights would not illuminate the coast live oak woodland to the west, or mixed riparian habitat to the north. Additionally, many of the light fixtures, especially in common public areas, would have automatic timing switches to reduce nighttime illumination when not in use. Although the Project would increase lighting compared with baseline conditions, the dark-sky measures incorporated into the Project plans would minimize this potential impact on wildlife due to artificial lighting, and the impact would thus be ***less than significant***. See Chapter 4: Aesthetics, for additional discussion and figures related to nighttime lighting.

RIPARIAN OR OTHER SENSITIVE NATURAL COMMUNITY

2. Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community (e.g., oak woodland) identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Riparian Habitat

Impact Bio-8: **Direct or Indirect Impacts to Riparian Habitat**. Construction of the fire access road would occur within 50 feet of an ephemeral stream, which could result in erosion and sedimentation impacting the riparian habitat. Additionally, while vegetation management activities are proposed to generally avoid riparian habitat, impacts could occur without specific measures for avoidance and/or compensation if warranted. This impact is ***less than significant with mitigation***.

Riparian habitats are unique areas that surround river and stream banks and contribute disproportionately high habitat values and functions for their limited surface area. Specially-adapted plants that may tolerate repeated flooding or that rely on a high water table often occur in these areas, but even when it supports primarily upland species, this vegetation is important for stabilizing the banks, reducing soil erosion, and maintaining water quality within the stream channel, and the amount and type of vegetation present can have effects on water temperature and therefore aquatic habitat within the stream. Riparian corridor vegetation also provides specialized habitat for wildlife, including shade, breeding areas, and food sources. Riparian habitats are uncommon within the larger landscape.

Riparian areas are considered sensitive habitats by the CDFW and are regulated as such under Section 1600 of the California Fish and Game Code, as well as by the RWQCB.

A limited amount of mixed riparian forest occurs in the northwest corner of the Residential Development Area, associated with the unnamed intermittent tributary of Los Trancos Creek. However, the Project does not propose development within riparian habitat.

Setbacks from creeks (also referred to as riparian buffers) are important to protect sensitive aquatic and riparian habitats, and the animals that inhabit them, from adverse effects of lighting, noise, human activity, sediments and contaminants in runoff, and other stressors associated with development. The dimensions of such setbacks vary depending on local regulations, the size of the creek, the quality of riparian habitat, slope, and other factors. The Town of Portola Valley does not have established setback regulations for development adjacent to the unnamed intermittent tributary at the edge of the Residential Development Area. As shown in Figure 7.1, the Residential Development Area is not located within riparian habitat.

Although the small intermittent stream near the Residential Development Area has some value for plants and wildlife, its ecological functions and values are low compared to a larger and/or perennial stream for which regulated setbacks are in place. Therefore, because the Project would avoid development within the riparian habitat, and the proximity of development to the riparian habitat is limited to a very small portion of the site, and this particular habitat value is relatively low, the setback from the Residential Development Area is considered adequate from a biological standpoint.

The locations of the fire access road and the hiking/equestrian trails do not involve crossing or otherwise impacting the riparian habitat along the intermittent stream on the northern edge of the site and would therefore avoid any direct impacts on riparian habitats. Where the fire access road is proposed to exit off of Alpine Road, however, it would be within 50 feet of the ephemeral stream. Grading for the fire access road would create disturbed soil conditions, potentially resulting in erosion and sedimentation of this ephemeral stream.

Implementation of the VMP would involve initial vegetation treatments throughout much of the 69-acre open space portion of the Project site. Treatment methods would include mechanical methods employing track- mounted excavators to carry out mastication and chipping of woody vegetation, as well as manual treatment methods using of hand tools to cut, uproot, crush, compact, or chop vegetation. While the exact locations of these treatments have not been identified, it is assumed they could occur throughout the Project site, and would therefore occur in the vicinity of the riparian habitat that occurs along the intermittent stream occurring along the northern edge of the parcel along the unnamed tributary to Los Trancos Creek. While this corridor is narrow, this habitat is still considered sensitive, and any direct impact to this habitat from vegetation treatment activities would be considered significant. In addition, in the absence of avoidance and minimization measures, indirect impacts such as runoff from the areas of ground disturbance into the riparian habitat could have the potential to degrade this habitat and would be considered a significant impact.

The VMP states that vegetation treatment methods, or “prescriptions”, should avoid sensitive resources, including riparian habitat, to the extent feasible. It is anticipated that the fuel reduction prescriptions proposed in the VMP can largely avoid vegetation removal within the riparian corridor associated with the intermittent stream. In such a manner, vegetation management activities would avoid most, and possibly all, direct impacts on riparian communities from vegetation removal.

However, if vegetation removal within riparian corridors cannot be completely avoided, the loss of riparian vegetation would constitute a significant impact under CEQA owing to the importance of this habitat type to regional biodiversity.

Mitigation Measures

Bio-8a: **Avoidance (all construction and all Vegetation Management Activities): BMPs for Work within/near Sensitive Habitats.** The following measures shall be implemented to reduce impacts on mixed riparian forest and streams during construction on the Residential Development Area, during the grading of the fire access road and hiking/equestrian trails, and during all vegetation management activities:

i. If the CDFW and/or RWQCB determine potentially impacted areas are under their jurisdiction, the applicant shall acquire permits from CDFW and RWQCB and comply with all permit conditions.

ii. Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.

iii. Spill prevention kits shall always be in close proximity when using hazardous materials.

iv. No equipment servicing shall be done in the stream channel or immediate floodplain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).

v. Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the fire access road and trail clearing width.

vi. If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil.

vii. If goat grazing is to be used as a long-term vegetation management tool in the future, temporary fencing shall be erected when goats are introduced to keep them out of riparian habitats.

viii. Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).

ix. Control sediment runoff using sandbag barriers or straw wattles.

x. Stabilize site ingress/egress locations.

xi. Temporary disturbance or removal of aquatic and riparian vegetation shall not exceed the minimum necessary to complete the work.

xii. Vehicles operated within and adjacent to streams shall be checked and maintained daily to prevent leaks of materials that, if introduced to the water, could be deleterious to aquatic life.

xiii. Potential contaminating materials must be stored in covered storage areas or secondary containment that is impervious to leaks and spills

xiv. All disturbed soils shall be revegetated with native plants suitable for the altered soil conditions upon completion of construction. Local watershed native plants shall be used if available. All disturbed areas that have been compacted shall be de-compacted prior to planting or seeding. Cut-and-fill slopes shall be planted with local native or non-invasive plants suitable for the altered soil conditions.

Bio-8b: **Compensatory Mitigation if Avoidance is Infeasible (All Vegetation Management Activities): Riparian Habitat**. The riparian habitat within the Project site consists of a mature overstory composed of California bay, California buckeye, and coast live oak. Riparian vegetation may be removed during vegetation treatment activities. All trees removed within mixed riparian forest habitat shall be replaced with the same species that was removed during project implementation, which shall be planted within the same reach where impacts occur or along streams on other Stanford University lands. Trees shall be replaced at a ratio of at least 1:1.

Additionally, if trees are to be removed within mixed riparian forest habitat, a qualified biologist shall develop a Riparian Mitigation and Monitoring Plan, which shall contain the following components (or as otherwise modified by regulatory agency permitting conditions):

i. Summary of habitat impacts and proposed mitigation ratios

ii. Goal of the restoration to achieve no net loss of habitat functions and values

iii. Location of mitigation site(s) and description of existing site conditions

iv. Mitigation design:

    a. Soil amendments and other site preparation elements as appropriate

    b. Planting plan

    c. Irrigation and maintenance plan

    d. Remedial measures/adaptive management, etc.

v. Monitoring and Success Criteria: the mitigation site shall be monitored by an ecologist during a 5- year monitoring period. The interim site performance success criterion is annual replacement of any dead trees and shrubs during Years 1-3. The final success criterion at Year 5 shall be defined as 60% average cover of native trees and shrubs combined.

vi. Reporting requirements

With best management practices to avoid and minimize direct and indirect impacts to the ephemeral stream near the fire access road as detailed in Mitigation Measure Bio-8a and minimization and

compensation for impacts on riparian habitat during vegetation management activities as detailed in Mitigation Measure Bio-8b, the potential for direct or indirect impacts to riparian habitat would be reduced to ***less than significant***.

Degradation of Habitats by Invasive Plant Species

Impact Bio-9: **Introduction and/or Spread of Invasive Plants**. Project construction and vegetation management activities could contribute to the introduction or spread of non-native invasive vegetation, some of which could degrade the quality of sensitive habitats. This impact is ***less than significant with mitigation***.

Nonnative, invasive plant species were observed in limited numbers within the Project site, including the following species that are considered by California Invasive Plant Council (Cal-IPPC) to have a "moderate" invasive rating and therefore can cause substantial ecological impacts on physical processes, plant and animal communities, and vegetation structure (California Invasive Plant Council 2020): wild oats (Avena barbata and Avena fatua), black mustard (Brassica nigra), ripgut brome (Bromus diandrus), Italian thistle (Carduus pycnocephalus), bull thistle (Cirsium vulgare), and poison-hemlock (Conium maculatum). In addition, one species with a "high" Cal- IPPC rating, red brome (Bromus madritensis ssp. rubens) was also observed within the Project site. Additional invasive species with high ratings, such as yellow starthistle (Centaurea solstitialis), French broom (Genista monspessulana), and Scotch broom (Cytisus scoparius), are known to occur in the immediate vicinity of the Project site.

Invasive species can spread quickly and can be difficult to eradicate, as they produce seeds that germinate readily following disturbance. Further, disturbed areas are highly susceptible to colonization by nonnative, invasive species that occur locally, or whose propagules are transported by personnel, vehicles, and other equipment. The spread of nonnative invasive species could degrade the ecological values of nearby riparian habitat and adversely affect native plants and wildlife that occur there.

The residential development would result in a large area being subject to soil disturbance, in a location adjacent to open space and near riparian habitat. Activities such as vegetation removal, grading, and equipment staging and are all factors that would contribute to disturbance. Areas of disturbance could serve as the source for promoting the spread of nonnative species, which could degrade the ecological values of the nearby riparian habitat, and adversely affect native plants and wildlife that occur there.

The construction of the fire access road and the hiking/equestrian trails would result in the creation of a new area of disturbance in an area that was not previously disturbed. Similar to the manner described above, disturbance would be created by the clearing of vegetation and grading for either the fire access road or the new trails. In addition, both these Project elements would introduce new vectors or avenues along which invasive species could be spread. The spread of invasive species along these corridors could lead to the introduction and spread of invasive species into sensitive riparian habitats within the Project site, and adversely affect native plants and wildlife that occur there.

Vegetation management activities would result in the disturbance of large amounts of vegetation throughout the Project site by mastication, mowing, trimming, and removal of vegetation. There is the potential for either the motorized equipment or the equipment used for manual treatments to have propagules of weed species (e.g., seeds, or dirt containing rhizomes) from other sites, and if not properly cleaned prior to coming onto the Project site, to introduce novel species.

Mitigation Measure

Bio-9: **Implement Invasive Weed BMPs.** The invasion and/or spread of noxious weeds shall be avoided by the use of the following invasive weed BMPs:

i. During construction activities in the Residential Development Area, all seeds and straw materials used on-site shall be weed-free rice straw (or similar material acceptable to the Town), and all gravel and fill material shall be certified weed-free to the satisfaction of the Town.

ii. Prior to equipment coming onto the site for construction or vegetation management activities, all equipment (e.g., masticators, haul vehicles, excavators, and other heavy equipment) shall be washed (including wheels, undercarriages, and bumpers). Vehicles shall be cleaned at existing construction yards or legally operating car washes.

iii. Following construction of the residential development and the fire access road and hiking/equestrian trails, a standard erosion control seed mix (acceptable to the Town) from a local source shall be planted within the temporary impact zones on any disturbed ground that shall not be under hardscape, landscaped, or maintained. This will minimize the potential for the germination of the majority of seeds from non-native, invasive plant species.

iv. If areas are left bare by vegetation treatments as carried out by the VMP, a standard erosion control seed mix (acceptable to the Town) from a local source and consisting of native species shall be planted on any disturbed ground.

With implementation of best management practices to prevent the spread of invasive species as outlined in Mitigation Measure Bio-9, the Project's impact related to degrading the quality of wildlife habitats through spread of invasive species would be reduced to ***less than significant***.

WETLANDS AND WATERS OF THE U.S.

3. Would the Project 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?

Impact Bio-10: **Indirect Impacts on Wetlands**. While no wetlands occur on the Project site, the ephemeral streams on the Project site could carry sediment or contamination in stormwater to wetlands outside the project area. However, with required compliance with existing regulations requiring stormwater control and pollution prevention during construction and operation, the impact would be ***less than significant***.

No wetlands occur within the Project site. The ephemeral streams on the Project site are outside of the Residential Development Area as well as the footprints of the fire access road and hiking/equestrian trails. Vegetation treatment activities would not occur directly in the ephemeral streams. However, development of the Residential Development Area, construction of the fire access road, and implementation of the vegetation treatments, have the potential to affect water quality within the on-site streams, which have hydrologic connectivity to Los Trancos Creek downstream, through indirect impacts caused by soil disturbance adjacent or near these aquatic features.

Construction projects in California causing land disturbances that are equal to 1 acre or greater must comply with State requirements to control the discharge of stormwater pollutants under the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit; Water Board Order No. 2009-0009-DWQ). Prior to the start of construction/demolition, a Notice of Intent must be filed with the State Water Board describing the project. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and maintained during the Project and it must include the use of BMPs to protect water quality until the site is stabilized. Standard permit conditions under the Construction General Permit require that the applicant utilize various measures including: on-site sediment control best management practices, damp street sweeping, temporary cover of disturbed land surfaces to control erosion during construction, and utilization of stabilized construction entrances and/or wash racks, among other factors.

In many Bay Area counties, including San Mateo County, projects must also comply with the California Regional Water Quality Control Board, San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit (MRP) (Water Board Order No. R2-2015-0049). This MRP requires that all projects implement BMPs and incorporate Low Impact Development practices into the design to prevent stormwater runoff pollution, promote infiltration, and hold/slow down the volume of water coming from a site after construction has been completed. To meet these permit and policy requirements, projects must incorporate project elements to reduce the volume of runoff generated and bioretention and/or detention basins to slow release off-site. Thus, impacts on water quality and indirect impacts on downstream wetlands and other aquatic habitats would be reduced to less than significant levels through compliance with regulations.

WILDLIFE MOVEMENT AND NURSERY SITES

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

Reduced Wildlife Movement

Impact Bio-11: **Reduced Wildlife Movement**. While development of a portion of the Project site would reduce the ability for wildlife to use and move across the Project site, wildlife would still be able to move between the surrounding higher quality habitat patches. This is a ***less than significant*** impact.

For many species, the landscape is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that provide a link between these different habitats while also providing cover. Development that fragments natural habitats (i.e., breaks them into smaller, disjunct pieces) can have a twofold impact on wildlife: first, as habitat patches become smaller they are unable to support as many individuals (patch size); and second, the area between habitat patches may be unsuitable for wildlife species to traverse (connectivity).

Much of the habitat on the Residential Development Area has been subjected to moderate levels of disturbance including horse boarding and grazing, storage, and general grounds-keeping activities. Native trees are scattered across the site, but the understory is mostly dominated by non-native vegetation. Still, native resident wildlife do occupy the site, and migratory wildlife occasionally visit the site. The more natural, less disturbed habitat within the remainder of the Project site where the fire access road, hiking/equestrian trails, would be constructed, and vegetation management activities would occur, provides even higher-quality wildlife habitat. Depending on how much habitat is removed from the Residential Development Area, these species would likely not be able to occupy the site after it is constructed. However, the more natural portion of the site would remain largely undeveloped.

After they are constructed, the fire access road and trails would not create a barrier to movement. Furthermore, although initial and long-term vegetation management activities would alter this more natural area from its current condition, the areas would continue to provide habitat for native resident and migratory wildlife. Additionally, high quality habitat is also present on the adjacent lands, including lands surrounding Felt Lake to the east. With exception of Alpine Road along the eastern border of the site, the site is contiguous with these lands and the Project would not interfere with the movement of wildlife between these areas. Alpine Road does likely slow movement of wildlife between these areas, but it is not a barrier to movement. Thus, while development of the site would reduce the ability for wildlife to use and move across the Project site, wildlife would still be able to move between these surrounding higher quality habitat patches. Further, because no aquatic habitat is present within the Residential Development Area and work associated with the fire access road, trails, and vegetation management activities would avoid stream habitats, the Project would not interfere with the movement of any resident or migratory fish. Because Project implementation would not substantially interfere with wildlife movement, this impact would be ***less than significant***.

Bird Collisions

Impact Bio-12: **Bird Collisions**. While the proposed residential development would add structures that could present a risk of bird collisions as they travel across the site between surrounding habitats, the specific design of the proposed structures, including the lack of extensive glazing elements, would minimize this risk below levels where it could substantially impact sensitive species. This is a ***less than significant*** impact.

Development of the proposed Project would result in the construction of 30 two-story buildings. Glass windows and building facades have the potential to result in injury or mortality of birds due to collisions with these surfaces. Because birds do not perceive glass as an obstruction the way humans do, they may collide with glass when the sky or vegetation is reflected in glass (e.g., they see the glass as sky or vegetated areas); when transparent windows allow birds to perceive an unobstructed flight route through the glass (such as at corners); and when the combination of transparent glass and interior vegetation (such as in planted atria) results in attempts by birds to fly through glass to reach that vegetation. These risks are highest for buildings in or near areas of high avian activity or movement, such as migratory corridors, large open spaces, large water bodies, and riparian habitats.

Currently, terrestrial land uses and habitat conditions within and adjacent to the Residential Development Area are relatively degraded, but the scattered trees and shrubs provide foraging, nesting, and roosting habitat for a variety of locally-common breeding birds and wintering birds, and the undeveloped natural habitat on the remainder of the site supports a variety of locally-common breeding and wintering species that use oak woodland and rural habitats in the area. Based on a review of the proposed site plans and building renderings, the proposed buildings would primarily support non-glass exterior walls, with a small number of windows, in a variety of sizes, incorporated on both levels and on each side of the structures. In general, the buildings are designed to keep with the wooded nature of the site and do not include extensive glass that could cause bird collisions. Although birds may occasionally collide with windows on the proposed residential structures, the frequency and overall number of such collisions would be low due to the very limited extent of glazing. The birds that would be impacted are expected to consist primarily of locally resident species that are regionally abundant. Therefore, the Project would not result in a significant impact on birds due to collisions with the new residential buildings (***less than significant***).

Nursery Sites and Nesting Birds

Impact Bio-13: **Disturbance of Nesting Birds**. The removal of trees and shrubs during the February 1 to August 1 breeding season could result in mortality of nesting avian species if they are present. This could include but is not limited to species of special concern, which could also be disturbed when they are wintering at the site, outside of breeding season. This impact is ***less than significant with mitigation***.

Disturbance related to construction of the Residential Development Area, fire access road, and hiking/equestrian trails, and vegetation management activities during the avian breeding season (February 1 through August 31) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests located on or near the construction or vegetation management areas.

While the habitats in and adjacent to the Residential Development Area represent a very small proportion of the habitats that support these species regionally and they are relatively degraded, the habitats in the larger portion of the site are more natural and represent a larger proportion of habitats that are used by local breeding species. Still, all species of birds currently using the Residential Development Area are expected to nest and forage or continue these activities on the larger portion of the Project site after the Project is completed because this habitat would still be available, even if modified by vegetation management activities. Furthermore, some species may continue to nest on the developed residential portion of the site, depending on how much habitat is left intact or what landscaping vegetation is provided. Nevertheless, in the absence of mitigation measures, the number of active nests of birds that could be impacted would constitute a significant impact under CEQA. Furthermore, all native bird species are protected from direct take by federal and state statutes (see Regulatory Setting section).

Mitigation Measures

Bio-13a: **Nesting Bird Avoidance, Substrate Pre-removal, Pre-activity Surveys, and Buffers.** The applicant shall conduct or include in work contracts the following measures related to nesting birds for construction and vegetation management activities:

i. To the extent feasible, construction and vegetation management activities should be scheduled to avoid the nesting season (February 1 to August 31). If these activities are scheduled to take place outside the nesting season, all impacts on nesting birds protected under the MBTA and California Fish and Game Code shall be avoided.

ii. If construction of the residential development, fire access road, or trails would not be initiated until after the start of the nesting season, all potential nesting substrates (e.g., bushes, trees, grasses, and other vegetation) that are scheduled to be removed by these project features may be removed prior to the start of the nesting season (e.g., prior to February 1). This would preclude the initiation of nests in this vegetation, and prevent the potential delay of the project construction due to the presence of active nests in these substrates.

iii. If it is not possible to schedule construction or vegetation management activities between September 1 and January 31 then pre-activity surveys for nesting birds should be conducted by a qualified ornithologist to ensure that no nests shall be disturbed during project implementation. We recommend that

these surveys be conducted no more than seven days prior to the initiation of all project activities. During this survey, the ornithologist shall inspect all trees and other potential nesting habitats (e.g., shrubs, ruderal grasslands, trees, horse paddocks) in and immediately adjacent to the impact areas for nests.

iv. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist shall determine the extent of a construction- or disturbance-free buffer zone to be established around the nest (typically 300 feet for raptors and 100 feet for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code shall be disturbed during Project implementation.

Bio-13b: **Maintain Nesting Substrate during Vegetation Management**. To the extent feasible, maintain a variety of tree, shrub, and herbaceous nesting substrates during vegetation management activities. This would involve maintaining (1) plant species diversity, and structural and age class diversity to accommodate a variety of tree-nesting species, (2) islands or scattered locations of live and dead or dying trees that support nest cavity habitat, and (3) islands or scattered locations supporting moderately dense pockets of shrubs, and other low-lying vegetation for shrub and ground-nesting species.

With nesting season avoidance, pre-removal of substrate in construction areas prior to mating season, pre-activity surveys for nesting birds, and buffers from active nests as appropriate, as outlined in Mitigation Measure Bio-13a, as well as maintaining a variety of nesting substrate during ongoing vegetation management activities as detailed in Mitigation Measure Bio-13b, the Project's impact related to disturbance of nesting birds would be reduced to ***less than significant***.

Disturbance of nesting Pallid Bat maternity roosts is addressed under Impact and Mitigation Measure Bio-6. As discussed under the Special-Status Animals section, no other species are expected to rely on the site as a nursery site and there would be no other significant impacts in this respect.

CONFLICT WITH LOCAL BIOLOGICAL POLICIES

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

Impact Bio-14: **Tree Removal**. The proposed development as well as vegetation management activities would result in the removal of an unknown but substantial number of trees, some of which may qualify as "Significant Trees" under the Town's Municipal Code. However, the applicant is required to comply with the Town's regulations, including the need for permits and payment of fees as appropriate and would therefore not conflict with local policies. This is a ***less than significant*** impact.

Per the Town of Portola Valley Municipal Code 15.12.275: Protection of Significant Trees, permits from the Town's planning department and payment of a fee are required for the removal of any trees that meet the definition of a significant tree (see Regulatory Setting above).

The total number of trees that would be removed or pruned, as well as the total number of "significant trees" that would be impacted, has not yet been determined, and cannot be known with certainty until the VMP is implemented and Stanford is able to determine precisely where vegetation management involving trees (e.g., removal or pruning) is necessary. It is estimated that the density of trees on the

Project site is approximately 70-80 per acre. Only a subset of these trees meet the Town's definition of a "significant tree", and only a subset of all trees, and significant trees, would be removed or pruned.

The Project would be required to comply with the Town's significant trees ordinance, including obtaining a permit from the Town to remove protected trees, paying any applicable fees, and complying with permit conditions (which may include planting appropriate native replacement trees). Because the applicant would comply with the Town's tree ordinance, potential impacts related to conflict with local policies or ordinances protecting heritage trees would be ***less than significant***.

CONFLICT WITH HABITAT CONSERVATION PLAN OR NATURAL COMMUNITY CONSERVATION PLAN

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

The Project site is not located within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Although Stanford University has a Habitat Conservation Plan for activities on portions of its lands, the Stanford Wedge Project site is located outside the Habitat Conservation Plan boundary. Therefore, the Project would not have the potential to conflict with any such plans. There would be ***no impact*** with respect to conflict with conservation plans.

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CULTURAL AND TRIBAL CULTURAL RESOURCES

INTRODUCTION

This chapter describes the existing cultural and tribal cultural resources setting at the Project site and describes whether implementation of the Project would cause a substantial adverse change in the significance of such resources.

This chapter utilizes information from the following reports prepared for this Project or analysis:

- PaleoWest Archaeology, Archaeological Resources Technical Report, Stanford Wedge Housing Development, April 23, 2021, prepared for this analysis (included in Appendix E)

On February 22, 2020, PaleoWest archaeologists Ashley Schmutzler and Nathan Ramos conducted an intensive pedestrian survey of the Residential Development Area. A survey of the trails was conducted on September 25, 2020. A complete pedestrian survey of the remainder of the full Project site was conducted on January 27, 2022.

Other documents and studies referenced during preparation of the above report and in this chapter include the following sources. A full list of citations is included in the above report.

- Town of Portola Valley, General Plan, Historic Element, last amended April 22, 1998
- A records search was conducted at the Northwest Information Center (NWIC), at Sonoma State University, for the Project (File No. 19-1233)
- A search of the Sacred Lands File from the Native American Heritage Commission (NAHC)
- Basin Research Associates, Cultural Resources Assessment Report Stanford Property (Horsehead), Town of Portola Valley, San Mateo County. Basin Research Associates, San Leandro, CA, 2019.
- Basin Research Associates, Cultural Resources Services – CEQA Level Cultural Resources Assessment Stanford Property (Horsehead), Town of Portola Valley, San Mateo County, 2020.
- Stanford University Heritage Services, Alpine Boulder Outcrop Survey (2020), Survey to Relocate Stone Circle Site in Portola Valley (2020), Portola Terrace Geological Trench Monitoring (2021), Quarry Survey (2102)

KNOWN CONCERNS

A community member expressed concern of the possibility of tribal resources and/or remains at the site. Additional coordination with the Native American Heritage Commission and local tribal contacts

was performed in response to these concerns as detailed in this chapter and the attached report (Appendix E).

ENVIRONMENTAL SETTING

The Town of Portola Valley is part of the greater San Francisco Bay Area, and specifically within the Santa Clara Valley. The areas surrounding San Francisco Bay were some of the most densely populated by the indigenous populations of North America. A summary of the environmental setting is included below and additional information can be found in Appendix E.

ETHNOGRAHIC SETTING

The Project site is within the region occupied by the Ohlone or Costanoan group of Native Americans at the time of historic contact with Europeans. Although the term Costanoan is derived from the Spanish word Costaños, or "coast people," its application as a means of identifying this population is based in linguistics. The Costanoans spoke a language now considered one of the major subdivisions of the Miwok-Costanoan, which belonged to the Utian family within the Penutian language stock. Costanoan actually designates a family of eight languages.

Tribal groups occupying the area from the Pacific Coast to the Diablo Range and from San Francisco to Point Sur spoke the other seven languages of the Costanoan family. Modern descendants of the Costanoan prefer to be known as Ohlone. The name Ohlone is derived from the Oljon group, which occupied the San Gregorio watershed in San Mateo County. The two terms (Costanoan and Ohlone) are used interchangeably in much of the ethnographic literature.

On the basis of linguistic evidence, it has been suggested that the ancestors of the Ohlone arrived in the San Francisco Bay area about A.D. 500, having moved south and west from the Sacramento-San Joaquin Delta. The ancestral Ohlone displaced speakers of a Hokan language and were probably the producers of the artifact assemblages that constitute the Augustine Pattern previously described.

Although linguistically linked as a family, the eight Costanoan languages actually comprised a continuum in which neighboring groups could probably understand each other. However, beyond neighborhood boundaries, each group's language was reportedly unrecognizable to the other. Each of the eight language groups was subdivided into smaller village complexes or tribal groups. These groups were independent political entities, each occupying specific territories defined by physiographic features. Each group controlled access to the natural resources of its territory, which also included one or more permanent villages and numerous smaller campsites used as needed during a seasonal round of resource exploitation. Chochenyo or East Bay Costanoan was the language spoken by the estimated 2,000 people who occupied the "east shore of San Francisco Bay between Richmond and Mission San Jose, and probably also in the Livermore Valley".

A chief, who inherited the position patrilineally and could be either a woman or man, provided leadership. The chief and a council of elders served mainly as community advisers. Specific responsibility for feeding visitors, providing for the impoverished and directing ceremonies, hunting, fishing, and gathering fell to the chief. Only during warfare was the chief's role as absolute leader recognized by group members.

Extended families lived in domed structures thatched with tule, grass, wild alfalfa, or ferns. Semi-subterranean sweathouses were built into pits excavated in stream banks and covered with a structure against the bank. The tule raft, propelled by double-bladed paddles, was used to navigate across San Francisco Bay.

Mussels were an important staple in the Ohlone diet, as were acorns of the coast live oak, valley oak, tanbark oak, and California black oak. Seeds and berries, roots and grasses, and the meat of deer, elk, grizzly, rabbit, and squirrel formed the Ohlone diet. Careful management of the land through controlled burning served to ensure a plentiful, reliable source of all these foods.

The Ohlone usually cremated a corpse immediately upon death but, if there were no relatives to gather wood for the funeral pyre, interment occurred. Mortuary goods comprised most of the personal belongings of the deceased.

The arrival of the Spanish in 1775 led to a rapid and major reduction in native California populations. Diseases, declining birth rates, and the effects of the mission system served to largely eradicate the aboriginal life ways. Brought into the missions, the surviving Ohlone, along with the Esselen, Yokuts, and Miwok, were transformed from hunters and gatherers into agricultural laborers. Following secularization of the mission system in the 1830s, numerous ranchos were established in the 1840s. Generally, the few Native Americans who remained were then forced, by necessity, to work on the ranchos.

In the 1990s, some Ohlone groups (e.g., the Muwekma, Amah, and Esselen further south) submitted petitions for federal recognition. Many Ohlone are active in preserving and reviving elements of their traditional culture and are active participants in the monitoring and excavation of archaeological sites.

HISTORICAL SETTING

Spanish Exploration and Colonization

The 1769 expedition led by Captain Gaspar de Portolá initiated contact between Spanish explorers and the native people of the Bay region. After a mission and settlement had been established at Monterey, parties began exploring north from a new base of operations.

The first mission in the San Francisco Bay Area was established in San Francisco with the completion of Mission San Francisco de Asis (Mission Dolores) in 1776. Mission Santa Clara de Asis, located forty miles south of San Francisco, was established just a year later. Mission lands were used primarily for the cultivation of wheat, corn, peas, beans, hemp, flax, and linseed, and for grazing cattle, horses, sheep, pigs, goats, and mules. In addition, mission lands were used for growing garden vegetables and orchard trees such as peaches, apricots, apples, pears, and figs.

The missions relied on the Native American population both as their source of Christian converts and their primary source of labor. Though some Native Americans gave up their traditional way of life by choice, many were coerced, manipulated, and forced into the missions. Soldiers stationed at the Presidio were called upon to both punish those Native American people the priests could not control through more diplomatic means, as well as to retrieve people who attempted to return to their native villages. By the mid-1790s, traditional Costanoan lifeways had been significantly disrupted, and diseases introduced by the early expeditions and missionaries, and the contagions associated with the forced communal life at the missions, resulted in the death of many local peoples. It is estimated that by 1832, the Costanoan population had been reduced from a high of over 10,000 in 1770 to less than 2,000.

Mexican Rule and Secularization of the Mission System

Following Mexican independence from Spain in 1821, control of Spain's North American colonial outposts was ceded to the Republic of Mexico. Alta California became a province of the new republic

and under Mexican rule Californians could now trade with foreigners and, further, foreigners could own property once they had been naturalized and converted to Catholicism. These new regulations made California more attractive to permanent settlers and, not surprisingly, the numbers of Mexican and non-Mexican born immigrants continued to increase during this period.

The process of secularization began in California in 1834. Very few Native American people received land as a result of secularization. In the end, former mission lands were parceled out in large land grants, and just as they had done in the missions, Native Americans served as a source of labor for the new landowners. Fifty-eight percent of land grants were made to Mexican citizens, while forty-two percent were made to non-Mexicans who had become naturalized and baptized, gaining access to property in the process.

Throughout the state, this meant that the agricultural economy that was once limited to the missions and pueblos quickly encompassed a growing number of cattle ranches run by men interested primarily in the hide and tallow trade. The current Residential Development Area was entirely within the 8,418-acre area of Rancho Rincon de San Francisquito. In 1841, California Governor Alvarado granted the rancho to Jose Pena, who had been a resident of the area since 1824.

The Mexican American War and the Gold Rush Lead to Statehood

As overland migration of American settlers from the east into Alta California became more common in the 1840s, relations between the United States and Mexico became strained, with Mexico fearing American encroachment into their territories. The political situation continued to deteriorate and twice Mexico rejected an American offer to purchase California. In 1836, a revolution in Texas drove out the Mexican Government and created an independent republic. This republic was annexed to the United States in 1845, causing a rift in the diplomatic relations of the two nations. The following year Mexico and the United States were at war. American attempts to seize control of California quickly ensued, and within two months, California was conquered by the United States. Skirmishes between the two sides continued until California was officially annexed to the United States in 1848.

Shortly after, the discovery of gold in the Sierra Nevada ignited a major population increase in the northern half of California as immigrants poured into the territory seeking gold or the opportunities inherent in producing goods or services for miners. Prior to the Gold Rush, San Francisco was a small settlement with an approximate population of 800 inhabitants. With the discovery of gold and the sudden influx of thousands of optimistic gold seekers, a city of canvas and wood sprang up as men and goods streamed into the once isolated outpost.

The Final Decades of the Nineteenth Century

Increased settlement after statehood and the division of many of the large ranchos led to a shift from the ranching economy favored by Spanish and Mexican landholders to an economy based at first on cattle and grain agriculture, such as wheat, then increasingly on orchard and specialty vegetable agriculture.

Although today the Project site is relatively near a major transportation corridor, nineteenth century residents were somewhat isolated from early population centers such as San Francisco due to the region's topography as well as the primitive state of early transportation. Prior to the establishment of railroads, residents relied on ferries to cross the bay and stages and horse cars to navigate the often-difficult roadways.

These early travel corridors were firmly established when railroad lines were constructed throughout the region. Near the Project site, the Mayfield farm and then the Mayfield railroad depot encouraged early commerce and residential development.

In 1852, a lawyer by the name of Leland Stanford moved from New York to Sacramento. He prospered as a miner, a merchant, and eventually as the President and co-founder of the Central Pacific Railroad, which allowed him to gain political office as Governor. Following his tenure as governor, he concentrated his efforts in successfully making the Central Pacific first transcontinental railroad. This company was later merged with Southern Pacific Railroad. In 1876, Stanford purchased 650 acres of the former the Rancho San Francisquito where he established a farm dedicated to breeding pedigree racehorses, which he named Palo Alto. Stanford continued to purchase lands adjacent to, and in the general vicinity of, "The Farm" which eventually totaled more than 8,100 acres over 110 lots in Santa Clara and San Mateo counties. The Residential Development Area is in wedged-shaped Lot 75 (Project site) which measures approximately 75.4-acres and is the southernmost lot of the Stanford landholdings. In 1884, Stanford's only son died at the age of sixteen. As a memorial to him, Stanford established a university on the 8,100 acres, which opened for classes in 1891.

Twentieth Century Expansion

In the early decades of the twentieth century, the waterfront communities of the Peninsula became increasingly connected to both San Francisco and the East Bay. El Camino became the first paved highway in the vicinity of the Project site, and in the 1930s, the stretch of the Bayshore Highway between Redwood City and the Santa Clara Valley was completed. By 1930, the Dumbarton Bridge as well as the San Mateo Bridge linked communities on both sides of the southern portion of San Francisco Bay.

Although there had been a flood of immigrants into California during the Great Depression, the influx during World War II was substantially greater. The defense industry expanded and cities surrounding the Bay developed rapidly.

California became an important location for installations of all branches of the United States military during the war. Largely because a portion of the war was fought in the Pacific theater, and the attack on Pearl Harbor made California a strategic location, the Army, Air Force, Navy, and Marines used the human and natural resources of the Bay Area for national defense. As well as the industrial facilities along the Bayshore, the Alameda Naval Air Station, the Oakland Army Base, Moffett Field, and local Army training camps drew civilian and military families to the communities surrounding the Project site.

In addition to drawing manpower, the facilities established during the war effort spurred industrial and high-tech research that laid the foundation for today's economy that is increasingly reliant on the innovation of highly skilled workers.

A review of the historical topographic maps and historic aerials that depict the Project area was undertaken. The Project site is seen as undeveloped in aerial surveys from 1930 and 1948. The 1965 and 1960 aerials show one large building of unknown purpose within the Residential Development Area with no associated outbuildings. By a 1968 aerial, the building is no longer present. The 1980 and 1982 aerials depict the Project area as very wooded with no structures present. The was subsequently developed with the Alpine Rock Ranch, a horse boarding facility with stables, which currently occupies the Residential Development Area.

REGULATORY SETTING

CALIFORNIA REGISTER OF HISTORIC RESOURCES

In considering impact significance under CEQA, the significance of the resource itself must first be determined. At the state level, consideration of significance as an "important archaeological resource" is measured by cultural resource provisions considered under CEQA Sections 15064.5 and 15126.4, and the criteria regarding resource eligibility for listing on the California Register of Historic Resources (CRHR). Generally CEQA, applies to any resource listed in or determined to be eligible for listing in the California Register of Historic Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest. In addition, resources that have been identified in a local historical resources inventory meeting the requirements of Pub. Res. Code section 5024.1(g) are presumed to be historically or culturally significant. Finally ahistorical resource is considered significant if it meets the criteria for listing on the CRHR. These criteria are set forth in CEQA Section 15064.5, and defined as any historical resource that:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(2) Is associated with lives of persons important in our past;

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under Public Resources Code (PRC) Section 5097.98.

Impacts to "unique archaeological resources" and "unique paleontological resources" are also considered under CEQA, as described under PRC Section 21083.2. A unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge there is a high probability that it meets one of the following criteria:

(a) The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information;

(b) The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or

(c) The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource is an archaeological artifact, object, or site that does not meet the above criteria. Impacts to non-unique archaeological resources and resources that do not qualify for listing on the CRHR receive no further consideration under CEQA.

LOCAL HISTORICAL RESOURCES

The historic element of Portola Valley's General Plan identifies principal historic resources and sets objectives for their preservation, enhancement and maintenance. Historic resources of the town are grouped into five categories. These categories are defined as follows: (1) Structure: Anything constructed or erected, the use of which requires permanent or temporary location on or in the ground, including, but without being limited to, buildings, bridges, fences, gates, gazebos, swimming pools, towers and walls. (2) Site: Any parcel or portion of a parcel. (3) Trail: A marked or unmarked track, course or path, which is or was followed with regularity. (4) Road: Any open way, paved or unpaved, for vehicles, persons and/or animals to travel, or on which they have traveled, with regularity. (5) Natural feature: Any tree, plant life, geographical or geological site or feature.[1] There are no historic resources in the Project site identified in the historic element.

TRIBAL CULTURAL RESOURCES (ASSEMBLY BILL 52 [AB 52])

In September 2014, the California Legislature passed AB 52, which added provisions to the PRC regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. AB 52 now requires lead agencies to analyze project impacts on "tribal cultural resources" separately from archaeological resources (PRC Section 21074; 21083.09). The bill added a definition of "tribal cultural resources" in a new PRC Section 21074, and added requirements for lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Section 21080.3.1, 21080.3.2, 21082.3). Specifically, PRC Section 21084.3 states:

a. Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

b. If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

    1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

    2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

        A. Protecting the cultural character and integrity of the resource.

        B. Protecting the traditional use of the resource.

        C. Protecting the confidentiality of the resource.

    3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

    4) Protecting the resource.

[1] Town of Portola Valley, General Plan, Historic Element, last amended April 22, 1998.

Finally, as required under AB 52 the Governor's Office of Planning and Research (OPR) updated Appendix G of the CEQA Guidelines to provide specific criteria regarding impacts to tribal cultural resources (PRC Section 21083.09).

IMPACTS AND MITIGATION MEASURES

CRITERIA OF IMPACT SIGNIFICANCE

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, a significant impact will occur if the proposed Project would:

Cultural Resources:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Public Resources Code Section 15064.5;
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Public Resources Code Section 15064.5;
3. Disturb any human remains, including those interred outside of formal cemeteries.

Tribal Cultural Resources:

4. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
    a. Listed or eligible for listing in the California Register of Historical Resources, or included in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
    b. A resource determined by a 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.

Under CEQA a "substantial adverse change" in the significance of a cultural resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. CEQA Guidelines Section 15064.5(b)(1).

HISTORICAL AND ARCHAEOLOGICAL RESOURCES AND HUMAN REMAINS

1., 2. and 3. Would the project cause a substantial adverse change in the significance of a historical and/or archaeological resource or disturb any human remains?

The NWIC records search included a review of cultural resources studies and recorded cultural resources within the Project site and a 1/4-mile radius (study area) of the Project site.

In addition to consideration of records searches and surveys by others, PaleoWest conducted walking field surveys in 4 or 10 meter across the entire Project site, as included in more detail in the full report

(Appendix E). Exposed ground surface within the survey area was examined for the presence of historic or prehistoric site indicators. Historic site indicators include, but are not limited to foundations, fence lines, ditches, standing buildings, objects or structures such as sheds, or concentrations of materials at least 50 years in age, such as domestic refuse (glass bottles, ceramics, toys, buttons or leather shoes), or refuse from other pursuits such as agriculture (e.g., metal tanks, farm machinery parts, horse shoes) or structural materials (e.g., nails, glass window panes, corrugated metal, wood posts or planks, metal pipes and fittings, etc.). Prehistoric site indicators include but are not limited to areas of darker soil with concentrations of ash, charcoal, bits of animal bone (burned or unburned), shell, flaked stone, ground stone, or even human bone.

Table 8.1 lists the previously-recorded sites (2) and newly discovered sites (2) within the Project site and previously-recorded sites outside the Project site but within 1/4 mile (3).

Table 8.1: Cultural Resources On or Within 1/4-mile of the Project Site

Primary/Trinomial Number	Resource Name	Age	Recorder
On the Project Site			
P-41-000297/CA-SMA-293	Stone Circle Site	Prehistoric	1988 (Barb Bocek, Bill Miller, Stanford University)
N/A	Wedge Quarry/ Bedrock Mortars	Multi-component	2021 (L. Jones, M. Ramos Barajas, T. Wilcox, T.D. Wilcox. Stanford University)
19-647-01	Historic Refuse Scatter	Historic	New site consisting of historic bottles and cans
19-647-02	Historic Refuse Scatter	Historic	New site consisting of historic bottles
Within ¼ mile, but not on the Project site			
P-41-002653	Utility Pole #67/3420	Historic	2016 (Terry Brejla, Foothill Resources, Ltd.)
P-43-000557/ CA-SCL-562	Radar 515 B	Prehistoric	1984 (Bert Gerow, James Rutherford, [none]); 1988 (Barb Bocek, Stanford University); 2010 (D. Daly, L. Jones, K. Reinhart, K. Turner, C. Zuniga, Stanford University) 2010 (D. Daly, L. Jones, K. Turner, Stanford University)
C-439	Unidentified	Unidentified	Possibly recorded by Bert Gerow

Source: PaleoWest Archaeological Resources Technical Report (Appendix E)

The following resources shown in **Table 8.1** are not significant resources and/or do not have the potential to be impacted by the Project:

Off-Site Resources

Resource P-41-002653 is a utility/telephone pole that was erected in 1967. This site is not located on the Project site and would not be disturbed by the proposed development.

Prehistoric resource P-43-000577 is located on a large sloping hillside of bedrock, and includes three shallow bedrock mortars. This site is not located on the Project site and would not be disturbed by the proposed development.

One additional site with no information except UTM coordinates is present within the records search buffer. This site is not located on the Project site and would not be disturbed by the proposed development.

19-647-01 (Historic Refuse Scatter)

Site 19-647-01 is an historic refuse scatter in the southeast portion of the site consisting of six amber glass bottles, one olive green glass bottle, one church key open beverage can, and the remains of a square gas can. Dense vegetation in the area extended 1.0–1.5 feet, covering the resources.

The artifacts recorded as part of 19-647-01 are part of a historic refuse scatter found near Alpine Road. The amber bottles feature maker's marks from Owens-Illinois Glass Company and the Thatcher Glass Manufacturing Company. Both marks date the bottles between 1960 and 1985. The olive-green bottle base has a V E maker's mark, which could be associated with Vichy Etat or Vetreria Etrusca; both of these glass manufacturers are still in production. These refuse scatters are probably associated with Alpine Road trash transit between 1960 and 1980. 19-647-01 does not appear to be associated with events that have made a significant contribution to the broad patterns of our history. Therefore, PaleoWest recommends site 19-647-01 not eligible for the CRHR under Criterion 1.

19-647-01 cannot be associated with a particular individual or be considered significant to the lives or a best resource with which to represent the life of a particular individual. Therefore, PaleoWest recommends site 19-647-01 not eligible for the CRHR under Criterion 2.

19-647-01 is composed of a single feature that is likely the result of depositional activity associated with ongoing trash transit between 1960–1980 and therefore it does not meet Criterion 3 for embodying the distinctive characteristics of a type, period, and method of construction, or as the work of an important creative individual, or as having high artistic value. Therefore, PaleoWest recommends site 19-647-01 not eligible for listing in the CRHR under Criterion 3.

The recovered materials are not connected to the lives of any particular known individual and do not offer unique insight into the life in the area, being extremely limited in their information potential. Therefore, PaleoWest recommends site 19-647-01 not eligible for listing in the CRHR under Criterion 4.

PaleoWest recommends site 19-647-01 not eligible for the CRHR, not a significant resource under CEQA, and therefore that no additional management recommendations are necessary.

19-647-02 (Historic Refuse Scatter)

Site 19-647-02 is an historic refuse scatter along the east side of the Project site consisting of two clear glass bottles, two amber glass bottles, and one green glass bottle. The resource was found on the northern slope at the bottom of a hill at the base of a clearing. The resource was concentrated around a California buckeye tree and was surrounded by oak trees, poison oak, grass, ferns, and other buckeye trees.

The artifacts recorded as part of 19-647-02 are part of an individual historic refuse scatter found near Alpine Road. The resource consists of two amber glass bottles, two green glass bottles, and one clear

glass bottle. The resource is concentrated around a California buckeye tree and is covered by tall grass and other vegetation. Ground visibility is between 5–10 percent. The surrounding landscape consists of tall grass, oak trees, California buckeye trees, poison oak, and ferns. Like 19-647-01, the refuse scatter is probably associated with Alpine Road trash transit between 1960 and 1980. Site 19-647-02 does not appear to be associated with events that have made a significant contribution to the broad patterns of our history. Therefore, PaleoWest recommends site 19-647-02 not eligible for the CRHR under Criterion 1.

Site 19-647-02 cannot be associated with a particular individual or be considered significant to the lives or a best resource with which to represent the life of a particular individual. Therefore, PaleoWest recommends site 19-647-02 not eligible for the CRHR under Criterion 2.

Site 19-647-02 is composed of a singular feature that is the result of depositional activity likely associated with ongoing trash transit between 1960–1980 and therefore it does not meet Criterion 3 for embodying the distinctive characteristics of a type, period, and method of construction, or as the work of an important creative individual, or as having high artistic value. Therefore, PaleoWest recommends site 19-647-02 not eligible for listing in the CRHR under Criterion 3.

The recovered materials are not connected to the lives of any particular known individual and do not offer unique insight into the life in the area, being extremely limited in their information potential. Therefore, PaleoWest recommends site 19-647-02 not eligible for listing in the CRHR under Criterion 4.

PaleoWest recommends site 19-647-02 not eligible for the CRHR, not a significant resource under CEQA, and therefore that no additional management recommendations are necessary.

P-43-000557 (Precontact Habitation Site)

Impact Cultural-1: Potential Disturbance of Resource P-43-000557 (Precontact Habitation Site). While there is no evidence that Resource P-43-000557 is located within the Project site, the known location is close by (43 meters east of the Residential Development Area). Due to the underlying soils and depositional conditions within the Residential Development Area, it is considered possible that subsurface deposits from this resource could extend into the Residential Development Area and adjacent Alpine Road and if so, could be disturbed by Project construction activities. This impact is ***less than significant with mitigation***.

P-43-000557 is a prehistoric occupational site with a high density of habitation debris and is located only 43 meters east of the Residential Development Area. Cultural materials include fire cracked rock, mortars, pestles, chert and obsidian flaked stone and core fragments, a hearth, shell fragments, burned faunal bone, and a human burial. Later survey efforts placed the burial within the contiguous Los Trancos Site (SCL-634). The P-43-000557 surficial site is thought to have subsurface components.

Geological trenching within the Residential Development Area was performed by the Project sponsor to explore the potential for fault traces at the site (see Chapter 9: Geology and Soils), which provided an opportunity for archaeological monitoring. No buried cultural deposits were identified during the geological trenching. However, underlying soils and depositional conditions within the Residential Development Area coupled with the presence of precontact buried cultural deposits east of the creek indicate a moderate sensitivity for buried cultural resources within the Residential Development Area. Therefore, this proposed development has the potential to impact previously unidentified archeological

resources during ground disturbance associated with Residential Development Area construction, including utility installation along Alpine Road.

Mitigation Measure

Cultural-1: Residential Development Area Archaeological Monitoring. Prior to the issuance of a grading permit in the Residential Development Area and adjacent Alpine Road, the project sponsors shall obtain the services of a qualified archaeological consultant (meeting the Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology (NPS 1983)) to observe all project-related ground disturbing activities.

In accordance with CEQA Guideline §15064.5 (f), should any previously unknown prehistoric resources (including but not limited to charcoal, obsidian or chert flakes, grinding bowls, shell fragments, bone, or pockets of dark, friable soils) and/or historic-period resources (including but not limited to glass, metal, ceramics, wood, privies, trash deposits or similar debris) be discovered in the Residential Development Area during grading, trenching, or other on-site excavation(s), earthwork within 25 feet of these materials shall be stopped until a qualified professional archaeologist has an opportunity to evaluate the potential significance of the find and suggest appropriate mitigation(s), as determined necessary to protect the resource.

If feasible, the location of earthwork shall be modified to protect the resource from damaging effects through avoidance.

If avoidance is not feasible, a qualified archaeologist shall conduct data recovery in the area of potential adverse effect in accordance with an approved Archaeological Data Recovery Plan (ADRP)

Once the site has been properly tested, subject to data recovery, or preserved to the satisfaction of the professional archaeologist in compliance with CEQA Guideline §15064.5, the site can be further developed.

Archaeological monitoring may be reduced or halted at the discretion of the monitor, and in consultation with the Town, as warranted by conditions such as encountering bedrock, ground disturbance is occurring in fill, or negative findings during the first 60 percent of rough grading. If monitoring is reduced to spot-checking, spot checking shall occur when ground-disturbance moves to a new location within the site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

Implementation of mitigation measure Cultural-1 would reduce potential impacts to Resource P-43-000557 (Precontact Habitation Site) or any previously unknown archeological resources within the Residential Development Area and adjacent Alpine Road to a level of ***less than significant with mitigation***.

<u>P-41-000297 (Stone Circle) and the Wedge Quarry/Bedrock Mortars Site</u>

Impact Cultural-2: Potential Disturbance of P-41-000297 (Stone Circle) and the Wedge Quarry/Bedrock Mortars Site within the Vegetation Management Area. The "stone circle site" (P-41-000297) and the Precontact component of the Wedge Quarry/Bedrock Mortars site would not be directly impacted by construction associated with the Residential Development Area, trails, or fire access road, but may be affected by activities related to the Stanford Wedge Property VMP. The VMP describes four treatment activities to be undertaken at the Project site: steep

slope mechanical treatment with manual support, mechanical treatment, manual treatment, and prescribed herbivory. As described, several of these treatment activities use heavy machinery to assist in vegetation management, which may negatively impact surface or near-surface archaeological resources. This impact is ***less than significant with mitigation***.

P-41-000297 (Stone Circle)

Resource P-41-000297 (CA-SMA-293) is a prehistoric lithic hearth site, comprised of 12 large stones and some larger boulders; in addition to the hearth, there were two pieces of flaked stone found on the surface. Multiple attempts to find this resource in the listed location have been unsuccessful. The presence of dense vegetation, including sections of thick grasses, shrubbery and tree cover led to a ground visibility of less than 10 percent in the previously mapped site location. Therefore, the feature may be present, but buried by soil or obscured by dense vegetation. Or the incorrect location could have been mapped. On May 22, 2020, Basin Research Associates identified a similar rock ring in a different location but did not provide updated GPS coordinates. Personal communication with Dr. Laura Jones of Stanford Heritage Services indicates they were not positive that they had located the stone circle site. PaleoWest did not find a rock ring in either location during the 2022 survey of the area.

As currently designed, resource P-41-000297 (the stone circle site) would not be directly impacted by the Residential Development Area or proposed fire access road or trail construction but may be affected by activities related to vegetation management. Although a formal significance evaluation of this resources was not undertaken as part of the current cultural resource assessment because it could not be found, existing archival data indicate that the stone circle, and the associated artifacts, need to be evaluated for listing in the CRHR. For the purposes of this undertaking, it is assumed that the resource is eligible for listing in CRHR and the area surrounding the original mapped location of the stone circle will be considered as a Historic Period resource.

The Wedge Quarry/Bedrock Mortars Site

The Wedge Quarry/Bedrock Mortars site is a mixed-component site with the remnants of a historic (ca. 1925–1930) sandstone quarry and one bedrock milling feature with eight mortars. PaleoWest visited this site in 2022 around the perimeter of a ravine, which consists of steel anchor cables wrapped around trees, the large wooden post (approximately 12 in × 12 in × 15 feet), quarried rock faces, quarried blocks of sandstone, oak trees, poison oak, tall grass, weeds, and moss. Bedrock mortars were located within the quarry at the top of the ravine. The bedrock mortars were on top of a large (approximately 11 feet long × 7 feet wide) sandstone boulder and had eight distinct mortars. The bedrock mortars were on the east side of a mountain slope in a cluster of boulders and overlooked a ravine bound by large sandstone boulders and thick vegetation around the perimeter. At the bottom of the bedrock mortar boulder was a large (approximately 5 feet wide × 20 feet long) cleared sandstone ledge.

The Wedge Quarry/Bedrock Mortars site was likely quarried between 1925 and 1930 and may have been used in the reconstruction of the Stanford University gates on Palm Drive following their collapse in the 1906 earthquake. The site includes a sandstone outcrop with quarry marks, abandoned quarried blocks, abandoned quarrying implements, and eight Native American bedrock mortars on a nearby upslope boulder. There are scattered features relating to the quarry activities conducted at the site such as hardware and infrastructure (steel cables, a very large wood post, and scattered fragments of metal machinery parts). The Wedge Quarry/Bedrock Mortars site does not appear to be associated with Precontact or Historic Period events that have made a significant contribution to the broad patterns of

our history. Therefore, PaleoWest recommends the Wedge Quarry/Bedrock Mortars site not eligible for the CRHR under Criterion 1.

The resource cannot be associated with a particular individual or be considered significant to the lives or a best resource with which to represent the life of a particular individual in the Precontact or historic periods. Therefore, PaleoWest recommends the Wedge Quarry/Bedrock Mortars site not eligible for the CRHR under Criterion 2.

The Wedge Quarry/Bedrock Mortars site is composed of features that are the result of general quarrying activities in the 1920s and 1930s and therefore it does not meet the NRHP under Criterion 3 for embodying the distinctive characteristics of a type, period, and method of construction, or as the work of an important creative individual, or as having high artistic value. Similarly, the Native American bedrock mortars are a common Precontact feature and not indicative of a distinctive type, period, method of construction, or work of high artistic value or important individual. Therefore, PaleoWest recommends the Wedge Quarry/Bedrock Mortars site not eligible for listing in the CRHR under Criterion 3.

The presence of eight Native American bedrock mortars on an uncommon high, steep rock formation at the Wedge Quarry/Bedrock Mortars site offers the potential to test hypotheses offered by the local Muwekma Ohlone Tribe that suggest bedrock mortars in these locations may have been used for purposes other than food preparation, such as preparation of medicine, paint, and ceremonial functions. Conversely, the data that may be obtained from further archaeological study of the Wedge Quarry would not contribute to the information already available in the archival record. Therefore, PaleoWest recommends the Wedge Quarry/Bedrock Mortars site eligible for listing in the CRHR under Criterion 4 with the Precontact bedrock mortar the only contributing component to the historical significance of the site. The historical quarry is a non-contributing component to the significance of the site and requires no further management.

The Wedge Quarry/Bedrock Mortars site would not be directly impacted by the Residential Development Area or proposed fire access road or trail construction, but may be affected by activities related to vegetation management.

Mitigation Measure

Cultural-2: **Vegetation Management Plan Archaeological Monitoring.** Prior to the implementation of the VMP, the Project sponsor shall hire a qualified archaeologist (meeting the Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology (NPS 1983)) to review all proposed activities and determine if those activities are in or near (within 50 feet) P-41-000297 and the precontact component of the Wedge Quarry/Bedrock Mortars site. If work is proposed at or within 50 feet of either of these sites, a qualified archaeologist will be required to accompany the VMP crew and prevent any work from occurring within 25 feet of the site.

Implementation of mitigation measure Cultural-2 would reduce potential impacts to P-41-000297 (Stone Circle) and the Wedge Quarry/Bedrock Mortars Site due to vegetation management activities to a level of ***less than significant with mitigation***.

Other Inadvertent Discoveries

Impact Cultural-3: **Disturbance of Previously Unidentified Cultural Resources or Human Remains.** While not anticipated, it is possible that previously unidentified historic

resources, archaeological resources, or human remains could be uncovered and disturbed during ground disturbing activities throughout all portions of the Project site. This impact is ***less than significant with mitigation***.

While no additional unidentified significant cultural or tribal cultural resources were found at the Project site, the following mitigation measures are proposed to address the unexpected presence of unidentified subsurface resources or remains.

Cultural-3a: **Halt Construction Activity, Evaluate Find and Implement Mitigation.** In the event that any previously unidentified cultural resource (historic / archaeological / paleontological / Native American) are uncovered during site preparation, excavation or other construction activity, all such activity shall cease until these resources have been evaluated by a qualified consultant and specific measures can be implemented to protect these resources in accordance with sections 21083.2 and 21084.1 of the California Public Resources Code.

Cultural-3b: **Halt Construction Activity, Evaluate Remains and Take Appropriate Action in Coordination with Native American Heritage Commission.** In the event that any human remains are uncovered during site preparation, excavation or other construction activity, all such activity shall cease until these resources have been evaluated by the County Coroner, and appropriate action taken in coordination with the Native American Heritage Commission, in accordance with section 7050.5 of the California Health and Safety Code or, if the remains are Native American, section 5097.98 of the California Public Resources Code.

Implementation of mitigation measures Cultural-3a and Cultural-3b would reduce the impacts associated with possible disturbance of unidentified historic resources, archaeological resources, or human remains at the Project site to a level of ***less than significant***.

TRIBAL CULTURAL RESOURCES

4. Would the project cause a substantial adverse change in the significance of a tribal cultural resource?

Impact Cultural-4: **Disturbance of Previously Unidentified Tribal Cultural Resources or Remains.** During earth-moving activities at the Project site, it is possible that previously unidentified tribal cultural resources or remains could be uncovered and disturbed. This is a ***potentially significant*** impact.

The NAHC was contacted to perform a search of the Sacred Lands File and provide a list of contacts for the Native American tribes historically associated with the area. The first request in February 2020 had a negative SLF result and a list of six tribal contacts. A follow-up request in March 2021 resulted in a positive SLF result and an additional two contacts on the list.

A positive SLF result means that a Native American group has notified the NAHC that sensitive Native American resources are located in the same quadrangle as the Project. A quadrangle is an area mapped by the United States Geological Survey, which covers between 49 and 70 square miles. A positive SLF result is not specific to the Project site and the NAHC recommends follow up with the tribes for any information that may be related to the subject site.

The Native American representatives from the NAHC lists were contacted by email and phone as detailed in the full report included as Appendix E, including a request for any information specific to

the Project site related to the positive SLF result. The tribal contacts did not request any factions at this time but noted possibility of inadvertent discovery and asked to be notified if anything was found during construction activities (see referenced measures below).

No other responses were received from the email messages and phone calls performed by PaleoWest for this analysis. Note that per State requirements, the Town also sent formal letters notifying the Native American contacts of the opportunity to request government-to-government consultation regarding the proposed Project. No requests for consultation or other responses to the Town's letters were received.

While no known tribal cultural resources have been identified within the area to be disturbed by the Project, the following mitigation measures are proposed to address the possible presence of previously unidentified tribal cultural resources.

Mitigation Measure Cultural-1 detailed under Impact Cultural-1 above requires archaeological monitoring during ground disturbance within the Residential Development Area and appropriate actions taken in the event of discoveries. This measure would be applicable to mitigate Impact Cultural-4 as well.

Mitigation Measures Cultural-3a and Cultural-3b detailed under Impact Cultural-3 above further require halting of construction activity and appropriate actions in the event any unknown cultural or tribal cultural resources or remains are discovered. These measures would be applicable to mitigate Impact Cultural-4 as well.

Implementation of mitigation measures Cultural-1, Cultural-3a, and Cultural-3b would reduce the impacts associated with possible disturbance of unidentified tribal cultural resources at the Project site to a level of ***less than significant with mitigation***.

9

GEOLOGY AND SOILS

INTRODUCTION

The following section was prepared by Questa Engineering Corporation. This section describes the Geology, Soils and Seismicity of the Project area. The information presented below was drawn from several sources of data, including the following documents prepared for this project and other sources cited throughout the document:

- Trench Investigation, Portola Terrace, Cornerstone Earth Group for the Project applicant, August 4, 2021. (Included as Appendix G)
- Preliminary Geotechnical and Geologic Hazard Investigation, The Stanford Wedge, Cornerstone Earth Group for the Project applicant, September 18, 2017. (Available as part of the Project files.)
- Feasibility Evaluation for Fire Maintenance Road, Portola Terrace, Alpine Road, Portola Valley, California, December 1, 2021. (Available as part of the Project files).

SETTING

REGIONAL SEISMICITY

The site lies in the tectonically active Coast Ranges Geomorphic Province of northern California, on the east side of the San Francisco Peninsula. Development of the northwest trending ridges and valleys in the vicinity, including the Santa Cruz Mountains and San Francisco Bay, is controlled by active tectonism along the boundary between the North American and Pacific Tectonic Plates, the San Andreas Fault System.

Area faults have predominantly right-lateral strike-slip (horizontal) movement, with lesser dip-slip (vertical) components of displacement. Horizontal and vertical movement is distributed on the various fault strands within a fault zone. Throughout geologic time the fault strands experiencing active deformation change in response to regional shifts in stress and strain from tectonic plate motions. Within 20 miles of the site there are three major active faults that display large right-lateral strike-slip offsets, the San Andreas Fault, the San Gregorio Fault and the Hayward Fault.

Seismicity of the Project region has resulted in several major earthquakes during the historic period, including the 1868 Hayward Earthquake, the 1906 San Francisco Earthquake, and most recently, the 1989 Loma Prieta Earthquake. Large potentially damaging earthquakes are expected to occur periodically during the design life of the proposed Project. The Project site location relative to major faults and earthquake epicenters in the San Francisco Bay Area is shown in **Figure 9.1**.

The nearest known active fault to the Project site is the San Andreas Fault, located approximately 1.9 miles southwest of the site. Nearby potentially active faults include the Monte Vista-Shannon Fault located approximately 0.7 miles southeast of the site, the Pilarcitos Fault located approximately 3 miles west of the site, and the Stanford Fault located approximately 6 miles north of the site. Other

nearby active faults are the San Gregorio Fault located approximately 13 miles to the southwest, the Seal Cove fault located 18 miles to the northwest, the Hayward Fault located 18 miles northeast of the site and the Calaveras Fault located approximately 25 miles east of the site. Fault locations relative to the Project site, status, date of most recent activity and the mean characteristic moment magnitude of faults are presented in **Table 9.1**.

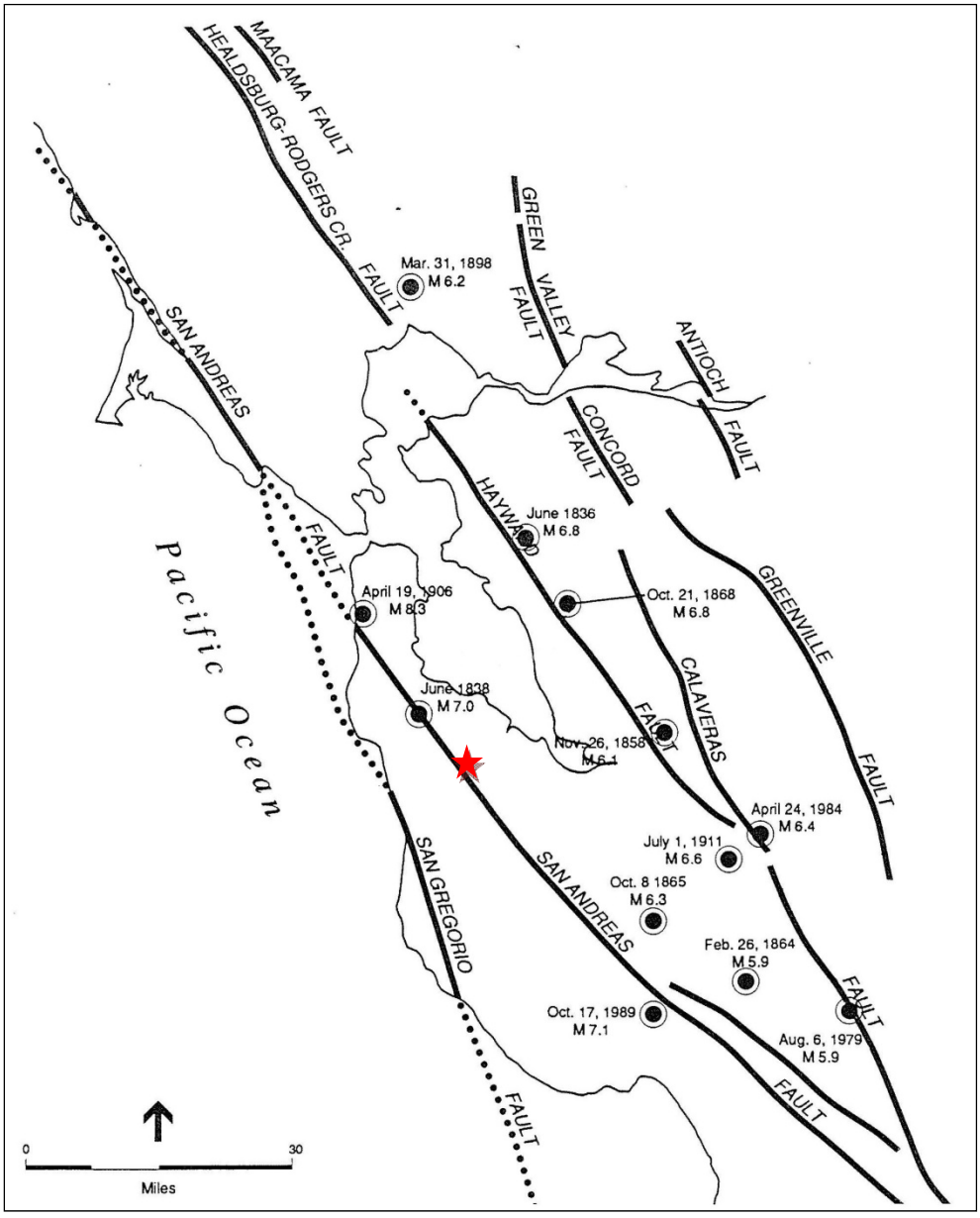

Figure 9.1: Major Faults and Earthquake Epicenters

The star shows the approximate Project site location.

Source: Modified from Earthquake Planning Scenario for a 7.5 Magnitude Earthquake on the Hayward Fault in the San Francisco Bay Area California Division of Mines and Geology Special Publication 78, 1987.

Table 9.1: Regional Faults and Activity

Fault Name	Distance (mi)	Direction	Last Rupture	Classification	Maximum Moment Magnitude
Monte Vista	0.7	SE	Late Quaternary	Conditionally Active	6.5
San Andreas	2	W	Historic	Active	7.9
Pilarcitos	3	W	Quaternary	Conditionally Active	--
Stanford	6	N	Quaternary	Conditionally Active	--
San Gregorio	13	SW	Holocene	Active	7.5
Seal Cove	18	NW	Holocene	Active	--
Hayward	18	NE	Historic	Active	6.9
Sargent	24	SE	Holocene	Active	6.75
Calaveras	25	E	Historic	Active	6.9
Las Positas	35	E	Historic	Active	6.8
Marsh Creek	38	NE	Holocene	Active	--
Greenville	38	E	Historic	Active	6.6
Concord	40	NE	Historic	Active	7.0
Rodgers Creek	50	N	Holocene	Active	7.1

REGIONAL GEOLOGY

The Project site is located within the foothills of the Santa Cruz Mountains, near the western edge of the San Francisco Bay, a submerged valley in the Central Coast Ranges of California. This area is characterized by northwest trending mountain ranges and valleys oriented sub-parallel to faults of the San Andreas Fault System. The Santa Cruz Mountains were formed as a result of compressive uplift due to a leftward bend in the San Andreas Fault, and separate the San Francisco Bay from the Pacific Ocean, forming the spine of the peninsula from San Francisco to Gilroy. Several northwest trending and structurally controlled valleys dissect the Peninsula, including the Alpine Hills which contains the Project site.

In the San Francisco Bay Area, Tertiary strata commonly rest in angular unconformity on Cenozoic rocks of the Franciscan complex, which is composed of weakly to strongly metamorphosed greywacke (sandstone), argillite, limestone, basalt, serpentinite, and chert. The rocks of the Franciscan complex are ancient Jurassic to Cretaceous age oceanic crust and deep marine (pelagic) deposits accreted onto the edge of the North American continent and metamorphosed as a result of accretion and partial subduction. The geologic formations found on the hillsides of the site area and underlying the valley sediments are Tertiary in age and consist predominantly of marine clastic sedimentary rocks that were deposited in a deep-marine basin environment from the Eocene (36-58 million years ago) to Miocene (11-14 million years ago).

The most detailed geologic map of the site specific region was prepared by Cotton, Shires and Associates, Inc. (CSA)[1] for the Town of Portola Valley, and is published at a scale of 1:6,000 (1"=500 feet). This map shows that the foothills to the southwest are composed of the Eocene-aged Whiskey Hill formation, and the Miocene-age Ladera Sandstone to the northwest, while the valley

[1] Cotton, Shires and Associates, Inc., 2017, Geologic Map, Town of Portola Valley, San Mateo County, California, Proj. No. G0088.

bottom alongside Los Trancos Creek is overlain with Quaternary Alluvium (gravel, sand, silt, and clay). A number of published geologic maps indicate that the Whiskey Hill Formation and the Ladera Formation are separated by a fault contact trending through the center of the site (Page and Tabor, 1967[2], Brabb and Pampeyan, 1983[3], Page 1993, Brabb and others, 1998[4], USGS Quaternary Fault/Fold Database, 2006[5],and Dibblee and Minch, 2007[6]). Alternatively, the Senior Geologist John Wallace of CSA indicated that mapping of this fault has been attempted for 30 years and no signs of faulting have been found through various methods and that the contact appears depositional.[7] Pampeyan (1993) interpreted the contact as an angular unconformity.[8] An angular unconformity between the Miocene and Eocene rock units suggests that the Eocene rocks went through a period of folding prior to the deposition of the overlying Miocene rocks (ABA, 1965)[9].

SITE SOILS AND GEOLOGY

The hillsides adjacent to the site area are dominated by the Ladera Sandstone and the Whisky Hill Formations and the majority of the site is overlain by Quaternary Alluvium. **Figure 9.2** presents a Geologic Map of the Stanford Wedge Subdivision site area.

The Eocene-aged Whiskey Hill Formation consists of "Pale yellowish-orange to pale yellowish-brown, poorly cemented to very well cemented, poorly sorted, coarse-grained, thick bedded, feldspathic sandstone and interbedded silty claystone" (Pampeyan, 1993). The Whiskey Hill Formation was deposited in a deep-marine slope and basin. The clay-rich beds within the Whiskey Hill Formation are expansive and thus can cause damage to pavements, building foundations, retaining walls and other structures. Differential movement between claystone and sandstone beds may occur if these claystones are exposed by excavation and expand from overburden loss.

LANDSLIDING AND SLOPE STABILITY

Slope steepness is generally the dominant factor governing slope stability, depending upon soil and bedrock conditions. Steep slopes greater than 50 percent are especially prone to landslides in areas of weak soil and bedrock. The Residential Development Area is nearly level, though there is a gentle

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[2] Page, B.M. and Tabor, L.L., 1967, Chaotic Structure and Decollement in Cenozoic Rocks near Stanford University, California: Geological Society of America, Bulletin v. 78, n. 1, scale 1:27,000..

[3] Brabb, E.E. and Pampeyan, E.H., 1983, Geologic Map of San Mateo County, California, U.S. Geological Survey, Miscellaneous Investigations Series Map I-1257-A, scale 1:62,500.

[4] Brabb, E.E., Graymer, R.W., and Jones, D.L., 1998, Geology of the Onshore Part of San Mateo County, California, a digital database: U.S. Geological Survey, Open-File Report OF-98-137, scale 1:62,500.

[5] U.S. Geological Survey and California Geological Survey, 2006, Quaternary Fault and Fold Database for the United States, http://earthquake.usgs.gov/regional/qfaults/

[6] Dibblee, T.W., and Minch, J.A., 2007, Geologic Map of the Palo Alto and Mountain View Quadrangles, Alameda, San Mateo, and Santa Clara Counties, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-350, scale 1:24,000

[7] Cornerstone Earth Group, 2017, Preliminary Geotechnical and Geologic Hazard Investigation: Stanford Wedge, Portola Valley, CA, 105-117-1.

[8] Pampeyan, E.H., 1993, Geologic map of the Palo Alto and Part of the Redwood Point 7-1/2' quadrangles, San Mateo and Santa Clara Counties, California, US Geological Survey, Map I-2371.

[9] Aetron-Blume-Atkinson, 1965, Geologic Site Investigation for Stanford Linear Accelerator Center, report number ABA-88.

slope break that occurs through the central portion of the site. At the eastern portion of the larger Project site, the slope steepness increases dramatically where it contacts the Whiskey Hill Formation, which is known for the formation of ridges and its greater resistance to erosion. The Landslide Susceptibility Map for San Mateo (1978)[10] indicates the site area as Level II, defined as low susceptibility to landsliding. The Town of Portola geologic map (CSA, 2017) does not show any landslide deposits at or near the Project site.

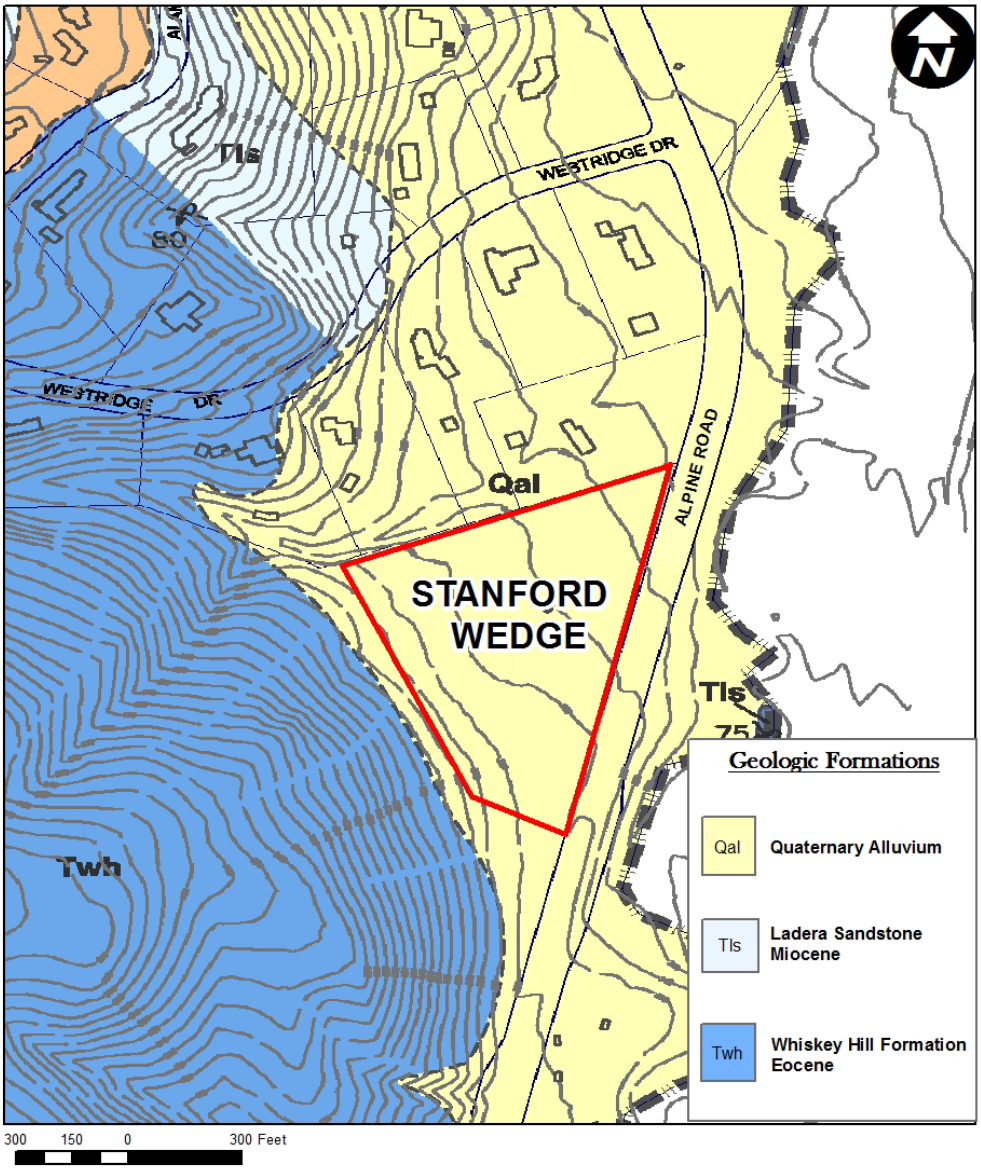

Figure 9.2: Geologic Map of the Stanford Wedge Project Site Area

Source: Modified from Cotton, Shires and Associates, Inc., 2017, Geologic Map, Town of Portola Valley, San Mateo County, California, Proj. No. G0088.

[10] Brabb, E.E.,Pampeyan, E.H.,and Bonilla, M.G., 1978, Landslide Susceptibility in San Mateo County, California,

A drainage course out of the adjacent hills from the northwest has a small channel that reaches into the western edge of the Project site. The sediment from this drainage channel is labeled "Areas with Significant Potential for Downslope Movement" (CSA, 2017), and is described as subject to shallow landsliding, slumping, settlement and soil creep. Observations made by Cornerstone (2017) indicate that the site area does not look to be affected by past landslides, and that these slope failures are most likely contained within the drainage channel.

PRIMARY SEISMIC HAZARDS

A number of active and potentially active faults are present in the region. According to criteria of the State of California Geological Survey, active faults have experienced surface rupture within the last 11,000 years (Holocene Period). The Alquist-Priolo Earthquake Fault Zoning Act of 1972 initiated a program of mapping active and potentially active faults (faults with displacement within Quaternary time – the last 1.6 million years). According to the program, active faults must be zoned and development projects within the Earthquake Fault Zones investigated to establish the location and age of any faulting across the development site. Active and potentially active faults along the San Francisco Peninsula have undergone extensive investigation in the past. The California Geological Survey has established Earthquake Fault Zone (EFZ) boundaries. According to the Earthquake Fault Zone map for the Palo Alto Quadrangle published by the California Geological Survey in 2006, the Project site is not located within an EFZ[11].

The nearest EFZ for the Project site is for the San Andreas Fault, located approximately 2 miles southwest of the site. Considering the distance from the San Andreas Fault Zone, there is a low potential for fault-related surface ground rupture to occur in the Project site area during an earthquake on the San Andreas Fault. It is possible that movement or ground shaking from an earthquake on the San Andreas Fault could trigger secondary movement and possibly ground-surface rupture on the Monte Vista fault. No evidence for fault rupture has been documented in close proximity to the Project site since the San Francisco Earthquake of 1906.

A fault trace of the Hermit fault has been included on some maps as extending into the Project site. A trench investigation of the site to evaluate the potential presence of the Hermit fault, at the contact between the Whiskey Hill Formation and the Ladera Sandstone was performed by Cornerstone Earth Group (included as Appendix G).[12] According to the letter report, the trenching did not expose the contact between the bedrock units on the site, and no active faulting was found in the trench walls exposed. The report states "the exposed geologic sequence within our trench consists of terrace deposits overlying a sequence of nearly vertical inclined beds belonging to the Ladera formation" (Cornerstone, 2021, page 9). The report states that no evidence of active faulting was found in the trench on the site. Radiometric carbon dating performed on the Terrace deposit, indicates a probable age of late Pleistocene, with a conventional radiocarbon age of 16890 +/- 50 years before present (BP). To be considered an active earthquake fault contact, the age of the Terrace deposits would have to be 11,000 BP or less and the contact would need to be a fault. According to the report, the Terrace unit is deposited over the Ladera Sandstone, indicating a depositional contact. This work was peer reviewed by Questa Engineering Corporation for this analysis and determined to establish that the suspected Hermit fault is not active in Holocene time and therefore is not an active fault.

[11] California Division of Mines and Geology, 1974, Earthquake Fault Zones Map of the Palo Alto 7.5-minute Quadrangle.

[12] Cornerstone Earth Group, 2021 (Aug. 4, 2021), Trench Investigation, Portola Terrace, Alpine Road, Portola Valley, California, 105-117-2.

SECONDARY SEISMIC HAZARDS

Secondary seismic effects such as soil liquefaction, ground shaking, seismic induced landsliding, lurch cracking and ground fissuring may occur during strong ground shaking events associated with large scale regional seismic events.

Ground Shaking

The San Francisco Bay Area is a seismically active region. The Project site and region will likely be subjected to strong to violent seismically induced ground shaking within the design life of the proposed Project. The Project site is located in an area of active regional seismicity near active seismic sources.

The most recent (3rd addition) of the Uniform California Earthquake Rupture Forecast (UCERF3) estimates the magnitude, location and likelihood of earthquake rupture throughout California. According to this model, which has assessed the probability of earthquakes in the San Francisco Bay Area, there is a 72-percent probability that an earthquake of Richter Magnitude 6.7 or greater will strike the region between 2014 and 2044.[13]

The California Building Code provides criteria for seismic design of buildings called "Seismic Coefficients" that are based on factors such as soil profile in the upper 100 feet below ground surface, and mapped spectral acceleration parameters based on distance to the fault. Cornerstone Earth Group determined that the site area is classified as Soil Classification C based on the fact that the SPT "N" values calculated during borehole drilling were greater than 50 blows per foot. They calculated the spectral acceleration parameters S_S and S_1 using the U.S. Seismic Design Maps computer program by the USGS[14]. Using these values they calculated a peak ground acceleration (PGA) of 1.090 g (acceleration due to gravity) for the site area.

Seismically Induced Landslides

The Seismic Hazards Mapping Act of 1990 directs the California Geological Survey (CGS) to delineate Seismic Hazard Zones. Cities, counties, and state agencies are directed to use seismic hazard zone maps prepared by CGS in land-use and permitting processes. The California Geological Survey Earthquake Zones of Required Investigation Palo Alto Quadrangle[15] shows both liquefaction zones and earthquake-induced landslide zones. A portion of this map showing the site area is shown on **Figure 9.3**. This map indicates the potential for three seismically induced landslides located less than one half mile to the west and north of the Project site.

[13] Field, E.H. and 2014 Working Group on California Earthquake Probabilities, 2015, UCERF3: A New Earthquake Forecast for California's complex Fault System: U.S. Geological Survey 2015-3009, 6 p., https://dx.doi.org/10.3133/fs20153009.

[14] United States Geological Survey, 2014, U.S. Seismic Design Maps, revision date June 23, available at http://earthquake.usgs.gov/hazards/designmaps/usdesign.php.

[15] California Geological Survey, 2006, Earthquake Zones of Required Investigation Palo Alto 7.5 Minute Quadrangle.

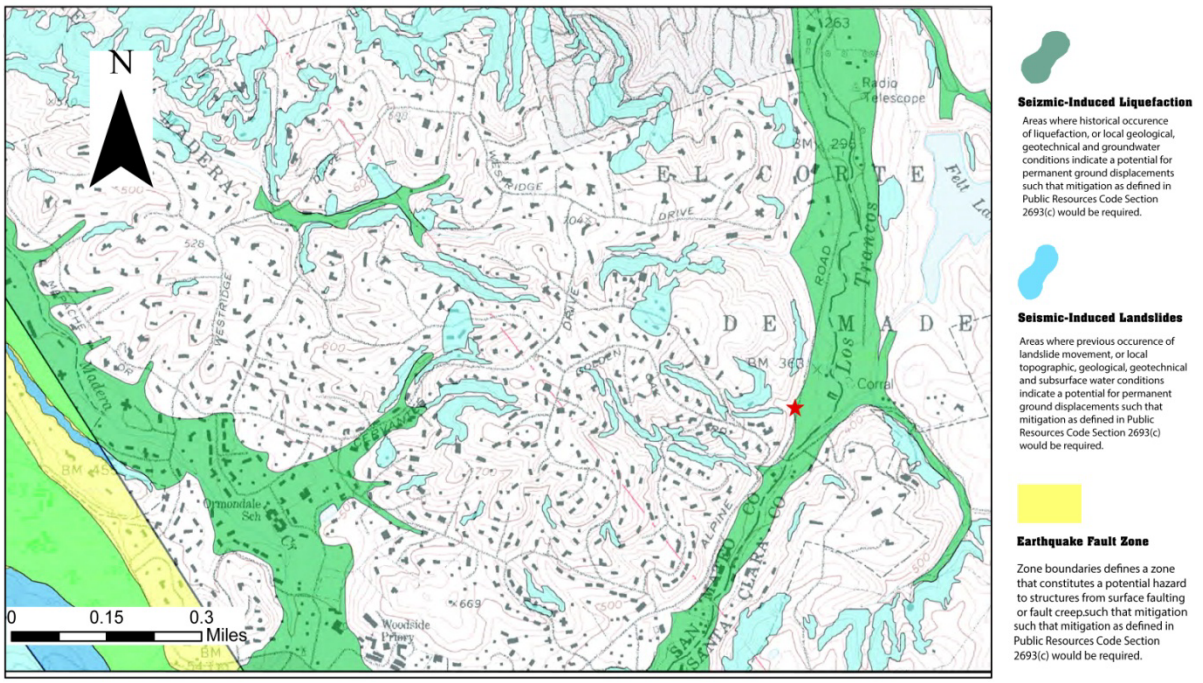

Figure 9.3: Seismic Hazards Map of the Stanford Wedge Project Site Area

The star shows the approximate Project site location.

Source: Modified from California Geological Survey, 2006, Earthquake Zones of Required Investigation Palo Alto 7.5 Minute Quadrangle.

The Ground Movement Potential Map of the Town of Portola Valley (CSA, 2017) characterizes the Project site area as "level ground to moderately steep slopes underlain by bedrock within approximately three feet of the ground surface or less; relatively thin soil mantle may be subject to shallow landsliding, settlement, and soil creep."[16]

Seismically Induced Liquefaction

Liquefaction is the temporary transformation of saturated, cohesionless soil into a viscous liquid as a result of seismically induced ground shaking. Liquefaction-induced ground failure has been a cause of major earthquake damage in northern California. For example, during the 1989 Loma Prieta and 1906 San Francisco earthquakes, significant damage to roads, buildings and other structures in the San Francisco Bay Area were caused by liquefaction-induced ground displacement. Geologic units that are generally susceptible to liquefaction include late Quaternary alluvial sedimentary deposits and deposits that contain saturated loose and sandy and silty soils. The California Geological Survey Seismic Hazards Zone Map of Palo Alto 7.5-Minute Quadrangle (2006) shows the Project site is in an area where liquefaction is a potential hazard during a strong earthquake. A portion of this map showing the area in the vicinity of the Project site is shown below in Figure 3. The map describes the Project area as an area "where historic occurrences of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements."[11]

[16] Cotton, Shires and Associates, 2017, Ground Movement Potential Map, Town of Portola Valley, San Mateo County, California, Project No. G0088.

The Quaternary alluvium in the valley at the Project site has silty sand layers within the deposit, which make these areas potentially susceptible to liquefaction during a seismic event with post event settlement likely to occur. Depth to groundwater can impact the susceptibility for liquefaction. Cornerstone Earth Group borehole data[3] shows that they found no groundwater shallower than 30 feet below ground surface in the Project site, but they believe that groundwater perching is probable in sand layers higher in the strata during seasonal fluctuations in groundwater conditions.

Cornerstone Earth Group performed a computerized liquefaction analysis using a groundwater depth of 2 feet to account for the possible perching. They compared the ratio of the estimated cyclic shaking (CSR) to the soil's estimated resistance to cyclic shaking (CRR), producing a factor of safety against liquefaction triggering. They also performed CPT and SPT analysis and measured the quantity of silt and clay in soils and the plasticity index of the soils. Their analysis concludes that the soils beneath 2 feet depth are "hard cohesive clays, dense to very dense sands and gravels, or medium dense sands with plastic fines"[3], and indicated that there is a low potential for liquefaction to occur at the Project site due to these soil characteristics.

Lateral Spreading

Lateral spreading refers to fracturing and extension of the ground surface due to liquefaction of material in the subsurface. This occurs on slopes underlain by loose sands and a shallow water table. If liquefaction occurs in the subsurface material, the overburden soil can slide over the lower liquefied deposit, proceeding down slope and forming fissures, scarps and depressed areas. This often takes places along streams in young alluvial deposits. The unnamed creek flows northeast along the property line and Los Trancos Creek is east of the Project site. Liquefaction of the alluvial sediments along these creeks would tend to move toward the creek and thus be confined within the channel and lateral spreading is unlikely. The rest of the Project site is nearly level and lateral spreading is not a hazard.

Seismic Settlement/Dynamic Densification

During a seismic event, loose to medium dense soils such as sand can differentially settle due to dynamic densification of the sand layers. This can result in damage to overlying improvements such as structures, pavements, walls and utility lines. In their preliminary report on the subsurface conditions at the Stanford Wedge site, Cornerstone (2017) determined that the potential for dynamic densification of sands at the Project site is low based on the subsurface conditions encountered during preliminary investigations at the site.

REGULATORY SETTING

STATE LAWS AND REGULATIONS

Alquist-Priolo Earthquake Fault Zoning Act

The California Legislature passed the Alquist-Priolo Earthquake Fault Zoning Act in 1972 to mitigate the hazard of surface faulting to structures for human occupancy.[17] The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Local agencies must regulate most development in fault zones established by the State

[17] California Division of Mines and Geology, 1997 revision, Fault-Rupture Hazard Zones in California, DMG Special Publication 42.

Geologist. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, the city or county with jurisdiction must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active or potentially active faults.

California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690-2699.6) addresses seismic hazards other than surface rupture, such as liquefaction and seismically induced landslides. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Code

Title 24 of the California Code of Regulations, also known as the California Building Standards Codes, sets minimum requirements for building design and construction and includes the California Building Code. The 2019 version of the California Building Code are effective as of January 1, 2020. The California Building Standards Code is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national and international model codes;
- Building standards that have been adopted and adapted from the national and international model code standards to meet California conditions; and
- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.[18]

In the context of earthquake hazards, the California Building Code's design standards have a primary objective of assuring public safety and a secondary goal of minimizing property damage and maintaining function during and following seismic events.

California Residential Code

The California Residential Code (CRC) contains building provisions that cover construction of one- and two-family dwellings and townhouses that are three stories or less in height. This is a fully integrated code based on the 2018 International Residential Code (Chapters 2-10).

LOCAL REGULATIONS AND POLICIES

San Mateo County Hazard Mitigation Plan

The Town of Portola Valley has adopted the San Mateo County Hazard Mitigation Plan (July 2016) and is in the process of adopting the updated 2021 County Plan as the Hazard Mitigation Plan (HMP) for the Town as an Appendix to the Town's Emergency Operations Plan. The HMP has been designed to identify the areas where people or structures may have higher vulnerability to earthquakes, flood, wildland fires, and other natural hazards. The plan identifies policies and actions that may be implemented by the County to reduce the potential for loss of life and property damage in

[18] California Building Standards Commission website at http://www.bsc.ca.gov/title_24/default.htm

these areas based on an analysis of the frequency of earthquakes, floods, wildland fires and landslides in terms of frequency, intensity, location, history, and damage effects. The HMP also serves as a guide for decision-makers as they commit resources to reduce the effects of natural hazards.

Town of Portola Valley Municipal Code

The Town of Portola Valley Municipal Code Title 15 includes information on the Construction Codes and Amendments adopted by the Town of Portola Valley. This includes the California Building Code, among other codes used in construction in the Town of Portola Valley. The California Building Code Vol. 1 and 2, 2019 Edition, including the California Building Standards, 2019 Edition, published by the International Conference of Building Officials, and as modified by the amendments, additions and deletions set forth in Title 15 was adopted by reference as the building code of the Town of Portola Valley.

Town of Portola Valley Geologic Map and Ground Movement Potential Map

The Town of Portola Valley has developed a detailed Geologic Map and a Ground Movement Potential Map and has adopted these maps as policy to serve as guidelines for the Town affairs, such as site development and other land use policies.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The following thresholds for measuring the Project's impacts are based upon CEQA Guidelines thresholds:

1. Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

    i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

    ii) Strong seismic ground shaking?

    iii) Seismic-related ground failure, including liquefaction?

    iv) Landslides?

2. Would the Project result in substantial soil erosion or the loss of topsoil?

3. Would the Project 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?

4. Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

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

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

According to CEQA guidelines, exposure of people or structures to major geological hazards is a significant adverse impact. The main geologic hazards affecting the proposed Project are strong seismic ground shaking, potentially liquefiable soils, and potentially expansive soils and bedrock. The basic criterion applied to the analysis of impacts is whether construction of the Project will create, or be founded on, unstable geologic conditions that would last beyond the short-term construction period. The analysis of geological hazards is primarily based on the degree to which the site geology could produce hazards to people, structures, and the environment from earthquakes, fault rupture, landslides, soil creep, expansion and settlement or other geologic events.

The vegetation management activities would not result in permanent structures and would not result in significant impacts related to geology and soils. Therefore, the vegetation management plan is not further discussed in this impact section.

SURFACE FAULT RUPTURE

1.i) Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Impact Geo-1: **Surface Fault Rupture.** According to state mapping and a focused site-specific investigation, there are no active faults within the Project site. The impact of surface fault rupture would be a ***less than significant*** impact.

According to the latest State of California Earthquake Fault Zone maps, the site is not contained within an Alquist-Priolo Earthquake Fault Zone boundary. The nearest fault zoned as active by the State is the San Andreas Fault located approximately 2 miles to the southeast. Other potentially active faults include the Monte Vista fault located approximately 0.7 miles from the Project location. Published geologic maps of the area show several faults in the site vicinity, including a fault mapped crossing the 75-acre overall property, but not within the Residential Development Area.

There had been some question of whether the Hermit fault extended onto the Project site. As noted in the setting, in response to these concerns, a trench investigation of the site was performed, which involved cutting trenches into the site to examine the soil formations for signs of a fault. The trench investigation is included as Appendix G. No signs of active faulting were found on the site with focused site-specific investigations.[19] This work was peer reviewed by Questa Engineering Corporation for this analysis and determined to establish that the suspected Hermit fault is not active in Holocene time and therefore is not an active fault.

Based on the lack of active faults crossing the Residential Development Area and no other indication of an active fault with focused site-specific investigations, the impact of surface fault rupture is considered ***less than significant*** to the Project.

[19] Cornerstone Earth Group, 2021 (Aug. 4, 2021), Trench Investigation, Portola Terrace, Alpine Road, Portola Valley, California, 105-117-2.

EXPOSURE TO STRONG SEISMIC GROUND SHAKING

1.ii) Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Impact Geo-2: **Seismic Ground Shaking.** There is a high probability that the proposed development would be subjected to strong to violent ground shaking from an earthquake during its design life. Strong seismic ground shaking is considered a ***less than significant impact with mitigation***.

The San Francisco Bay Area is a seismically active region. Like all projects in the region, the Project will likely be subjected to strong to violent seismically-induced ground shaking within the design life of the development. As discussed in the setting, based on soil classifications at the site, the Project site could be subject to a peak ground acceleration (PGA) of up to 1.090 g (acceleration due to gravity) during a seismic event.

Seismic construction standards are detailed in building codes and specifics of needed site preparation, foundation design, and building construction are specified through structural engineering design formalized in a Design-level Geotechnical Investigation Report. While these are existing requirements through the construction permitting process, these requirements are detailed in the measures below for tracking purposes.

Note that the following measures address impacts in multiple topic areas in this chapter so may reference specific requirements beyond those directly related to this impact. See also Impacts Geo-4, Geo-6, and Geo-7.

Mitigation Measure

Geo-2a: **Preparation and Compliance with a Design-Level Geotechnical Investigation Report prepared by a Registered Civil or Geotechnical Engineer and with Structural Design Plans as Prepared by a Registered Structural Engineer.** The Preliminary Geotechnical Investigation and Geologic Hazards Assessment for the site identified seismic design criteria for the Project development. The structural engineering design should incorporate seismic design standards required by the California Building Code/California Residential Code. In general, the design-level report shall either corroborate or provide alternative recommendations to the preliminary report based upon actual soil and rock conditions in the areas where structures are proposed. The fire access road shall also be investigated. As is standard required practice prior to issuance of building permits, a design level geotechnical investigation shall be completed that includes the following elements:

A) Additional subsurface investigation in areas to be occupied by structures which shall confirm or expand on the geotechnical recommendations presented in the preliminary report related to seismic ground shaking.

B) Specific measures to addressing the potential for seismically-induced landslides, such as retaining structures, buttress fills or other techniques to reduce the potential for seismically induced landslides.

C) Additional test pits within the Residential Development Area and fire access road area to identify areas of expansive claystone bedrock. As applicable, measures to address expansive claystone bedrock shall include control of

drainage measures, depth of excavations, location of improvements relative to the claystone, the use of deep foundations, and the use of stiffened structural slabs and void forms beneath the slabs.

D) Measures for control of expansive clay soils, which could include the following:

a. Placing and compacting potentially expansive subgrade soils at high moisture contents (at least 3 percent above optimum moisture content in accordance with ASTM D1557) and compaction within selected ranges of 87 to 92 percent in the upper 5 feet and 95 percent below a depth of 5 feet.

b. Using thickened concrete slabs with increased steel reinforcement.

c. Replacing clayey soils underlying foundations and concrete slabs with select structural fill that is non-expansive or has a low expansion index.

d. Treating site soils with lime to reduce the expansion potential and increase the strength.

e. Utilize pier-and-grade-beam foundation systems where appropriate;

f. Grade around structures to assure positive drainage away from structures.

Mitigation Measure

Geo-2b: **Compliance with California Building Code (CBC) and California Residential Code (CRC).** Project development shall meet requirements of the current applicable California Building Code and California Residential Code Edition as determined by the Town of Portola Valley, published by the International Conference of Building Officials, and as modified by the amendments, additions and deletions as adopted by the Town of Portola Valley, California.

Incorporation of general and site-specific seismic construction standards as detailed in mitigation measures Geo-2a and Geo-2b would reduce the potential for catastrophic effects of ground shaking, such as complete structural failure, to a level of ***less than significant***.

SEISMICALLY-INDUCED GROUND FAILURE

1.iii) Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction??

Impact Geo-3: **Seismic Ground Failure, including Liquefaction, Densification, and Differential Settlement.** Site-specific analysis has determined that soils at the site have a low potential for liquefaction, densification (seismic settlement/saturated sand shaking) or lateral spreading to occur at the site. Seismically induced ground failure is considered a ***less than significant impact***.

As discussed in the setting, based on regional soils characteristics, the California Geological Survey Seismic Hazards Zone Map indicates that the site could be susceptible to liquefaction of underlying soils. A Preliminary Geotechnical Investigation and Geologic Hazards Assessment was prepared by Cornerstone to generate more detailed site-specific data and conclusions. Based on borings and analysis of the soils at the site, they concluded that due to the characteristics of the soils at the site, there is low potential for liquefaction, densification, and differential settlement. The impact with respect to seismically-induced ground failure would be less than significant.

EXPOSURE TO SEISMICALLY-INDUCED LANDSLIDES

1.iv) Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Impact Geo-4: **Seismically-induced Landslides**. Portions of the site may be subject to seismically-induced landsliding. A portion of the site is identified on the Seismic Hazard Zone Map of the Palo Alto Quadrangle as being potentially susceptible to seismic shaking induced ground failure. Preliminary investigation by Cornerstone indicates that a design-level geotechnical investigation is needed to address the potential for slope failure associated with seismic shaking events in several areas. This would be a ***less than significant impact with mitigation***.

As discussed in the setting, the California Geological Survey Seismic Hazards Zone Map indicates three localized areas with the potential for seismically induced landslides within one half mile to the west and north of the Residential Development Area, including on a portion of the undeveloped slope on the Project site and the proposed fire access road area. A Preliminary Geotechnical Investigation and Geologic Hazards Assessment was prepared by Cornerstone to generate more detailed site-specific data and conclusions. Based on this assessment, measures to reduce the risk from seismically-induced landslides are incorporated into the following mitigation.

Mitigation Measure Geo-2a requires the applicant to conform to geotechnical recommendations and design plans, including those to address the potential risk from seismically-induced landslides.

Compliance with the Design-Level Geotechnical Investigation Report measures as detailed in mitigation measure Geo-2a would reduce the Project's impact related to seismically-induced landsliding to a level of ***less than significant***.

SOIL EROSION AND LOSS OF TOPSOIL

2. Would the Project result in substantial soil erosion or the loss of topsoil?

Impact Geo-5: **Soil Erosion.** The Project would involve mass grading in a location that could facilitate stormwater-related soil erosion, soil movement and the loss of topsoil. This could potentially impact vicinity drainages such as Los Trancos Creek, the unnamed creek, and ultimately San Francisco Bay. This would be a ***less than significant impact with mitigation***.

Erosion and loss of topsoil occur primarily when soil is unprotected by either plans or development (structures and pavement). Soil in runoff is considered a water pollutant. Construction period and operational erosion control and stormwater pollution prevention are required under existing regulations. While these regulations are already in place, they are detailed in the measures below for tracking purposes.

Mitigation Measure Geo-5a: **Erosion Control Plan.** The Project applicant shall complete an Erosion Control Plan to be submitted to the Town in conjunction with the Grading Permit Application. The Erosion Control Plan shall include winterization, dust, erosion and pollution control measures conforming to the California Stormwater Quality Association (CASQA) Stormwater Best Management Plan Handbook for New Development and Redevelopment. The Erosion Control Plan shall describe the "best management practices" (BMPs) to be used during and after construction to control pollution resulting from both stormwater and construction water runoff. The Erosion Control Plan shall include locations of vehicle and equipment staging, portable restrooms, mobilization areas, and planned access routes. The erosion control plan will also address the fire access road area.

Recommended soil stabilization techniques include placement of straw wattles, silt fences, berms, and gravel construction entrance areas or other control to prevent tracking sediment onto city streets and into storm drains.

Mitigation Measure Geo-5b: **Storm Water Pollution Prevention Plan (SWPPP).** In accordance with the Clean Water Act and the requirements of the State Water Resources Control Board (SWRCB), the Applicant shall file a SWPPP prior to the start of construction. The SWPPP shall be prepared by a Qualified Plan Developer (QSD) and shall include specific best management practices to reduce soil erosion and protect ground water quality. This is required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activities.

During construction, the SWPPP measures shall be reviewed by a Qualified Individual (QSP) certified to monitor that the stormwater protection measures are adequately implemented. Reporting will be performed in accordance with General Permit requirements.

Implementation of the required Erosion Control Plan and Stormwater Pollution Protection Plan as detailed in mitigation measures Geo-5a and Geo-5b would reduce the Project's impact with respect to erosion and loss of topsoil to a level of ***less than significant***.

UNSTABLE GEOLOGIC UNIT

3. *Would the Project 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?*

Impact Geo-6: **Unstable Geologic Unit- Expansive Bedrock**. Portions of the Project site are underlain by expansive soils that can be susceptible to substantial differential movement resulting in damage to structures, concrete slabs, retaining walls, pavements, sidewalks and other improvements. This would be a ***less than significant impact with mitigation***.

As discussed in the setting, portions of the Project site and fire access road area are underlain by the Whiskey Hill Formation, which contains highly expansive claystone beds interbedded with sandstone beds. The claystone is sensitive to expansion when wet and load relief when overlying soils or bedrock is excavated. This can result in heaving of the bedrock and substantial differential movement

in overlying sandstone, soil, and improvements resulting in damage to structures, concrete slabs, retaining walls, pavements, sidewalks and other improvements. No other unstable geologic units were identified related to the proposed Project.

Mitigation Measure Geo-2a requires the applicant to conform to geotechnical recommendations and design plans, including those to address the potential risk from expansive bedrock.

Compliance with the Design-Level Geotechnical Investigation Report measures as detailed in mitigation measure Geo-2a would reduce the Project's impact related to an unstable geologic unit to a level of ***less than significant***.

EXPANSIVE SOILS

4. *Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Impact Geo-7: **Potentially Expansive Soils**. The surface soils at the Project site are moderately expansive due to clay content that is susceptible to substantial shrink-swell characteristics linked to changes in the moisture content. These expansive soils could cause damage to foundations, concrete slabs, and pavements. The impact due to expansive soils is ***less than significant with mitigation***.

As discussed in the setting, the soils characteristics at the site were analyzed in a Preliminary Geotechnical Investigation and Geologic Hazards Assessment prepared by Cornerstone. This site-specific assessment determined that surface soils at the site contain expansive clay minerals subject to shrinking and swelling due to changes in water content, which are seasonal or can be the result of drainage or irrigation measures. Based on this assessment, measures to reduce the risk from expansive soils are incorporated into the following mitigation.

Mitigation Measure Geo-2a requires the applicant to conform to geotechnical recommendations and design plans, including those to address the potential risk from expansive soils.

Compliance with the Design-Level Geotechnical Investigation Report measures as detailed in mitigation measure Geo-2a would reduce the Project's impact related to expansive soils to a level of ***less than significant***.

SEPTIC SYSTEMS

5. *Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?*

The Project site will be connected to the local sewer system and the Project does not propose to build any septic tanks or alternate waste disposal systems. Therefore, there would be ***no impact*** related to septic systems because they are not required or proposed at the site.

PALEONTOLOGICAL RESOURCE OR UNIQUE GEOLOGIC FEATURE

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

Impact Geo-8: **Disturbance of Previously Unidentified Unique Paleontological Resources.** While not considered likely due to the types of soil at the Project site, it is possible that previously unidentified paleontological resources could be uncovered and disturbed. This would be a ***less than significant impact with mitigation***.

The Ladera Sandstone which occurs on the Project site can contain foraminifers, fish scales, mollusks, and invertebrate fossils according to the US Geological Survey, none of which would be considered unique paleontological resources. There are no known unique paleontological or unique geologic features at the Project site.

While no known unique paleontological resources have been identified within Project area, the following mitigation measures are proposed to address the possible presence of previously unidentified unique paleontological resources.

Mitigation Measures Cultural-1b and Cultural-1c detailed under Impact Cultural-1 in Chapter 8 requires halting of construction activity and appropriate actions in the event any unique paleontological resources are discovered. These measures would be applicable to mitigate Impact Geo-8 as well.

Implementation of mitigation measures Cultural-1b and Cultural-1c would reduce the impacts associated with possible disturbance of unidentified unique paleontological resources at the Project site to a level of ***less than significant with mitigation***.

10

GREENHOUSE GAS EMISSIONS

INTRODUCTION

This chapter discusses the potential impacts of the implementation of the proposed Project on the local and regional air quality. Residential development projects generally contribute to air quality pollutants through construction-phase emissions and dust and operational emissions including vehicle emissions.

The discussion of criteria pollutants and toxic air contaminants in this chapter is based on the Air Quality Technical Report prepared for this EIR by Illingworth & Rodkin, included in Appendix C.

SETTING

GREENHOUSE GASES

Gases that trap heat in the Earth's atmosphere are called greenhouse gases, or GHGs. These gases play a critical role in determining the Earth's surface temperature. Part of the solar radiation that would have been reflected back into space is absorbed by these gases, resulting in a warming of the atmosphere. Without natural GHGs, the Earth's surface would be about 61 degrees cooler.[1] This phenomenon is known as the greenhouse effect. However, scientists have proven that emissions from human activities such as electricity generation, vehicle emissions and even farming and forestry practices have elevated the concentration of GHGs in the atmosphere beyond naturally occurring concentrations, enhancing the greenhouse effect that contributes to the larger process of global climate change. The six primary GHGs are:

- Carbon dioxide (CO2), emitted when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned;
- Methane (CH4), produced through the anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, incomplete fossil fuel combustion, and water and wastewater treatment;
- Nitrous oxide (N2O), typically generated as a result of soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning;
- Hydrofluorocarbons (HFCs), primarily used as refrigerants;
- Perfluorocarbons (PFCs), originally introduced as alternatives to ozone depleting substances and typically emitted as by-products of industrial and manufacturing processes; and
- Sulfur hexafluoride (SF6), primarily used in electrical transmission and distribution.

[1] California Climate Action Team, Report to Governor Schwarzenegger and the California Legislature, April 2006

Though there are other contributors to global warming, these six GHGs are identified explicitly by the U.S. Environmental Protection Agency (EPA) as threatening the public health and welfare of current and future generations, and other contributors make up a relatively small portion of the overall GHGs.[2]

The Global Warming Potential (GWP) concept is used to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2, which, after water vapor, is the most abundant GHG. CO_2 has a GWP of 1, expressed as CO_2 equivalent (CO_2e). Other GHGs, such as methane and nitrous oxide are commonly found in the atmosphere at much lower concentrations, but with higher warming potentials, having CO_2e ratings of 21 and 310, respectively. Trace gases such as chlorofluorocarbons and hydro chlorofluorocarbons, which are halocarbons that contain chlorine, have much greater warming potential. Fortunately these gases are found at much lower concentrations and many are being phased out as a result of global efforts to reduce destruction of stratospheric ozone. In the United States in 2019, CO_2 emissions account for over 80 percent of the GHG emissions, followed by methane at about 10 percent, nitrous oxide at about 7 percent, with trace GHGs making up the remainder.[3]

IMPLICATIONS OF CLIMATE CHANGE

According to the California Air Resources Board (CARB), some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years.[4] Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California.

Below is a summary of some of the potential effects reported in an array of studies that could be experienced in California as a result of global warming and climate change:

- Air Quality – Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. For other pollutants, the effects of climate change and/or weather are less well studied, and even less well understood.[5] If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat related deaths, illnesses, and asthma attacks throughout the State.[6]

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[2] US EPA, Overview of Greenhouse Gases, accessed at https://www.epa.gov/ghgemissions/overview-greenhouse-gases

[3] U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2019*. April 14, 2021, Table 2-1: Recent Trends in U.S. Greenhouse Gas Emissions and Sinks.

[4] California Air Resources Board (CARB), 2006c. Public Workshop to Discuss Establishing the 1990 Emissions Level and the California 2020 Limit and Developing Regulations to Require Reporting of Greenhouse Gas Emissions, Sacramento, CA. December 1.

[5] U.S. EPA, 2007, op. cit.

[6] California Climate Change Center (CCCC), *Our Changing Climate: Assessing the Risks to California,* CEC-500-2006-077, July 2006.

- Water Supply – Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. For example, models that predict drier conditions (i.e., parallel climate model [PCM]) suggest decreased reservoir inflows and storage and decreased river flows, relative to current conditions. By comparison, models that predict wetter conditions (i.e., HadCM2) project increased reservoir inflows and storage, and increased river flows.[7]

- Hydrology – As discussed above, climate change could potentially affect the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could also jeopardize California's water supply. In particular, saltwater intrusion would threaten the quality and reliability of the state's major fresh water supply that is pumped from the southern portion of the Sacramento/San Joaquin River Delta. Increased storm intensity and frequency could affect the ability of flood-control facilities (including levees) to handle storm events. Sea levels are projected to rise in the Bay up to an additional 55 inches by the end of the century as global climate change continues. Sea level rise of this magnitude would increasingly threaten California's coastal regions with more intense coastal storms, accelerated coastal erosion, threats to vital levees, and disruption of inland water systems, wetlands, and natural habitats. Residents may also be affected if wastewater treatment is compromised by inundation from rising sea levels, given that a number of treatment plants discharge to the Bay.[8]

- Agriculture – California has a $30 billion agricultural industry that produces half the country's fruits and vegetables. The California Climate Change Center (CCCC) notes that higher CO2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year that certain crops, such as wine grapes, bloom or ripen, and thus affect their quality.[9]

- Ecosystems and Wildlife – Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. In 2004, the Pew Center on Global Climate Change released a report examining the possible impacts of climate change on ecosystems and wildlife.[10] The report outlines four major ways in which it is thought that climate change could affect plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes such as carbon cycling and storage.

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[7] Brekke, L.D., et al, 2004. "Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California." *Journal of the American Water Resources Association*. 40(2): 149–164. Malden, MA, Blackwell Synergy for AWRA.

[8] Association of Bay Area Governments and Metropolitan Transportation Commission, *Plan Bay Area 2040*. Adopted July 18, 2013.

[9] California Climate Change Center (CCCC), 2006, op. cit.

[10] Parmesan, C. and H. Galbraith, *Observed Impacts of Global Climate Change in the U.S.*, Arlington, VA: Pew Center on Global Climate Change, November 2004.

GREENHOUSE GAS INVENTORY

As mentioned above, the primary GHG generated by human activity is CO_2. Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions (and thus substantial increases in atmospheric concentrations).

- U.S. Emissions: In 2019, the United States emitted about 6,558.3 million metric tons of CO_2e.[11]
- State of California Emissions: The 2020 GHG target of 431 million metric tons of CO_2e was met in 2016 and has continued to go down since. In 2018, California emitted approximately 425 million metric tons of CO_2e, amounting to approximately 10.7 metric tons per person. Transportation was the source of 40 percent of the state's GHG emissions, followed by industrial sources at 21 percent, electricity generation at 15 percent, and all other sources making up the remaining 24 percent. Since the peak level in 2004, California's GHG emissions have generally followed a decreasing trend. [12]
- Bay Area Emissions: BAAQMD most recently updated the GHG emission inventory (based on 2015 emissions), as presented in the 2017 Clean Air Plan, with total emissions of 85 million $MTCO_2e$. In the Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of the Bay Area's GHG emissions, accounting for 41% of the Bay Area's emissions in 2015. Stationary sources were the second largest contributors of GHG emissions with about 26% of total emissions. Buildings account for about 10% of the Bay Area's GHG emissions primarily through heating and cooking activities, and energy production accounted for 14% percent. Emissions related to fugitive gasses, waste, and agriculture make us the remainder with approximately 4%, 3%, and 1% of the total Bay Area 2015 GHG emissions, respectively. [13]

REGULATORY SETTING

FEDERAL

Global Change Research Act (1990)

In 1990, Congress passed and President George H.W. Bush signed Public Law 101-606, the Global Change Research Act. The purpose of the legislation was to:

> *". . . Require the establishment of a United States Global Change Research Program aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, to promote discussions towards international protocols in global change research, and for other purposes."*

To that end, the Global Change Research Information Office was established in 1991 (it began formal operation in 1993) to serve as a clearinghouse of information. The Act requires a report to Congress every four years on the environmental, economic, health and safety consequences of climate change;

[11] U.S. EPA, 2000, op. cit.

[12] California Air Resources Board, California Greenhouse Gas Emissions for 2000 to 2018: Trends of Emissions and Other Indicators, 2020 Edition.

[13] Bay Area Air Quality Management District, *Clean Air Plan 2017: Spare the Air, Cool the Climate*, Adopted April 2017.

however, the first and only one of these reports to date, the National Assessment on Climate Change, was not published until 2000. In February 2004, operational responsibility for the Global Change Research Information Office shifted to the U.S. Climate Change Science Program.

GHG Emissions pursuant to the Clean Air Act (2007)

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, Administrator Lisa Jackson signed a final action, under Section 202(a) of the Clean Air Act, finding that six key well-mixed GHGs constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to the climate change problem.

This action was a prerequisite for implementing GHG emissions standards. Current efforts include issuing GHG emission standards for new motor vehicles, developing and implementing renewable fuel standard program regulations, proposing carbon pollution standards for new power plants, setting GHG emissions thresholds to define when permits are required for new and existing industrial facilities under the Clean Air Act, and establishing a GHG reporting program.

Energy Independence and Security Act (2007)

The Energy Independence and Security Act of 2007 were intended to move the U.S. toward greater energy independence and security. This energy bill increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022. It also tightens the Corporate Average Fuel Economy standards that regulate the average fuel economy in the vehicles produced by each major automaker.

National Fuel Efficiency Policy Standards

On May 7, 2010, the U.S. Department of Transportation and EPA jointly issued national fuel efficiency and GHG emissions standards for model year 2012-2016 passenger vehicles and light duty trucks. The National Highway Traffic Safety Administration (NHTSA) issued Corporate Average Fuel Economy (CAFÉ) standards for model year 2012-2016 passenger cars and light trucks under the Energy Policy and Conservation Act and Energy Independence and Security Act and EPA issued national GHG emissions standards under the federal Clean Air Act. These joint GHG and fuel economy standards represented the first phase of the national program to improve fuel economy and reduce GHG emissions from U.S. light-duty vehicles. Starting with 2012 model year vehicles, the rules require automakers to improve fleet-wide fuel economy and reduce fleet-wide GHG emissions by approximately five percent every year. When adopted, these regulations were expected to result in a 2016 fleet average of 35.5 miles per gallon (mpg), conserve about 1.8 billion barrels of oil and reduce nearly 1 billion tons of GHG emissions over the lives of the vehicles covered.

In 2012, NHTSA established final passenger car and light truck CAFE standards for model year 2017 through model year 2021. Those CAFE standards required, on an average industry fleet-wide basis for cars and trucks combined, 40.3 to 41 mpg in model year 2021. EPA's GHG standards, which were consistent with NHTSA's CAFE standards, were projected to require 163 grams/mile of CO_2 in model year 2025.

On August 28, 2014, EPA and NHTSA finalized the new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the U.S. EPA proposed the first-ever national GHG emissions standards under the Clean Air Act, and NHTSA proposed CAFE

standards under the Energy Policy and Conservation Act. This national program allows automobile manufacturers to build a single light-duty national fleet that satisfies all requirements under both federal programs and the standards of California and other states. This program is expected to increase fuel economy to the equivalent of 54.5 miles per gallon for cars and light-duty trucks by model year 2025.

In October 2016, the EPA and NHTSA, on behalf of the Department of Transportation, established rules for a comprehensive Phase 2, Heavy-Duty (HD) national program to reduce GHG emissions and fuel consumption from new on-road medium- and heavy-duty vehicles and engines. This Phase 2 program is expected to result in fuel reductions of between 71 and 83 billion gallons, and achieve GHG reductions of between 959 and 1,098 MMT, CO2eq.[14]

STATE OF CALIFORNIA

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California. There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Recent State Regulatory Actions Related to GHG Emissions

Executive Order S-3-05 – California GHG Reduction Targets

Executive Order (EO) S-3-05 was signed by Governor Arnold Schwarzenegger in 2005 to set GHG emission reduction targets for California. The three targets established by this EO are as follows: (1) reduce California's GHG emissions to 2000 levels by 2010, (2) reduce California's GHG emissions to 1990 levels by 2020, and (3) reduce California's GHG emissions by 80 percent below 1990 levels by 2050.

Assembly Bill 32 – California Global Warming Solutions Act (2006)

Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, codified the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05, which has a target of reducing GHG emissions 80 percent below 1990 levels.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO_2e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide

[14] Federal Register, Vol. 81, No. 206, Tuesday, October 25, 2016, Rules and Regulations.

limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, due to the economic downturn, to 545 MMT of CO_2e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO_2e. Thus, an estimated reduction of 80 MMT of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

Executive Order B-30-15 & Senate Bill 32 GHG Reduction Targets – 2030 GHG Reduction Target

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*.[15] While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and obtain the statewide goals.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikeable communities;
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;
- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce "super pollutants" by reducing methane and hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO_2e per capita (statewide) by 2030 and no more than 2 metric tons CO_2e per capita by 2050. The statewide per capita targets account for all emissions sectors in the State, statewide population

[15] California Air Resource Board, 2017. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Targets.* November. Web: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf

forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Executive Order B-55-18 – Carbon Neutrality

In 2018, a new statewide goal was established to achieve carbon neutrality as soon as possible, but no later than 2045, and to maintain net negative emissions thereafter. CARB and other relevant state agencies are tasked with establishing sequestration targets and create policies/programs that would meet this goal.

Senate Bill 375 – California's Regional Transportation and Land Use Planning Efforts (2008)

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g. Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 - Renewable Portfolio Standards

In September 2015, the California Legislature passed SB 350, which increases the states Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030.

Senate Bill 100 – Current Renewable Portfolio Standards

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retails sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 2017 the target would be 52 percent, and by December 31, 2030 the target would be 60 percent. By December 31, 2045, all California utilities would be required to supply retail electricity that is 100 percent carbon-free and sourced from eligible renewable energy resource to all California end-use customers.

State of California Building Codes

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.[16] The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are

[16] See: https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#:~:text=CALGreen%20is%20the%20first%2Din,to%201990%20levels%20by%202020.

applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1, 2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due to more stringent energy-efficiency standards and mandatory installation of solar photovoltaic systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.[17]

REGIONAL AND LOCAL

Sustainable Communities Strategy

Metropolitan Transportation Commission (MTC) is the federally recognized metropolitan planning organization for the nine county Bay Area, which includes San Mateo County and the Town of Portola Valley. Adopted July 26, 2017, by the MTC and the Association of Bay Area Governments (ABAG), Plan Bay Area 2040 includes the region's Sustainable Communities Strategy and the Regional Transportation Plan. The Sustainable Communities Strategy lays out how the region will meet GHG reduction targets set by CARB.

The Draft 2050 Plan Bay Area was under review during the drafting of this report, but not yet adopted.

Bay Area Air Quality Management District and the Clean Air Plan

The Project site falls within the San Francisco Bay Area Air Basin and therefore under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). BAAQMD provides a document titled *California Environmental Quality Act Air Quality Guidelines* ("Guidelines"), which provides guidance for consideration by lead agencies, consultants, and other parties evaluating air quality impacts in the San Francisco Bay Area Air Basin conducted pursuant to CEQA. The document includes guidance on evaluating and mitigating greenhouse gas emissions impacts. The most recent version of the Guidelines is dated May 2017. The updated CEQA Guidelines revised significance thresholds, assessment methodologies, and mitigation strategies for criteria pollutants, air toxics, odors, and greenhouse gas emissions.

In 1991, BAAQMD, together with MTC and ABAG prepared the Bay Area's first Clean Air Plan or CAP. The CAP was developed to address compliance with the California Clean Air Act. Since 1991, there have been a few revisions to the original plan, including a total revision in 2010 and again in 2017. The current CAP, the 2017 version, includes a multi-pollutant strategy represented by 85 control strategies to simultaneously reduce emissions and ambient concentrations of ozone, fine particulate matter, toxic air contaminants, as well as greenhouse gases that contribute to climate change. [18]

[17] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

[18] Bay Area Air Quality Management District, *Clean Air Plan 2017: Spare the Air, Cool the Climate*, Adopted April 2017.

The CAP includes the Bay Area's first-ever comprehensive Regional Climate Protection Strategy (RCPS), which identifies potential rules, control measures, and strategies that the BAAQMD can pursue to reduce GHG in the Bay Area. Measures of the 2017 CAP addressing the transportation sector are in direct support of Plan Bay Area, which was prepared by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) and includes the region's Sustainable Communities Strategy and the 2040 Regional Transportation Plan. Highlights of the 2017 Clean Air Plan control strategy include:

- Limit Combustion: Develop a region-wide strategy to improve fossil fuel combustion efficiency at industrial facilities, beginning with the three largest sources of industrial emissions: oil refineries, power plants, and cement plants.
- Stop Methane Leaks: Reduce methane emissions from landfills and oil and natural gas production and distribution.
- Reduce Exposure to Toxics: Reduce emissions of toxic air contaminants by adopting more stringent limits and methods for evaluating toxic risks at existing and new facilities.
- Put a Price on Driving: Implement pricing measures to reduce travel demand.
- Advance Electric Vehicles: Accelerate the widespread adoption of electric vehicles.
- Promote Clean Fuels: Promote the use of clean fuels and low or zero carbon technologies in trucks and heavy-duty vehicles.
- Accelerate Low Carbon Buildings: Expand the production of low-carbon, renewable energy by promoting on-site technologies such as rooftop solar and ground-source heat pumps.
- Support More Energy Choices: Support community choice energy programs throughout the Bay Area.
- Make Buildings More Efficient: Promote energy efficiency in both new and existing buildings.
- Make Space and Water Heating Cleaner: Promote the switch from natural gas to electricity for space and water heating in Bay Area buildings.

To achieve the goals of the CAP, it identifies 85 emissions control measures for implementation by BAAQMD in collaboration with local government agencies, the business community, and Bay Area residents. The control measures target the following emissions sources:

- Stationary sources (40 measures);
- Transportation (23 measures);
- Energy (2 measures);
- Buildings (4 measures);
- Agriculture (4 measures);
- Natural and working lands (3 measures);
- Waste management (4 measures);
- Water (2 measures);
- Super-GHGs (3 measures); and
- Further study (miscellaneous stationary, building, and agriculture sources) (11 measures).

Town of Portola Valley

The Town of Portola Valley developed a Sustainability Element to their General Plan in January 2009. The element is intended to help the community achieve its goal of ensuring sustainability by the reduction of GHG emissions, green building for new and existing structures, protection of water resources, protection of the natural environment, and community education and involvement. An overarching goal of reducing carbon emissions to 1990 levels by the year 2020 and to 80% below 1990 levels by the year 2050 was established with the adoption of the General Plan's Sustainability Element.[19] The Sustainability Element is not a "qualified GHG Reduction Strategy" under state regulations, meaning that consistency with its goals and objectives does not replace quantification of impacts for development projects in Portola Valley.

The California Energy Commission (CEC) updates the California Building Energy Efficiency Standards every three years, in alignment with the California Code of regulations. Title 24 Parts 6 and 11 of the California Building Energy Efficiency Standards and the California Green Building Standards Code (CALGreen) address the need for regulations to improve energy efficiency and combat climate change. The 2019 CALGreen standards include substantial changes intended to increase the energy efficiency of buildings. For example, the code encourages the installation of solar and heat pump water heaters in low-rise residential buildings. The 2019 California Code went before Town Council in December 2019 for approval, with an effective date of January 1, 2020.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The following thresholds are based on Appendix G of the CEQA Guidelines:

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

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

The CEQA Guidelines state that, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The analysis in this chapter is based on the thresholds presented in the latest BAAQMD Guidelines (May 2017), as detailed under each impact discussion below.

GREENHOUSE GAS EMISSIONS AND CLIMATE ACTION PLAN CONSISTENCY

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

BAAQMD has determined that GHG emissions and global climate change represent cumulative impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature, but the combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts. In developing thresholds of significance for GHG emissions, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a

[19] Town of Portola Valley. *Town of Portola Valley General Plan, Sustainability Element*, adopted January 26, 2009.

project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse GHG emissions impacts.[20]

Impact GHG-1: **Increased GHG Emissions.** Construction and operation of the proposed Project would be additional sources of GHG emissions, primarily through consumption of fuel for transportation and energy usage on an ongoing basis. However, the GHG emissions level would be below applicable significance thresholds and would therefore be a ***less-than-significant*** impact.

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

Significance Thresholds

For quantified emissions, the BAAQMD's CEQA Air Quality Guidelines recommended an efficiency threshold of 4.6 metric tons (MT) per capita or, if a project is too small to meet the efficiency threshold, an overall emissions threshold of 1,100 metric tons. These thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate.

Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a "Substantial Progress" efficiency metric of 2.8 MT CO_2e/year/service population and an overall emissions threshold of 660 MT CO_{2e}/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.8 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels.[21] The 2030 overall emissions threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold.

A project would need to exceed both the efficiency and overall emissions thresholds to be considered to have a significant impact with respect to GHG emissions.

Emissions Qualification and Conclusions

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as discussed in more detail in Attachment C.

During construction of the project, greenhouse gases would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. Per standard procedures for analysis, quantification of construction has been annualized over the average lifetime of a building (40 years) and assessed with the operational analysis below.

[20] Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2017, p. 2-1.

[21] Association of Environmental Professionals, 2016. Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California. April.

Operationally, greenhouse gases would be emitted through building operation including use of landscaping equipment (area) and the distribution, consumption, and/or disposal of energy, water, and waste as well as emission from vehicles traveling to and from the site (mobile), as detailed in **Table 10.1** below.

Table 10.1: Annual Project GHG Emissions

Emission Sources	MTCO2e/yr
Construction (annualized over 40 years)	12
Area	3
Energy	103
Mobile	236
Water and Waste	22
Total	**376**
Overall Emissions CEQA Threshold (2030)	*660*
Per Capita[1] Emissions (MT CO2e/year/per capita)	**3.6**
Efficiency CEQA Threshold (2030)	*2.8*
Exceed Both Thresholds?	***No***

[1] Based on a population of 101 residents calculated using the Town of Portola Valley's average 2.58 persons per household for the 39 units. See discussion of population and housing in Chapter 17 of this EIR for additional information.

Source: CalEEMod, see Appendix C.

To be considered an exceedance of significance thresholds, the project must exceed both the GHG overall emissions threshold and the efficiency threshold, as they are intended to capture small or large projects respectively. If it can be demonstrated that a project is below one of the thresholds, then that project does not exceed both thresholds and would not have a significant impact.

As shown in Table 10.1, the Project would not exceed the 660 MT CO_2e/year overall emissions threshold in 2030 and therefore is below significance levels as a small project with low levels of emissions and the Project's impact with respect to GHG emissions would be ***less than significant.***

CONSISTENCY WITH GHG REDUCTION PLANS

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

CEQA Guidelines section 15183.5 permits public agencies to use local GHG reduction plans to analyze impacts under this threshold provided the local reduction plan meets special requirements, including a quantification of existing an projected local GHG emissions, performance standards designed to reduce those emissions and adoption at a public hearing following environmental review. The Project is not located in a community with an adopted qualified GHG Reduction Strategy, so consistency with such a plan cannot be analyzed. Emissions associated with the development of the proposed Project were analyzed per the 2017 BAAQMD CEQA Air Quality Guidelines. BAAQMD's thresholds and methodologies take into account implementation of state-wide regulations and plans, such as the AB 32 Scoping Plan and adopted state regulations such as Pavley and the low carbon fuel

standard. (See the Air Quality section for a related analysis of the Project's consistency with the Clean Air Plan.)

Additionally, the Town requires new development to complete a Build It Green checklist as part of its Green Building Ordinance. Build It Green is a nonprofit organization focused on reducing carbon emissions by connecting more homes to clean power and advanced energy technologies. Their checklists are used to estimate a *GreenPoint* Rating score, which the Town uses to assess if a new development project meets the requirements of the Town's Green Building Ordinance. The applicant has completed the checklist and identified 173 points, including but not limited to points for roof-top solar panels, electric vehicle charging stations, energy efficient appliances and lighting, water efficient appliances and fixtures, construction-period waste diversion, environmentally-friendly building materials and finishes, and resource-efficient landscaping. A minimum of 75 points are required per the Town's Green Building Ordinance. Therefore, the Project meets and exceeds minimum requirements for sustainability under Town's requirements.

Therefore, the Project is consistent with relevant plans, policies, and regulations related to GHG emissions and there would be ***no impact*** in this regard.

11

HAZARDS AND HAZARDOUS MATERIALS

INTRODUCTION

A hazardous material is a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may pose a substantial present or potential hazard to human health and safety, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

This chapter utilizes information from the following reports prepared for this Project or analysis:

Phase I Environmental Assessment Portola Valley Housing Site, dated March 11, 2020, prepared for the applicant by GSI Environmental, Inc. (included in Appendix F).

ENVIRONMENTAL SETTING

SITE USE HISTORY

The majority of the site is currently vacant and has no history of residential development. The proposed development area is currently occupied by a horse ranch and boarding facility and had been previously vacant. The Phase I Environmental Site Assessment consulted historic maps of the Camp Fremont Maneuver Ground, an approximately 7,200-acre World War I training facility in the general vicinity, to confirm that there is no evidence that it extended onto the Project site.

REGULATORY SETTING

FEDERAL AND STATE LEVEL

United States Environmental Protection Agency

The chief environmental regulator at the federal level is the United States Environmental Protection Agency (EPA), Region IX for Northern California. In California the department of Toxic Substances Control is chiefly responsible for regulating the safe handling, use, and disposal of toxic materials in the state of California, while the State Water Resources Control Board regulates discharge of potentially hazardous materials into waterways and aquifers. Programs intended to protect workers from exposure to hazardous materials and from accidental upset are covered under the Occupational Health and Safety Administration (OSHA) at the federal level and at the state level through the California Department of Occupational Safety and Health (CAL/OSHA), as well as through the California Department of Health Services (DHS).

Resource Conservation and Recovery Act

The RCRA is the United States primary law governing the handling and disposal of solid hazardous waste. The RCRA is actually an amendment, made in 1976, to the solid waste disposal act of 1965, but the amendments were so comprehensive that it is generally referred to as a new act. The RCRA

defines solid and hazardous waste, authorizes the Environmental Protection Agency (EPA) to set standards for facilities that generate or manage hazardous waste, and establishes a permit program for hazardous waste treatment, storage, and disposal facilities. The RCRA was last re-authorized by the Hazardous and Solid Waste Amendments of 1984. The authorization for appropriations under the Act expired September 30, 1988, but funding for the EPA's programs in this area has continued; the Act's other authorities do not expire.[1]

Department of Transportation

Transportation of hazardous materials on the highways is regulated through the Federal Department of Transportation (DOT) and the California Department of Transportation (Caltrans). This includes a system of placards, labels, and shipping papers required to identify the hazards of shipping each class of hazardous materials. Existing federal and state laws address risks associated with the transport of hazardous materials. These laws include regulations outlined in the Hazardous Materials Transportation Act administered by the DOT. Caltrans is mandated to implement the regulations established by the DOT, which is published as the Federal Code of Regulations, Title 49, commonly referred to as 49 CFR. The California Highway Patrol (CHP) enforces these regulations. Regulations of hazardous materials and wastes include the manufacture of packaging and transport containers; packing and repacking; labeling; marking or placarding; handling; spill reporting; routing of transports; training of transport personnel; and registration of highly hazardous material transport.

State Water Resource Control Board

The State Water Resource Control Board (SWRCB) was created by the state legislature in 1967, with the joint authority of water allocation and water quality protection. The SWRCB runs Geo Tracker, a database of environmentally regulated facilities in California. Within the State of California there are nine regional water quality control boards. The mission of the regional boards is to develop and enforce water quality objectives and implementation plans that will best protect the state's waters, recognizing local differences in climate, topography, geology and hydrology. The Town of Portola Valley is under the purview of the San Francisco Bay Area Regional Water Quality Control Board.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The following thresholds for measuring a Project's environmental impacts are based upon CEQA Guidelines thresholds:

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

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

3. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

[1] McCarthy, J and Tiemann, M, Congressional Research Service Report RL30032 – Solid Waste Disposal Act/Resource Conservation and Recovery Act, National Council for Science and the Environment, obtained from http://www.cnie.org/NLE/CRSreports/BriefingBooks/Laws/h.cfm

4. Would the project 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?

5. Would the project be 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?

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

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

HAZARDOUS MATERIALS USE, TRANSPORT, OR ACCIDENTIAL RELEASE

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

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

Impact Haz-1: **Routine Hazardous Materials.** Construction activities routinely utilize fuels and oils in construction equipment that may be considered hazardous and residential operations use small amounts of hazardous materials such as cleaning products and oil and gasoline in vehicles. However, compliance with applicable regulations would ensure that the impact is ***less than significant***.

The horse boarding facility currently existing at the site was constructed after 1980 (see Chapter 8: Cultural and Tribal Cultural Resources for discussion of site history), and is therefore not of use type or an age with the potential to contain lead-based paint or asbestos or other known hazardous building materials that would require abatement prior to demolition. As discussed under the Hazardous Material Sites discussion below, there is no known potential for hazardous materials in the soil or groundwater at the site and therefore no hazardous materials risk related to construction or operational disturbances of the site.

The proposed development would involve construction activities, the standard equipment for which could utilize substances considered by regulatory bodies as hazardous, such as diesel fuel and gasoline and lubricants. However, all construction activities would be required to conform to Title 49 of the Code of Federal Regulations, US Department of Transportation (DOT), State of California, and local laws, ordinances and procedures.

Residential uses utilize small amounts of hazardous materials such as cleaning products and oil and gasoline in vehicles, often referred to as “household hazardous waste” or “universal waste”. The San Mateo County Health Services Agency (SMCHSA) – Environmental Services Division enforces regulations for businesses that utilize larger quantities of hazardous waste, but these regulations would not be applicable to residential users. Residential usage of hazardous waste is regulated under

California law such that they would not be allowed to utilize substantial amounts of hazardous materials or in such a way that it would be considered a substantial hazardous materials risk.[2]

Therefore, with conformance to applicable regulations, the impact of the Project with respect to routine use, transport, or accidental upset of hazardous materials would be ***less than significant***.

HAZARDOUS MATERIALS NEAR SCHOOLS

3. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

The closest public schools to the Project site are Ormondale School and Corte Madera School, about 1 to 1.5 miles to the west, and Woodside High School about 4 miles to the northwest. The closest private schools are Woodland School, about 1 mile to the north of the Project site, and Carillon Preschool, about 2 miles to the west. There are no schools within one-quarter mile of the Project site.

Additionally, the proposed residential development would not be considered one that generates substantial hazardous emissions or handles hazardous materials and construction-period hazardous materials usage would be limited and follow applicable regulations (see above). There would be ***no impact*** related to hazardous materials within one-quarter mile of a school.

Potential hazards related to air emissions are discussed in more detail in Chapter 6: Air Quality.

HAZARDOUS MATERIALS SITES

4. *Would the project 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?*

The Phase I Environmental Site Assessment found no documentation or physical evidence of soil or groundwater impairments associated with the site. A review of regulatory databases maintained by county, state, and federal agencies found no documentation of hazardous materials violations or discharge impacting the site and did not identify contaminated facilities within relevant impact distances or the Project site.[3]

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[2] Title 22 of the California Code of Regulations Chapters 23 and 45, and Chapter 6.5 Section 25218 of the Health and Safety Code, available in full at https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I6F56A7E1D4B611DE8879F88E8B0DAAAE&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default), https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=25218&lawCode=HSC, and https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I3E00DB70D4BB11DE8879F88E8B0DAAAE&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)&bhcp=1.

[3] The Phase I Environmental Site Assessment listed records from the following sources: Portola Valley Building Department, San Mateo County Environmental Health, San Mateo County Assessor's Office, Portola Valley Planning Department, State Water Resources Control Board (SWRCB), Department of Toxic Substances Control (DTSC), California Department of Conservation, Division of Mine Reclamation. This includes lists compiled pursuant to Government Code Section 65962.5 ("Cortese list") as well as other sources.

Therefore, the Project site is not on a list of hazardous materials sites and there would be ***no impact*** with respect to this topic.

AIRPORT LAND USE PLAN

5. *Would the project be 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?*

Palo Alto Airport and Moffett Federal Airfield are public and civil-military airports located approximately 6.3 and 7.8 miles from the Project site, respectively, and are the closest airports to the Project site. The Project site is not within two miles of an airport or within an airport land use plan area and would have ***no impact*** with respect to airport hazards.

EMERGENCY RESPONSE AND EVACUATION

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

Impact Haz-2: **Additional Evacuation Traffic**. The Project would contribute additional evacuating vehicles in the event of an emergency evacuation in the area. However, based on modeling of evacuation traffic, the addition of evacuating vehicles from the Project site would not make a statistically significant difference in evacuation times. Proposed site improvements and vegetation management would additionally show fire spread across the Project site and therefore provide more time before area roadways including Alpine Road would be affected by fires. Therefore, the Project would not substantially impair emergency response or evacuation and would have a ***less than significant*** impact in this regard.

The Portola Valley Emergency Evacuation Plan identifies numerous redundant evacuation routes to allow for options in the event of an emergency. In the Project vicinity, evacuation routes include all surrounding roadways: Alpine Road, Westridge Drive, and Minoca Road.[4]

While the Project would add some traffic to area roadways, as discussed in Chapter 16: Transportation, the Project would not substantially contribute to area congestion or interfere with emergency response. Chapter 18: Wildfire includes a further discussion of emergency evacuation in the event of a wildfire. The modeling of evacuation during a wildfire determined that the addition of evacuating vehicles from the Project site would not make a statistically significant difference in evacuation times. As also shown in the evacuation modeling, for wildfires involving the Project site, the slowing of fire spread due to proposed defensible space, increased fire access, and vegetation management on the Project site would provide more time before area roadways including Alpine Road would be affected by fires. Therefore, the Project would not impair or interfere with emergency response or emergency evacuation and would have a ***less than significant*** impact with respect to emergency response and evacuation.

[4] Prepared for Town of Portola Valley by the Woodside Fire Protection District, undated, Town of Portola Valley Evacuation Plan, available at: https://www.woodsidefire.org/attachments/article/50/Town%20of%20Portola%20Valley%20Evacuation%20Plan.pdf

WILDLAND FIRES

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

Wildland fire impacts are analyzed in detail in Chapter 18: Wildfire. Please refer to that chapter for an analysis of this topic.

12

HYDROLOGY AND WATER QUALITY

INTRODUCTION

This chapter was prepared in coordination with Questa Engineering Corporation. This section describes the existing and future hydrological conditions on and around the proposed Project site, and presents an evaluation of potential Project-related impacts to hydrology and water quality. The information presented below was drawn from several sources of data, including the following Project documents:

- Civil Planning Package and vesting Tentative Map package, prepared by Sandis, dated November 11, 2020. (Available as part of the Project files.)
- Overall Swale and Pipe Sizing Report, prepared by Sandis, July 26, 2021. (Available as part of the Project files.)

SETTING

CLIMATE AND TOPOGRAPHY

The Project site receives 28 inches of rain, on average, per year, and zero (0) inches of snow. The average yearly temperatures range from a high of 90 degrees Fahrenheit in July to an average low of 42 degrees Fahrenheit in January.

The approximately 75-acre property contains slopes of 30 to 75 percent; however, the approximately 7.4-acre Residential Development Area is nearly flat, with gentle slopes of 5 to 9 percent to the east. In the proposed Residential Development Area, elevations range from approximately 320 feet to 350 feet above Mean Seal Level (MSL). Down slope of the site at the eastern boundary is Alpine Road, and east of the roadway is Los Trancos Creek. Very little impervious surface (<1000 square feet) is on the existing site.

REGIONAL HYDROLOGY

When undeveloped land is covered with buildings and other impervious surfaces, it can cause more stormwater runoff to flow into creeks at greater volumes and faster rates. This results in changes to the morphology of channels, flooding, erosion, and in some cases, property damage. It is important to first understand the watershed in which the Project is being implemented and how and where construction of impervious surfaces may have an impact on the receiving infrastructure and downstream flooding conditions.

The Project site lies within the San Francisquito Creek watershed (**Figure 12.1**) and within the Los Trancos Creek sub basin which have headwaters are in the Santa Cruz Mountains, over 2,000 feet above the Bay. The upper watershed, consisting of at least 22 named creeks, feeds the creek main stem, which originates at the confluence of Bear Creek and Corte Madera Creek, just below the dammed Searsville Lake. Los Trancos Creek joins San Francisquito Creek just north of Highway 280.

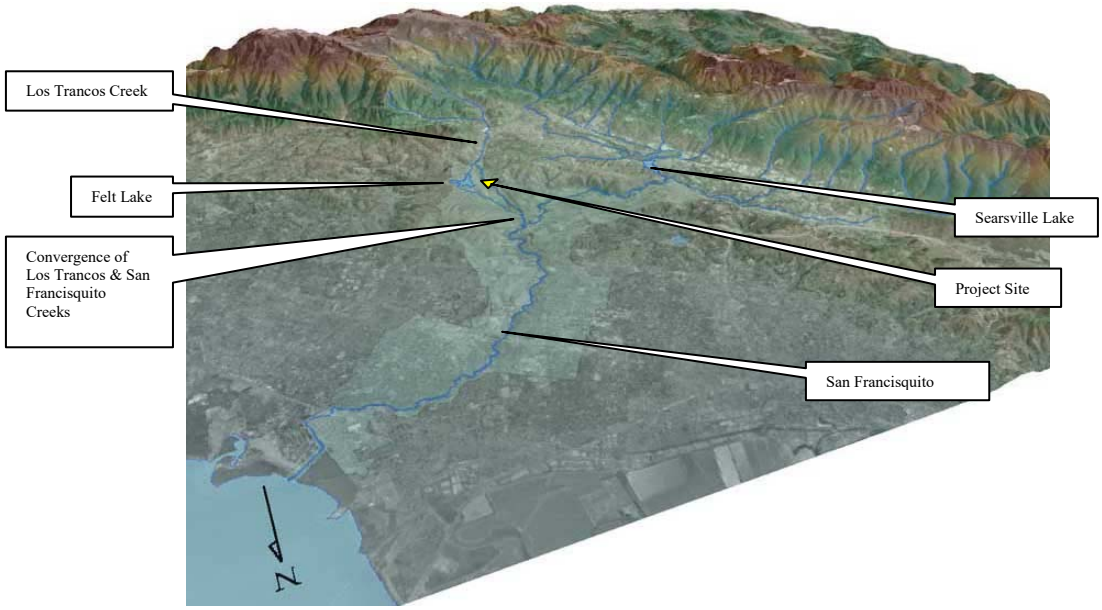


Figure 12.1: 3D Projection of the San Francisquito Creek Watershed

Source: United States Geological Survey, 2001, 3-D Image of San Francisquito Watershed with mainstem and tributary creeks in blue, San Francisquito Creek Watershed Map.

Los Trancos Creek forms the boundary between San Mateo and Santa Clara Counties. Los Trancos Creek drains an area of approximately 7 square miles (4,480 acres) and consists of 6.6 miles of channel. Felt Lake, a water storage reservoir used by Stanford, has a dammed inlet located near the intersection of Arastradero and Alpine Roads. Los Trancos Creek runs approximately 800 feet west of the Project site and Felt Lake is 0.6 miles to the northeast.

GROUNDWATER

The California Department of Water Resources (DWR) defines state groundwater basins based on geologic and hydrogeologic conditions. According to the DWR, the site is located on the southern tip of the Santa Clara Valley-San Mateo Plain Groundwater Basin. The basin consists of bedrock and alluvial fan deposits formed by tributaries to the San Francisco Bay, which are the Santa Clara Formation of Plio-Pleistocene age and the Quaternary age alluvial deposits, the second being the primary water-bearing strata which overlies the former.[1]

According to the USDA Web Soil Survey, the Project site has a well drained classification of soils, with the depth to the water table more than 80 inches.

FLOODING

The area surrounding the Project site is designated as Zone X in the FEMA Flood Insurance Rate Map (**Figure 12.2**), which is defined as an area outside the 2% annual chance floodplain.

[1] California Department of Water Resources, 2016 update, California's Groundwater, CDWR Bulletin 118.

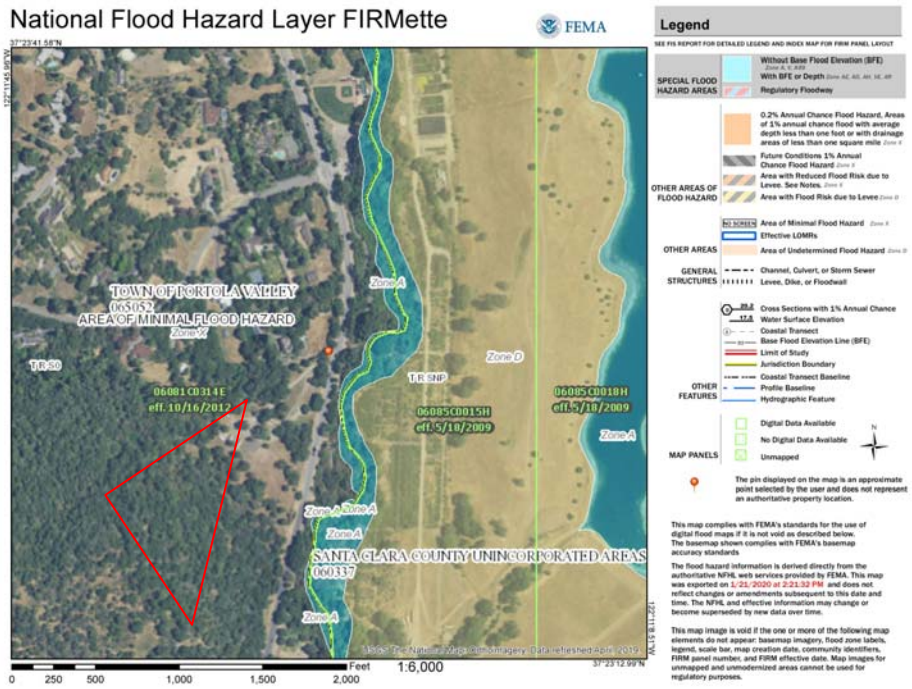


Figure 12.2: FEMA Flood Insurance Rate Map for the Project Area
Source: FEMA, 2020, National Flood Hazard Layer FIRMette, exported from the NFHL web services on 2/21/2020.

REGULATORY SETTING

The proposed Project would be constructed in accordance with several regulatory programs, laws, and regulations that aim to protect surface water resources. In some cases, federal laws are administered and enforced by state and local government. In other cases, state and local regulations in California are more restrictive than those imposed by federal law. This section summarizes relevant regulatory programs, laws, and regulations with respect to hydrology and water quality and how they relate to the proposed Project.

FEDERAL LAWS AND REGULATIONS

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) is responsible for establishing base flood elevations (BFE) and floodplain boundaries based on United States Army Corps of Engineers (USACE), studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps used in the National Flood Insurance Program (NFIP) (42 USC Ch. 50, Section 4102). These maps identify the locations of special flood hazard areas, including 100-year floodplains. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations, enabling the FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains. FEMA limits residential development in the floodplain. However, a community may obtain a variance from the requirements if the data provided by FEMA disagrees with ground elevations.

Clean Water Act (CWA)

The Clean Water Act (CWA) was enacted by Congress in 1972, and amended several times since inception. It is the primary federal law regulating water quality in the United States, and forms the basis for several state and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA prescribed the basic federal laws for regulating discharges of pollutants, as well as set minimum water quality standards for all waters of the United States. Several mechanisms are employed to control domestic, industrial, and agricultural pollution under the CWA. At the federal level, the U.S. Environmental Protection Agency (EPA) administers the CWA. At the state and regional level, the CWA is administered and enforced by the State Water Resources Control Board (SWRCB) and the San Francisco Bay's Regional Water Quality Control Boards (RWQCBs, respectively. The State of California has developed a number of water quality laws, rules, and regulations, in part to assist in the implementation of the CWA and related federally-mandated water quality requirements. In many cases, the laws, rules, and regulations adopted by the state and regional boards are more protective than the federal requirements.

CALIFORNIA LAWS AND REGULATIONS

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act establishes the SWRCB and the RWQCB as the principal state agencies having primary responsibility for coordinating and controlling water quality in California. The Porter-Cologne Act establishes the responsibility of the RWQCBs for adopting, implementing, and enforcing water quality control plans (Basin Plans), which set forth the state's water quality standards (i.e. beneficial uses of surface waters and groundwater) and the objectives or criteria necessary to protect those beneficial uses. The NPDES permit must be consistent with the Basin Plan for the site region.

NPDES Permit Requirements

The CWA has nationally regulated the discharge of pollutants to the waters of the U.S. from any point source since 1972. In 1987, amendments to the CWA added section 402(p), which established a framework for regulating nonpoint source (NPS) storm water discharges under the National Pollutant Elimination System (NPDES). The Phase I NPDES storm water program regulates storm water discharges from industrial facilities, large and medium-sized municipal separate storm sewer systems (those serving more than 100,000 persons), and construction sites that disturb five or more acres of land. Under the program, the Project applicant will be required to comply with two NPDES permit requirements.

The NPDES General Construction Permit Requirements apply to clearing, grading, and disturbances to the ground such as excavation. The Project applicant is required to submit a Notice of Intent (NOI) with the State Water Resource Control Board's (SWRCB) Division of Water Quality. The NOI includes general information on the types of construction activities that will occur on the site. The applicant will also be required to submit a site-specific plan called the Stormwater Pollution Prevention Plan (SWPPP) for construction activities. The SWPPP will include a description of Best Management Practices (BMPs) to minimize the discharge of pollutants from the site during construction. It is the responsibility of the property owner to obtain coverage under the permit prior to site construction.

The NPDES General Industrial Permit Requirements apply to the discharge of storm water associated with industrial sites. The permit requires the implementation of management measures that will achieve the performance standard of best available technology (BAT) economically achievable and best conventional pollutant control technology (BCT). Under the statute, operators of new facilities

must implement industrial BMPs in the Project SWPPP and perform monitoring of storm water discharges and unauthorized non-storm water discharges. An annual report must be submitted to the RWQCB each July 1. Operators of new facilities must file an NOI at least 14 days prior to the beginning of operations.

LOCAL PROGRAMS AND REGULATIONS

San Francisco Bay Water Quality Control Plan (Basin Plan)

The San Francisco Bay RWQCB is responsible for the development, adoption, and implementation of the Water Quality Control Plan for the San Francisco Bay region. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the San Francisco Bay Region. The Basin Plan identifies beneficial uses of surface waters and groundwater within its region and specifies water quality objectives to maintain the continued beneficial uses of these waters. The proposed Project is required to adhere to all water quality objectives identified in the Basin Plan.

San Mateo Countywide Stormwater Pollution Prevention Program

To comply with the Clean Water Act, San Mateo County and the 20 cities and towns in the County formed the San Mateo Countywide Stormwater Pollution Prevention Program (STOPPP). STOPPP holds a joint municipal NPDES permit from the San Francisco Bay RWQCB. The permit includes a comprehensive plan to reduce the discharge of pollutants to creeks, San Francisco Bay, and the ocean to the maximum extent possible.

San Mateo County Stormwater Resource Plan (SRP)

The SRP is based primarily on critical watershed characteristics and processes, including land use, soil hydrology, land slope and other relevant landscape features. Onsite stormwater management projects capture and manage the runoff from a particular parcel or site. Hydrologic Response Units (HRU's) in small spatial units containing unique attributes are used to evaluate watershed processes. HRUs assessed are land use, impervious cover, hydrologic soil groups, and slope. Based on these metrics, stormwater projects are identified and prioritized to address water quality impairments, reduce flooding, and provide more natural groundwater recharge throughout the site. Low Impact Development (LID) is a form of on-site urban infrastructure design that uses a suite of technologies intended to imitate pre-urbanization (natural) hydrologic conditions. One of the most prominent effects of urbanization is the drastic increase in impervious surfaces because it creates more stormwater runoff. The SRP and LID will periodically be revised to update the Project implementation plan.

Town of Portola Valley

The Town is the lead agency for the environmental impact evaluation and will issue building permits for the proposed Project. In regards to the storm water system, the Town will review all final design plans and calculations used for the design of the storm drainage system. They will also verify and confirm that the Project has attained all appropriate state and federal permits and the design is in compliance with those permits. The applicant is ultimately responsible for appropriate design and installation of storm water drainage elements related to their project.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The following thresholds for measuring a Project's hydrology impacts are based upon Appendix G, CEQA Guidelines thresholds:

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

2. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

3. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

    a) result in substantial erosion or siltation on- or off-site;

    b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

    c) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

4. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

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

IMPACT METHODOLOGY

Hydrologic and water quality information for the Project area was derived from various sources and compiled in this chapter to develop a comprehensive understanding of the potential constraints and hazards associated with Project construction and operation. Sources of pertinent information include the Department of Water Resources, State Water Resources Control Board, and San Francisco Bay Regional Water Quality Control Board which reflect the most up-to-date understanding of the regional hydrology and water quality of the San Francisco Bay region.

The analysis also considers the various existing State and local regulations that apply to stormwater controls for construction and operation, which include the Municipal Regional Stormwater Permit and the San Mateo County requirements for Provision C.3 LID. Through compliance with the existing ordinances, the Applicant would be required to demonstrate that the proposed site uses will maintain existing water quality and runoff characteristics prior to issuance of building permits.

SITE HYDROLOGY

Less than 1 percent of the 7.4-acre Residential Development Area of the Project site is currently covered by impervious surfaces and there is no storm drain system currently onsite. Rainfall runoff flows east to the ditch on the side of Alpine Road, which collects local runoff and flows east into a culvert under Alpine Road which then discharges to Los Trancos Creek.

Within the Residential Development Area, the proposed Project would disturb roughly 7.4 acres (of the 75.2-acre site) and within that area, would add 3.01 acres (131,230 square feet) of impervious surfaces from the 39 housing units and asphalt roadways. It is estimated that 5,327 cubic yards of earthmoving would need to occur to facilitate the residential development. The residential development is at the bottom of hillside drainage. Runoff coming from open space above the Project will be collected in a series of concrete v-ditches and 10 to 12 inch subterranean storm drain line behind lots 1 through 14. This runoff is directed southerly and connects with two existing 18-inch line along Alpine Road. This hillside runoff would not be from a developed area and is not proposed to be treated or detained in any way.

The Project also proposes construction of a paved fire access road. This road generally follows a low ridge line in the open space portion of the Project area. The fire access road is 1,450 feet long and generally 20 feet wide and will entail a grading footprint of approximately 116,000 square feet or 2.66 acres. This road drains into two separate sides of the ridge. A portion of the fire access road drains to the open space hillside above Alpine Road and then flows as sheet flow across the site into roadside ditches along Alpine Road. A portion of the fire access road drains to a small sub-watershed of 11.9 acres (south watershed). This watershed drains to a culvert that runs beneath Alpine Road and eventually discharges into Los Trancos Creek. The new fire access road would add 29,000 square feet of impervious or paved area to the Project site and of that area, 6,906 square feet (0.16 acres) of impervious area will drain to the south watershed. No hydrologic calculations for this south watershed were supplied, but the additional impervious surface is expected to increase the runoff coefficient by 2.7% and thus increase peak flows at the Alpine Road culvert.

Residential Development Area runoff would be directed from the residential housing lots into the proposed Project roadway and collected into a 12-inch diameter storm drain in the development roadway. This 12-inch diameter storm drain would run clockwise (northerly) on the proposed Project roadway loop, and flows into a 3 foot deep sediment capture and storage basin on-site. The storage basin then flows to one of two bio-retention treatment areas on-site, together totaling 4,342 square feet in area, before connecting to the existing 18-inch diameter storm drain line along Alpine Road that discharges into Los Trancos Creek. **Figure 12.3** shows the general drainage patterns and facilities proposed for the site.

An unnamed seasonal creek, referred to as the Pine Ridge Run, flows along the north property line. The Pine Ridge Run Drainage Area drains to a creek that flows just north of the Project site. This drainage area collects runoff from 93 acres upslope of the Project site.

WATER QUALITY STANDARDS

1. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Impact Hydro-1: **Potential for Contaminated Runoff.** Unmitigated, Project activities associated with construction of the Project could result in violation of waste discharge requirements under the San Mateo County Municipal Regional Stormwater NPDES Permit from contaminated runoff entering Los Trancos Creek or other unnamed creeks or drainages for both the construction phase and on-going operation of the Project. Increased erosion caused by construction activities and increased runoff could result in the sedimentation of receiving waters. This impact is ***less than significant with mitigation***.

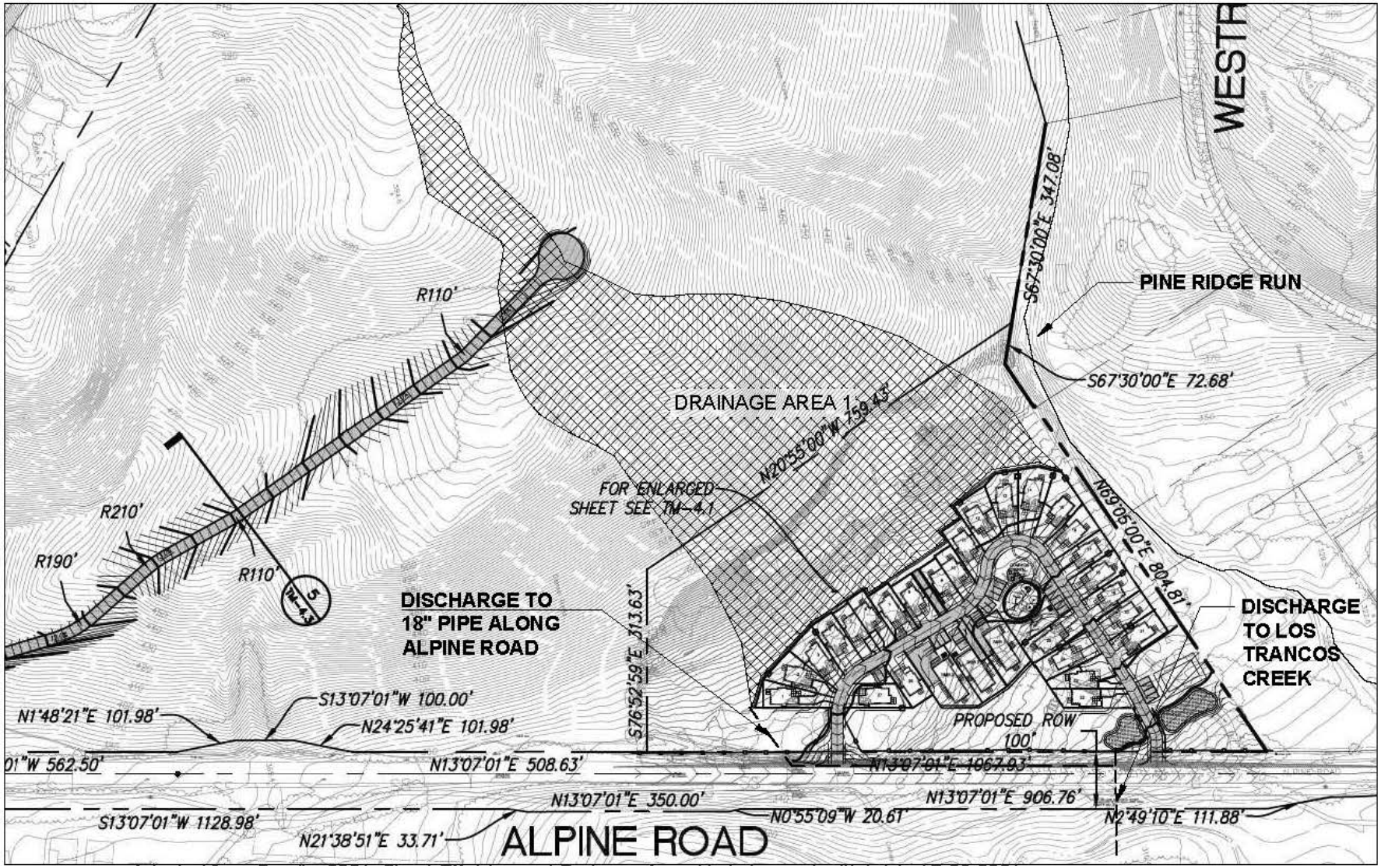


Figure 12.3: Project Vicinity Drainage Patterns and Facilities

Source: Adapted from Overall Swale and Pipe Sizing Report, prepared by Sandis, July 26, 2021, Sheet EX-1.

Construction-Period

The planned construction, tree removal, earthwork, and grading activities for the Project could result in an increase in erosion from the Project area into the Los Trancos Creek drainage, and San Francisco Bay. Hillside excavation to create residential lots and the new roadway could result in an increase in erosion and sedimentation, Sedimentation can lead to a degradation of water quality because sediment can carry nitrogen, phosphorus, petroleum, and other organic contaminants, pesticides and herbicides, and trace metals. Sediment can also accumulate at the entrance of downstream storm drain system inlets and reduce drainage capacity.

Construction activities associated with the improvements would require the presence of construction vehicles, heavy equipment and materials, and construction crews. In addition to stormwater runoff and potential resulting water quality and sedimentation impacts, there is the potential for hazardous materials, including petroleum products associated with diesel vehicle and equipment use, and contaminants from paving materials, concrete mixing, pouring and washout, and sanitary facilities, to enter Los Trancos Creek and downstream creeks fed by Los Trancos Creek. Following vegetation clearing, tree removal, and grading, excavation would occur for roadbed improvements, and foundations. All of these activities have the potential to contribute pollutants to Los Trancos Creek (particularly turbidity and high-pH washwater) that could affect water quality and may violate water quality standards if left uncontrolled.

However, the Project would be required to implement an Erosion and Sediment Control Plan (ESCP) and SWPPP under the Municipal Regional Stormwater Permit and the San Mateo Countywide Stormwater Pollution Prevention Program. The ESCP must include BMPs that are designed to prevent runoff from construction areas to reduce potential impacts to surface water quality during Project construction. The SWPPP will also include design elements and BMPs for construction areas such as fueling and equipment washing areas, and trash and hazardous material storage areas.

The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) is a partnership of the City/County Association of Governments (C/CAG), each incorporated city and town in the county, and the County of San Mateo, which share a common NPDES permit. The Municipal Regional Stormwater NPDES Permit was issued by the SFBRWQCB[2] in compliance with the Basin Plan[3] and the NPDES Program. Participating agencies (including San Mateo County and the Town of Portola Valley) must comply with the provisions of the Countywide permit by ensuring that new development and redevelopment mitigate, to the maximum extent practicable, water quality impacts from storm water runoff during both construction and operation periods of projects.

Mitigation Measure

Hydro-1a: **Erosion and Sediment Control Plan.** Prior to issuance of grading permits or approval of improvement plans, the Applicant shall submit a detailed ESCP to the County of San Mateo Planning and Building Department and the Director of Public Works of Portola Valley for review and approval. The purpose of the ESCP shall be to mitigate erosion and sedimentation impacts during the construction period for the proposed residential development, trails, and the new fire access road. The detailed ESCP shall meet the requirements of both San

[2] California Regional Water Quality Control Board. San Francisco Bay Region. 2015. *Municipal Regional Stormwater NPDES Permit.* Order No. R2-2015-0049. NPDES Permit No. CAS612008. November 19, 2015.

[3] California Regional Water Quality Control Board. San Francisco Bay Region. 2017. *San Francisco Bay Basin Water Quality Control Plan.* May 4, 2017.

Mateo County and the Town of Portola Valley. It shall be accompanied by a written narrative and shall include, at a minimum, the following:

a. Proposed schedule of grading activities, monitoring, and infrastructure milestones in chronological format. An anticipated construction schedule and/or construction duration (in weeks or months) shall be provided.

b. Separate plan sheets for measures to be implemented at the grading stage and the construction stage.

c. Delineation of work areas including protection of surface waters, storm drain inlets, sensitive areas, and buffer zones.

d. A separate Tree Protection Plan.

e. All proposed retaining walls, including areas that will be used for stockpiling and storing construction materials.

f. Indicate location and method of stabilizing disturbed bare earth areas. Use seeding and/or mulching and the following, as necessary: (i) For slopes less than 3:1, provide silt fencing or fiber rolls along contour lines; (ii) For slopes greater than 3:1, anchored erosion blankets (rice, straw, or coconut) and fiber rolls or silt fencing at the crest are required. Jute netting is preferred when used with seeding.

g. Use diversion berms to divert water from unstable or denuded areas (e.g., top and base of a disturbed slope, grade breaks where slopes transition to a steeper slope).

h. Direct water from construction areas to designated temporary filtration/detention areas. Show any temporary detention areas for stormwater and stabilization of those areas.

i. Show location of office trailer(s), storage sheds, temporary power pole, scaffold footprint, and other temporary installations on the Erosion and Sediment Control Plan. Show how they will be accessed and show protection of the access routes.

j. Show location of utility trenches, indicate utility types, and identify timing of installation.

k. Use stabilized designated access points for entrance onto the property using 4- to 6-inch fractured aggregate over geo-textile fabric over the first 20 feet of the property. If using an existing paved driveway, identify on EC Plan. Where vehicles or equipment will travel from an existing paved driveway to unpaved areas within the property, a stabilized transition point is required that meets the above standards.

l. Provide designated area(s) for parking of construction vehicles, using aggregate over geo-textile fabrics required that meets the above standards.

m. Show all access roads/ramps and access points used by excavation equipment, trucks, or forklifts/crane access. The type of materials used for stabilization and their locations shall be indicated on the Erosion and Sediment Control Plan. Materials for this purpose are required to be stored on-site.

n. Show location, installation, and maintenance of a concrete/stucco mixer, washout, and pits. No concrete, mortar, or stucco washout is allowed to be placed directly on the soil/ground. Specify the method used to contain the washout.

o. Show location of portable toilets away from surface water locations and storm drain inlets.

p. Show storage location and containment of construction materials during work, as well as afterhours/ weekends. Show the location of lumber, gravel, and materials storage areas on the Erosion and Sediment Control Plan. Show how they will be accessed and show protection of the access routes.

q. Show areas and proposed protection of temporary stockpiles using anchored-down plastic sheeting in dry weather. The use of plastic sheeting during the wet season, October 1 through April 30, is not allowed, unless the stockpile is also protected with fiber rolls containing the base of the stockpile. Alternatively, in wet weather, or for longer storage, use seeding and mulching, soil blankets or mats.

r. Indicate the location of refuse piles and debris box locations on the Erosion and Sediment Control Plan. Show how they will be accessed and show protection of the access routes.

s. Identify an Erosion Control Point of Contact, including name, title/qualification, email, and phone number. The Erosion Control Point of Contact will be the County's main point of contact if Erosion and Sediment Control or Tree Protection corrections are required.

The ESCP shall also contain the following standard comments:

- Perform clearing and earth-moving activities only during dry weather. Measures to ensure adequate erosion and sediment control shall be installed prior to earth-moving activities and construction.

- Measures to ensure adequate erosion and sediment control are required year-round. Stabilize all denuded areas and maintain erosion control measures continuously between October 1 and April 30.

- Use sediment controls or filtration to remove sediment when dewatering site and obtain Regional Water Quality Control Board (RWQCB) permit(s) as necessary.

- Avoid cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated.

- Limit and time applications of pesticides and fertilizers to prevent polluted runoff.
- Limit construction access routes to stabilized, designated access points.
- Avoid tracking dirt or other materials off-site; clean off-site paved areas and sidewalks using dry sweeping methods.
- Train and provide instruction to all employees and subcontractors regarding the Watershed Protection Maintenance Standards and Construction BMPs.
- List the locations where placement of erosion materials is required on weekends and during rain events.
- The areas delineated on the plans for parking, grubbing, storage, etc., shall not be enlarged or "run over."
- Construction sites are required to have erosion control materials on-site during the "off-season."
- Dust control is required year-round.
- Erosion control materials shall be stored on-site.
- Use of plastic sheeting between October 1 and April 30 is not acceptable, unless for use on stockpiles where the stockpile is also protected with fiber rolls containing the base of the stockpile.
- Tree protection shall be in place before any demolition, grading, excavating or grubbing is started.

Mitigation Measure Hydro-1b: **Stormwater Pollution Prevention Program**. Prior to issuance of grading permits or approval of improvement plans, the Applicant shall also submit evidence to the Town Engineer of Portola Valley showing that coverage under the Statewide General Construction Activities Stormwater Permit (General Permit) has been obtained. The Applicant shall comply with the NPDES General Construction Activities Storm Water Permit Requirements established by the CWA. The Applicant can obtain coverage under the General Permit by filing a Notice of Intent (NOI) with the State Water Resource Control Board's (SWRCB) Division of Water Quality. The filing shall describe erosion control and storm water treatment measures to be implemented during and following construction and provide a schedule for monitoring performance.

These BMPs shall serve to control point and non-point source pollutants in stormwater and constitute the Project's SWPPP for construction activities. Long-term BMPs shall serve to control post-construction erosion and sedimentation. While the SWPPP will include several of the same components of the ESCP, the SWPPP shall also include BMPs for preventing the discharge of other nonpoint source pollutants besides sediment (such as paint, concrete, etc.) to downstream waters.

Implementation of the ESCP and SWPPP, as required by law and outlined in Mitigation Measures Hydro-1a and Hydro-1b, would prevent construction of the Project from violating any water quality standards or waste discharge requirements or otherwise substantially degrading surface or ground water quality, and would reduce related potentially significant impacts during the construction period to a ***less than significant*** level.

Operational

The Project improvements in the long-term could result in contaminated runoff entering Los Trancos creek from non-point sources including: 1) erosion and sedimentation in Los Trancos creek may temporarily increase post-construction because of soils that have been loosened and changes in drainage patterns; 2) pollutants from roadway and parking area use by vehicles, including contaminants such as hydrocarbons, lead, zinc, and copper; and 3) improper maintenance of the roadway and/or stormwater retention facilities could result in contaminants entering Los Trancos Creek in stormwater runoff. Mitigation Measures Hydro-1b detailing SWPPP requirements above would also be applicable to the operational period and serve to reduce post-construction erosion and sedimentation impacts.

The Project improvements would create approximately 131,230 square feet (3.01 acres) of impervious roadway surface, driveways, roofs, and other associated hardscape areas. Of the 3.01 acres, 0.8 acres accounts for a future access road which drains to areas outside of the development and 2.2 acres that drains to the development's storm water treatment facilities described below. Stormwater would be conveyed through a storm drain that runs north along the Project's proposed residential roadway. Stormwater then flows to one of two bio-retention treatment areas, together totaling 4,342 square feet, before connecting to the existing 18-inch diameter storm drain culvert under Alpine Road that discharges into Los Trancos Creek.

The Municipal Regional Stormwater Permit requires implementation of LID Requirements/ Stormwater Treatment Measures for projects that create more than 10,000 square feet of impervious surface to reduce stormwater runoff and mimic a site's predevelopment hydrology. LID treatment options may include infiltration, evapo-transpiration, rainwater harvesting and use, and biotreatment.[4] The proposed Project is a Provision C.3 Project and would be required to implement post-construction stormwater controls. The term "post-construction stormwater control" encompasses LID, which reduces water quality impacts by preserving and re-creating natural landscape features, minimizing imperviousness, and using stormwater as a resource, rather than a waste product. Stormwater treatment measures must be sized to treat runoff from "relatively small sized storms that comprise the vast majority of storms." The bioretention swales were designed to meet the requirements of the Municipal Regional Stormwater Permit and treat at least eighty (80) percent of the total runoff over the life of the Project.

While preliminary hydrological calculations were reviewed for this analysis, a final and complete Drainage Plan would need to be accepted by the Town prior to issuance of permits, as detailed below.

Mitigation Measure

Hydro-1c: **Final Drainage Plan.** Prior to the issuance of the Building permit or Planning permit (for Provision C3 Regulated Projects), the Applicant shall submit to the Planning and Building Department for review and approval a Drainage Plan including the following:

[4] San Mateo Countywide Stormwater Pollution Prevention Program. 2016. *Current Stormwater Quality Control Requirements.*

1. A drainage analysis of the proposed Project (including the Residential Development area, trails, and fire access road) prepared, by a registered civil engineer. The drainage analysis shall consist of a written narrative and a plan. The plan shall include the following:

    a. A written analysis that includes the delineation of all drainage basins to which stormwater from the Project site would flow, description of proposed drainage system, discussion of rationale used to design the system, a discussion of methods and/or calculations, description of how excess drainage will be detained, and a description of how discharge will be controlled.

    b. Complete plans of storm drainage contours and elevations, storm drain facilities and lines, utility crossings, and construction materials.

    c. The flow of the stormwater onto, over, and off of the property shall be detailed on the plan and shall include adjacent lands as appropriate to clearly depict the pattern of flow.

    d. A hydraulic analysis demonstrating that the post-development discharge will be controlled and peak flow and velocity will not exceed pre-development values, and that all storm drainage facilities have sufficient capacity to carry anticipated peak flows. This analysis shall consider all facilities including the fire access road grading and its drainage system. The condition of the southern culvert underneath Alpine Road shall be assessed and replacement or repairs shall be completed as necessary. The analysis shall detail all measures necessary to certify adequate drainage. Post development flows and velocities shall not exceed those that existed in the pre-developed state.

    e. Recommended measures shall be designed and included in the improvement plans and submitted to the Planning and Building Department for review and approval.

2. In addition, once reviewed and approved by the Town, the Applicant shall record documents which address future maintenance responsibilities of any private drainage and/or roadway facilities which may be constructed. The Applicant or Homeowners Association must be responsible for proper maintenance of drainage structures, the bioretention swale, and equipment on the Project area. The Applicant must submit an Operation and Maintenance Agreement for review and approval. At a minimum, the Operation and Maintenance Agreement must include the following:

    - The contact information for the property owner(s) or responsible party;
    - Identification of the number, type and location of all stormwater treatment measures on site;
    - A list of specific, routine maintenance tasks and the intervals that they will be conducted; and
    - An inspection checklist specific to the measures, which indicates the items that will be reviewed during regular maintenance inspections.

For bioretention areas, the following inspections must be required:

- Inspect monthly for obstructions and trash.
- Inspect monthly for ponded water. If ponded water does not drain in 5 days, take the appropriate action.

If mosquito larvae are observed, contact the San Mateo County Mosquito Abatement District.

- Inspect monthly for channels, exposure of soils, or other evidence of erosion. Clear any obstructions and remove any accumulation of sediment.
- Inspect biannually for health of plants and remove dead and diseased vegetation.
- Treat and maintain vegetation and irrigation system. Minimize use of pesticides and quick-release synthetic fertilizers.
- Inspect and replace mulch as needed before wet season.

Mitigation Measure Hydro-1d: **Stormwater Treatment System Operation and Maintenance Plan**. A stormwater treatment system operation and maintenance plan shall be prepared by the applicant's engineer consistent with the San Mateo County Water Pollution Prevention Program requirements that describes the type and frequency of ongoing maintenance required for proper operation of all post-construction permanent stormwater treatment measures on the Project site. As development accessed via a private road, this operation and maintenance plan shall include maintenance and cleaning of paved areas to minimize litter and debris washing into storm drains. This plan shall be submitted to and must be approved by the City of Portola Valley Public Works Department prior to first certificate of occupancy.

Implementation of a Drainage Plan in compliance with the Municipal Regional Stormwater Permit and implementation of a Stormwater Treatment System Operation and Maintenance Plan as detailed in Mitigation Measures Hydro-1c and Hydro-1d would reduce operational impacts to water quality related to the Project improvements to ***less than significant with mitigation***.

GROUNDWATER DEPLETION/RECHARGE AND DEWATERING DISCHARGE

2. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Construction of all aspects of the proposed Project would require a minimal amount of water for dust control and slurry mixing. Water would be obtained from California Water Service Company, which uses a combination of local surface water and surface water purchased from the City and County of San Francisco (SFPUC). The local surface water, about 11% of total supply, comes from a 1,200-acre watershed in the Woodside hills; it is collected and treated at a reservoir and treatment plant in Atherton. The remaining 89% of supply is purchased from the SFPUC, which obtains its entire supply from the Hetch Hetchy Regional Water System operated by the San Francisco Public Utilities Commission. Water for dust control would be transported to the Project area by truck. The Project would not use groundwater supplies. ***No impact*** would occur with respect to this topic.

INCREASED EROSION OR SILTATION TO RECEIVING WATERS

3. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would (a) result in substantial erosion or siltation on- or off-site?

Impact Hydro-2: Potential for Erosion and Sedimentation. If unmitigated, erosion and sedimentation could occur during and after construction-period earthwork and grading activities and due to the resultant increased impervious surfaces at the Project site once constructed. This is a ***potentially significant*** impact.

Planned earthwork and grading activities on the Residential Development Area would involve a total cut and fill of approximately 5,300 cubic yards on 7.4 acres of potentially disturbed area.

Additionally, construction of the fire access road would involve a net 4,051 cubic yards of fill (6,060 cubic yards cut and 10,111 cubic yards of fill) in the sloping hillside area of the larger Project site.

Some grading would occur on moderate to steep slopes; and would therefore present a threat of water erosion from soil disturbance by subjecting unvegetated areas to the erosional forces of runoff. Vegetative cover and trees, which act to stabilize the soil, would be removed from areas where earthwork and grading activities would occur.

The proposed Project would present a threat of water erosion from soil disturbance by subjecting unvegetated areas to the erosional forces of runoff because some grading would occur on moderate to steep slopes.

Increased erosion caused by construction activities and increased runoff could result in the sedimentation of receiving waters. Sedimentation can lead to a degradation of water quality because sediment can carry nitrogen, phosphorus, petroleum and other organic contaminants, pesticides and herbicides, and trace metals. Sediment can also accumulate at the entrance of downstream storm drain system inlets and reduce drainage capacity.

For the Project improvements, erosion and sedimentation may temporarily increase post-construction because of soils that have been loosened and changes in drainage patterns. In addition, the total impermeable surface area of the site would increase due to new pavement, sidewalks, and roof areas. This stormwater would be redirected into permanent water quality basins described previously. The stormwater would flow into the bioretention ponds that would include a layer of bioretention soil designed to treat runoff before infiltrating groundwater. Without proper maintenance, stormwater flows associated with operation of the roadway improvements could result in siltation to Los Trancos creek.

Mitigation Measures Hydro-1a, Hydro-1b, and Hydro-1c (detailed under Impact Hydro-1 above) would also mitigate Impact Hydro-2.

Implementation of the ESCP, SWPPP, and a Drainage Plan in compliance with the Municipal Regional Stormwater Permit as required by law and outlined in Mitigation Measures Hydro-1a, Hydro-1b, and Hydro-1c, would reduce the potential for erosion or siltation from increased stormwater to a ***less than significant*** level.

INCREASED RUNOFF AND FLOODING

3. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would (b) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?*

Impact Hydro-2a: Potential for Increased Runoff from the Residential Development Area. The Project would result in increased impervious area due to development in the Residential Development Area, which has the potential to result in increased runoff volumes and faster flows. However, the Residential Development Area includes a bioretention basin to capture and treat stormwater and mimic pre-Project hydrological conditions at the site. This is a ***less than significant*** impact.

Impact Hydro-2b: Potential for Increased Runoff from the Fire Access Road. Construction of the Project fire access road would result in increased runoff to the Alpine Road culvert in the southern corner of property, which could lead to flooding of Alpine Road during large storm events if the capacity and condition are not adequate to accommodate the additional 2.5% increase in runoff from this watershed. This impact is ***less than significant with mitigation***.

Construction-period runoff is addressed under Impacts Hydro-1 and Hydro-2 above and would not result in additional impacts or require additional mitigation under this topic.

The Project improvements would result in an increase in impervious surface area of approximately 2.2 acres. An increase in impervious surface area could result in an increase in peak runoff at downstream drainage facilities and could potentially cause downstream flooding problems. For the Project improvements, the Project would install a bioretention basin designed to meet the requirements of the Municipal Regional Stormwater Permit. The Project applicant has completed hydrologic modeling that demonstrates that the proposed storm drainage facilities reduce the 10-year runoff event to less than pre-Project levels and mimic a site's predevelopment hydrology. Homeowners would be responsible for storm system maintenance. Compliance with the Municipal Regional Stormwater Permit and long term maintenance of the planned drainage system would reduce stormwater impacts to a ***less-than-significant*** level.

STORMWATER DRAINAGE SYSTEM CAPACITY

3. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would (c) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

Impact Hydro-3: Contribute to the Stormwater System. If unmitigated, increases in impervious surfaces at the Project site and resultant increases in stormwater runoff could exacerbate downstream flooding problems. This is a ***potentially significant*** impact.

Construction-period runoff is addressed under Impacts Hydro-1 and Hydro-2 above and would not result in additional impacts or require additional mitigation under this topic.

The residential and roadway improvements would result in an increase in impervious surface area that could result in an increase in peak runoff at downstream drainage facilities, which could potentially

exacerbate downstream flooding problems. The Project improvements would install storm drains, bio-treatment facilities, and a bioretention basin designed to meet the requirements of the Municipal Regional Stormwater Permit and contain and treat at least 80 percent of the total runoff over the life of the Project.

Mitigation Measure Hydro-1c (detailed under Impact Hydro-1 above) would also mitigate Impact Hydro-3.

Preparation, approval and implementation of a Drainage Plan in compliance with the Municipal Regional Stormwater Permit as outlined in Mitigation Measure Hydro-1c would reduce the potential for stormwater system capacity increases as a result of the Project to a ***less than significant*** level.

INUNDATION BY FLOOD HAZARD, SEICHE, TSUNAMI

4. *In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

A seiche is a tide-like rise and drop of the surface of a landlocked body of water (e.g., a lake); its period can vary from a few minutes to several hours. Tsunamis, or tidal waves, are huge sea waves that are caused by seismic activity or other disturbance of the ocean floor.

The Project development is not located in a flood hazard, tsunami, or seiche zone. ***No impact*** would occur with respect to this topic and no mitigation is necessary.

WATER QUALITY CONTROL PLAN / SUSTAINABLE GROUNDWATER MANAGEMENT PLAN

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

As discussed previously in this chapter, the proposed Project would abide by all requirements of the San Mateo Countywide Water Pollution Prevention Program and the Municipal Regional Stormwater NPDES Permit issued by the SFBRWQCB. The Project would not conflict with the Water Quality Control Plan for the San Francisco Bay Basin because it would comply with all applicable requirements of the Countywide permit. The Project area is not located in a groundwater basin and would not use groundwater; therefore, it would not conflict with or obstruct implementation of a sustainable groundwater management plan. ***No impact*** would occur with respect to this topic, and no mitigation is necessary.

13

LAND USE AND PLANNING

INTRODUCTION

This chapter describes existing land uses, adopted General Plan land use classifications, and zoning designations on and around the Project site. This chapter also describes the applicable plans and policies that guide development in the Project area.

SETTING

TOWN OF PORTOLA VALLEY GENERAL PLAN

The Town of Portola Valley General Plan (updated in 2015) designates the Project site as Conservation-Residential. Conservation-Residential includes existing developed areas where net residential land area per housing unit averages from 2 to 4 acres and relatively accessible undeveloped lands with few to considerable potential geologic instabilities. Conservation-Residential is to be developed with a slope-intensity standard whereby the net residential land area per housing unit increases from 2 acres on level to 9 acres on slopes of 50 percent or greater. The Conservation-Residential intensity is assigned to less steep land close to community and circulation facilities and existing development.

The Housing Element of the General Plan identified the Project site (Site 40) as one that could accommodate a number of new residences, including affordable housing through the Affiliated Housing Program, and noted that such development would need to be clustered along Alpine Road given the site constraints.

The following General Plan Land Use Element objectives and principles are applicable to the Project:

General Objectives

2102.1. To provide for residential uses and related facilities and services that will preserve and enhance the quality of living enjoyed by local residents.

2102.2. To maintain the natural character of the planning area and to provide for limited park, recreation and open space uses in appropriate scenic areas where the uses will be compatible with the maintenance of the residential nature and quality of the planning area.

2102.4. To minimize consumption of energy from non-renewable sources and to encourage the use of renewable energy sources while preserving the scenic and aesthetic qualities of the area.

2102.5. To encourage and, where appropriate, require the conservation of water in new and existing developments and buildings.

2102.6. To ensure that development in areas subject to geologic, fire and flooding hazards is controlled so that people and structures are not exposed to unacceptable levels of risk.

General Principles

2103.1. The planning area should have the low intensity of development which is appropriate to its location on the fringe of the urban area of the Peninsula and should provide a transition between urban densities of adjoining communities and non-intensive land uses west of the skyline.

2103.2. Uses of land should include homes, open spaces, agricultural pursuits and such other private, office and commercial uses as are required to serve the frequent needs of local residents.

2103.5. In any development within the planning area, full consideration should be given to the geologic conditions so that development on unstable land can be avoided or minimized.

2103.6. In order to maintain the rural atmosphere of Portola Valley, all buildings should be subordinate to their natural surroundings in size, scale and siting. Monumental buildings should be avoided.

2103.8. In order to help minimize the adverse effects of higher intensity uses upon lower intensity uses, landscaping areas of primarily native plants appropriate to the site should be provided. Such buffers should be of a size and design that will provide an effective visual buffer.

2103.9. In all developments in the planning area, full consideration should be given to fire protection needs, including those identified in the safety element, and adequate measures should be taken to ensure that these needs are met.

2103.9.1. Development should be limited in areas when fire risk cannot be reduced to an acceptable level and adequate emergency access cannot be provided. Also, recognizing fire protection measures could have adverse effects on native vegetation, development should be configured to minimize damage as well as fire hazard.

2103.10. The rate of development and location of projects should not exceed the capacity of the town, special districts and utility companies to provide all needed services and facilities in an orderly and economic manner.

2103.11. Conservation of energy from non-renewable sources should be considered in the design, improvement, reconstruction and remodeling of buildings.

2103.12. The use of passive and active solar energy should be encouraged in the siting, design and construction of buildings.

2103.13. Where feasible, development proposals should incorporate unified planning for the largest land area practically possible in order to preserve open space, conserve unique natural features of the area, allow logical extensions of the trail and paths system, maximize the opportunities for controlling the extent and impacts of development and otherwise help ensure the application of good land use planning principles.

2103.14. Grading shall normally be the minimum necessary to accommodate development; however, in those instances where increased grading can provide for greater compatibility of development with the natural setting and not cause significant adverse effects on the environment, such grading shall be preferred.

2103.15. For all new developments within the planning area, full consideration shall be given to the fiscal ability of the town and other affected local governmental agencies to provide essential services. When fiscal impact will exceed tax revenue to be generated, provisions may be made to require off-setting fiscal impact fees.

2103.16. In the planning, design, construction and operation of development within the planning area, water conservation should be a high priority.

2103.17. In all new developments, the undergrounding of utilities should be considered a high priority.

Residential Areas

Objectives

2104.1. To assure that all building sites and residences are developed in a manner minimizing disturbance to natural terrain and vegetation and maximizing preservation of natural beauty and open space.

2104.3. To provide for the grouping or clustering of residential buildings where this will maximize the opportunity to preserve natural beauty, habitat and open space without generally increasing the intensity of development otherwise possible.

2104.5. To control the occupancy of parcels so as to:

a. Prevent overcrowding of dwellings.

b. Insure that occupancy of land and dwellings will be in balance with service facilities such as on-site parking, traffic capacity of access streets and capacity of utilities such as water and sewage disposal.

c. Insure against adverse impact on neighboring residences.

d. Fix responsibility for use, occupancy and conduct on the premises in relation to town standards and requirements. That is, on each parcel and in each main dwelling, someone must be "in charge" as owners or tenant of the owner.

Principles

2105.1. Lands indicated for residential use on the comprehensive plan diagram should be used primarily for residential living, a use of land characterized by a single household occupying a main detached dwelling as the principal use of a parcel, together with uses and structures customarily accessory to a main dwelling in a rural residential community.

2105.3. Population densities within the planning area should be guided by considerations of topography, geology, vegetative cover, access to transportation and services, fire hazards, emergency access, impact on pre-existing residential development and other factors such as:

a. The highest densities should be located on relatively level land close to local shopping and service areas, other local facilities and transportation facilities. Densities should decrease as the distance from these facilities increases.

b. Population density should decrease as steepness of terrain increases.

c. The lowest densities and largest lots should be located on the steepest hillsides on which the town allows development and in mountainous areas where it is necessary to limit storm runoff, prevent erosion, preserve existing vegetation, protect watersheds, avoid potentially unstable ground and maintain the scenic quality of the terrain.

2105.4. Steep slopes, potentially unstable ground, canyons and ravines should be left undisturbed as residential open space preserves.

2105.4.1 When residences are grouped or clustered in areas where intensity standards require one acre or more per dwelling unit:

a. Each residence should have substantial direct frontage on a common open space of sufficient size to convey a feeling or being on the edge of a large and significant open space.

b. Clusters should generally consist of a small number of detached residences, and each cluster should be well-separated from adjacent clusters rather than interconnected in a linear form.

2105.5. On tree covered buildable slopes, development should be designed to preserve groves of trees as well as individual trees and native understory to the maximum extent possible.

2105.7. To the extent feasible, all structures (including residences) should complement and blend in with the natural setting of the planning area; and to this end, the following principles should be adhered to:

a. Structures may be located in existing tree covered areas to the extent possible and still be consistent with slope, geologic and related conditions and the need to preserve locally unique or especially beautiful wooded areas.

b. Largely bare slopes and sparsely wooded ridges visible from large portions of the town or planning area should be kept free of structures to the maximum extent possible.

c. If development does take place on highly visible barren slopes or ridges, it must be unobtrusive and of a scale and design to maintain the character of the natural setting, and with required planting of native trees and plants where appropriate.

2105.8. In all residential areas of the town, or its spheres of influence, particular attention must be given to the effects of approaching the maximum amount of development permitted on individual parcels. The cumulative effect of buildout under appropriate ordinances and policies should be examined and steps taken to ensure that its effect will not be injurious to the unique and desirable characteristics of each area. Overall development levels as measured by floor area ratios and impervious surfaces should be limited so as to preserve the rural setting.

2105.9. To the extent feasible, the design of subdivisions should retain a representative composition of habitats on the site and their interrelationships.

2105.10. Residential development should not occur in areas subject to flooding as shown on the Flood Insurance Rate Maps issued under the National Flood Insurance Program by the U.S. Department of Housing and Urban Development.

Parks, Recreation Areas and Open Spaces

Objectives

2134.1. To retain areas of natural terrain and vegetation sufficient to preserve the overall natural open character and quality of the area, and to buffer the town from its neighbors and its constituent neighborhoods from each other while permitting reasonable development of private lands.

2134.2. To provide for appropriate park and recreation areas for community and neighborhood use.

2134.3. To encourage public parks, recreation areas and open spaces serving other than primarily local residents only in locations where they will not be a disruptive influence on local

residents and where they will preserve unique natural resources for use by residents of the larger region.

Public Facilities and Services

Objectives

2163.1. To ensure the development of public utilities in a manner that will cause minimum disruption of the natural beauty of the area.

2163.2. To provide utilities adequate to serve local needs in the planning area.

2163.3. To conserve natural resources and prevent pollution of water and air.

Principles

2164.1. All lines and facilities related to the transmission and distribution of power and telecommunications should be placed underground. If this is not practical and such lines or facilities are to be placed aboveground, the impact should be compensated by the undergrounding of lines or facilities in other locations within the planning area. The undergrounding of lines and facilities should be balanced against adverse effects on native vegetation.

2164.3. All utility installations should be sited, designed, developed and landscaped so as to blend with the natural scenery of the area.

2164.4. All utility installations should be designed to minimize damage from identified geologic hazards.

2164.5. Water, electric and gas supply lines should be loop systems where feasible.

2164.6. Water supply systems must conform with established health and fire protection standards.

2164.7. Waste water must not pollute ground water or streams or cause public or private nuisance.

2164.8. Vegetative ground cover should be sustained to prevent storm water erosion. Unobstructed natural drainage channels should remain the principal storm drainage system, and riparian vegetation along their sides should be maintained in order to reduce erosion and bank failure and preserve habitat. Publicly owned drainage structures should be provided and maintained in accordance with the current Storm Drainage Plan of Portola Valley.

2164.9. A solid waste and hazardous waste program which will assure adequate services, protect health, reduce waste generation and conserve energy and resources without adversely affecting the environment should be supported. Wastes resulting from animal keeping should also be controlled and disposed of in a sanitary manner.

2164.10. The planting of native vegetation in developments should be encouraged as a water conservation measure.

The General Plan Safety Element includes the following goals, objectives, principles, and policies could be applicable to the Project:

Safety Goals

4104 The basic goals of the Town of Portola Valley in adopting this element of the general plan are to prevent loss of life, to reduce injuries and property damage and to minimize economic and social dislocation that may result from earthquakes, other geologic hazards, fires and flooding.

Safety Objectives

4105 The objectives of the Town of Portola Valley in adopting this element of the general plan are:

1. To define the relative degree of risk in various parts of the planning area so that this information can be used as a guide for minimizing or avoiding risk for new construction and for risk abatement for existing development.
2. To minimize the risk to human life from structures located in hazardous areas.
3. To provide a basis for designating land uses that are appropriate to the geologic, fire and flooding risks in the planning area.
4. To ensure that facilities whose continued functioning is essential to society, and facilities needed in the event of emergency, are so located and designed that they will continue to function in the event of fire or natural disaster.
5. To facilitate post-disaster relief and recovery operations.
6. To increase public awareness of geologic, fire and flooding hazards, and of available ways to avoid or mitigate the effects of these hazards.

Safety Principles

4106 The following principles are intended to guide the town and private parties in future actions.

1. Land uses should be controlled to avoid exposure to risk in excess of the level generally acceptable to the community (defined in this element as "Acceptable Risk").
2. Locate development, to the maximum extent feasible, so that it will avoid areas which present high risk exposure.
3. Development in hazardous areas should be limited to structures and improvements that would not threaten human life or cause substantial financial loss if damaged, or the development or site should be engineered to mitigate the hazard if possible without unduly disturbing the natural environment.
4. Where utility lines and roads are located in or cross high hazard areas, all reasonable measures should be taken to insure continuity or quick restoration of service and prevention of secondary hazards such as fire or flood.
5. High hazard areas should not be subdivided unless and until adequate mitigating measures are assured.
6. Critical facilities, such as major transportation links, communications and utility lines and emergency shelter facilities, should be located, designed and operated in a manner that maximizes their ability to remain functional after a disaster.
7. New structures should be designed and constructed to withstand, within levels of acceptable risk, the hazards known to exist at their locations.
8. Additions to or modifications of existing structures should increase rather than decrease the ability of the original structure to withstand any earthquake or other geologic hazards.
9. The public should be made aware of hazards and measures that can be taken to protect their lives and property.

10. Reports of geologic and/or soil investigations should be required in all instances when a permit is sought and available information indicates a potential substantial threat to life or property from a geological hazard.

11. The location and extent of areas covered by soil and geologic investigations received by the town should be recorded by the town geologist on the town's Geologic Map and Ground Movement Potential Map, and the reports thereon should be considered to be public records. Where appropriate, the results of such detailed investigations will be utilized to supplement and supersede more general information.

Acceptable Risk (In Relation to Structures and Occupancies)

4108 The term "acceptable risk" is used to describe the level of risk that the majority of citizens accept without expecting governmental action to provide protection. To illustrate this point, consider a site that is subject to occasional flooding. If the chances are one in a thousand that the site will be flooded in any given year, local citizens will probably accept that risk without asking for special protection. If the chances of flooding are one in ten, however, either governmental regulations would be enacted to keep people from building on the site (in order to protect life and property), or property owners would ask the government to build protection devices to control the flood waters.

General Safety Policies

4158 The preceding pages contain recommendations for avoiding or mitigating hazards that have been identified. Many of the measures that might be taken to mitigate hazards cited in this element could produce results in conflict with other elements of the general plan. Just because natural hazards can be mitigated does not mean that in all cases they should be, especially if such mitigation would produce results that are in conflict with the conservation element, the land use element, the open space element, or other sections of the general plan.

4159 For example, take a tract of land in the hillside areas of Portola Valley that is afflicted with several small landslides and is in an area with very poor fire protection. Merely because the hazards of landslide and fire can be reduced to an acceptably low level of risk does not mean that the town should approve the building of a subdivision there. Before any decision is made on the matter, the town should consider environmental impacts of the mitigation as well as the costs and the benefits of such hillside development, both immediate and long range, and then judge whether or not the public interest would be best served by the approval of the proposed land development.

Fault Displacement Hazard Policies

4143.1. Consider all faults shown on the map "Fault Lines Mapped by W.R. Dickenson, November 1971" (2), "Special Studies Zones Maps" (4), the town's Geologic Map and maps prepared by Lettis and Associates (36, 37) as each may be amended, as active faults, unless and until evidence to the contrary is developed through field investigations.

4143.2. Show active and potentially active faults on the town Geologic Map and Ground Movement Potential Map. On the Ground Movement Potential Map show required setbacks for buildings for human occupancy and add corresponding provisions to the zoning ordinance.

4143.3. Subdivisions, structures or other developments within the special studies zones shown on the maps Earthquake Fault Zoning maps (41) should at a minimum comply with pertinent state regulations.

4143.4. Design and construct new roads, bridges and utility lines (either public or private) that cross active fault traces in a manner which recognizes the hazard of fault movement. Such designs should consider that there is a possibility of up to a 20-foot right-lateral displacement on the Woodside and Trancos traces of the San Andreas Fault. Equip water, gas, and electric lines that cross active fault traces with shut-off devices which utilize the best available technology for quick shut-off consistent with providing reliable service.

4143.5. Examine all existing utility lines that cross active fault traces to determine their ability to survive fault movement (in the amount described in paragraph d. above). Utility companies should institute orderly programs of installing shut-off devices on these lines, starting with the lines that cross the Woodside and Trancos traces and those which serve the most people. Consider above-ground crossing of fault traces where continued service and safety cannot be assured for subsurface lines. Establish and maintain adequate emergency water supplies in areas served by water lines that cross active fault traces.

4143.6. Consider fault traces identified as "Fault other than the San Andreas" in the review of applications for the construction of buildings for human occupancy, site development, land divisions and subdivisions. Appropriate geological investigations should be made and reviewed to determine the fault location and characteristics prior to the approval of any such applications.

Ground Shaking Hazards Policies

4144.1. Design and construct essential services buildings to withstand the "Maximum Considered Earthquake" that has a 2% probability of exceedance in 50 years and remain in service (2007 California Building Code and California Geological Survey). (See Section 4154a for the definition of essential services buildings.)

4144.2. Review the structural integrity of all essential services buildings in the town, and strengthen, remove or replace those that are found to be unable to meet policy a. above.

4144.3. Design and construct residences to retain their structural integrity when subjected to the maximum earthquake that has a 10% probability of exceedance in 50 years (2007 California Building Code and California Geological Survey). Place emphasis on seismic design and seismic bracing systems. Where deemed appropriate by the town, designs should be reviewed by a structural engineer.

4144.4. The Town of Portola Valley endorses the continuing review and updating of the California Building Code (109), which the town has adopted by reference, with the objective of adding to it revisions that reflect information gained from recent earthquakes.

Landslide Hazards Policies

4145.1. Review all proposed developments with respect to the "Geologic Map" and "Ground Movement Potential Map" of the town. Require geologic and soil reports, when deemed necessary by the town geologist, for developments in all areas shown with landslides. Reports should be responsive to the information indicated on these maps.

4145.2. Locate structures for human habitation and most public utilities so as minimize disturbances from potential landslides. Give due consideration to mitigating measures, based on geologic and other reports acceptable to the town, that can be taken to reduce the risk from seismic and non-seismic hazards to an acceptable level (as defined in Table 1 and related text).

34145.3. Where roads or utility lines are proposed to cross landslide areas for reasons of convenience or necessity, they should be permitted only if special design and construction techniques can be employed to assure that acceptable risk levels will be met.

4145.4. Adopt implementing policies and regulations that correlate the various land uses permitted by the zoning ordinance with the several categories of landslides shown on the Ground Movement Potential Map which will help assure that any failures of ground due to landslides will not endanger public or private property beyond levels of acceptable risk defined in this element.

4145.5. When considering development in areas that contain unstable ground, it is preferable to develop on those areas of natural stable terrain and thereby avoid the potential negative environmental impacts from engineered solutions.

Ground Settlement Policy

4146.1. Consider those areas shown on the "Geologic Map" as alluvium, slope wash or landslide deposits to be areas of potential ground settlement and require detailed site investigation of this potential. Address potential for settlement in other locations in routine site investigations.

Soil Liquefaction Policies

4147.1. Consider the possibility of soil liquefaction in site investigations in connection with applications for development, especially in areas along the valley floor underlain by unconsolidated alluvium and a seasonally high water table.

4147.2. Review new development proposals against the California Geologic Survey Seismic Hazard Zone Maps as a guide to investigations.

Erosion and Sedimentation Policies

4149.1. Maintain natural slopes and preserve existing vegetation, especially in hillside areas. When change in natural grade or removal of existing vegetation is required, employ remedial measures to provide appropriate vegetative cover to control storm water runoff. Give special attention to minimizing erosion problems resulting from the keeping of animals. In specific applications, these policies will be tempered by the need for fire safety.

4149.2. The town currently administers the provisions of the subdivision ordinance concerning landscaping and erosion control and the provisions of the site development ordinance concerning grading, giving special attention to the protective measures that are appropriate prior to the advent of seasonal rains.

Expansive Soils and Soil Creep Policy

4150.1. In areas where information available to town officials indicates the probability of expansive soils or soil creep, soils reports should be submitted in connection with all applications for development. In those instances where expansive or creep soils are reported, measures as are necessary to mitigate the probable effects of this hazard should be required.

Fire Hazard Policies

4151.1. Do not construct buildings for human occupancy, critical facilities and high value structures in areas classified as having the highest fire risk unless it is demonstrated that mitigation measures will be taken to reduce the fire risk to an acceptable level.

4151.2. Prior to the approval of any subdivision of lands in an area of high fire risk, the planning commission should review the results of a study that includes at least the following topics:

a. A description of the risk and the factors contributing to the risk.

b. Actions that should be taken to reduce the risk to an acceptable level.

c. The costs and means of providing fire protection to the subdivision.

d. An indication of who pays for the costs involved, and who receives the benefits.

4151.3. Homeowners should provide adequate clearance around structures to prevent spread of fire by direct exposure and to assure adequate access in times of emergency and for the suppression of fire.

4151.4. Adopt a town program to reduce fire hazards along the town's public roads.

4151.5. Establish a public information program regarding fire hazards and how property owners can reduce such hazards.

4151.6. In locations identified as presenting high fire hazard, require special protective measures to control spread of fire and provide safety to occupants, including but not limited to types of construction and use of appropriate materials.

4151.7. When reasonable and needed, make privately owned sources of water, such as swimming pools, in or adjacent to high fire risk areas, accessible to fire trucks for use for on-site fire protection.

4151.8. Establish street naming and numbering systems to avoid potential confusion for emergency response vehicles.

4151.9. Design and maintain all private roads to permit unrestricted access for all Woodside Fire Protection District equipment.

4151.10. Apply Chapter 7A of the California Building Code to the entire town to increase the resistance of buildings to fire ignition, and when reviewing developments under Chapter 7A, attempt to choose those materials and colors that are consistent with the visual aspects of the town.

4151.11. When undertaking actions to reduce fire risk by removing or thinning vegetation, homeowners should try to remove the most hazardous material while leaving some native vegetation to reduce risks of erosion, habitat loss and introduction of potentially dangerous invasive weeds.

Scenic Roads and Highways Element

The Scenic Roads and Highways element of the Portola Valley General Plan notes that within Portola Valley, Skyline Boulevard (Route 35) and Highway 280 are state scenic highways. Alpine Road and Portola Road are additionally designated as local scenic roads. The General Plan has the following to say about Alpine Road:

3310 Alpine Road is now a route of great natural beauty and variety. The creeks it follows through the foothills are lined with tall trees, and the countryside has kept much of its rural tranquility. The mountain canyon is still wild and new views open up at each turn of the road. A superb scenic route already exists. It is threatened by change. The challenge is to find and pursue the ways that can protect and preserve this route through the mountains for our present enjoyment and the delight of future generations.

3311 The town has, since its incorporation, endeavored to protect the scenic quality of the Alpine corridor. From a policy statement adopted in July 1969:

3312 "The policy of the Town of Portola Valley has always been to maintain a tranquil, rural atmosphere, and to preserve a maximum of green open space. The Alpine Scenic corridor should be developed in accordance with the policy. The natural look and feeling of the land between the road and the creek should be maintained. Trees and natural growth should be preserved and increased. Recreational uses should be in keeping with a peaceful and rural atmosphere."

3313 In May, 1971, the town adopted the Alpine Parkway Plan, subsequently renamed the Alpine Scenic Corridor Plan, as a part of the town general plan which includes detailed description of the road and of related design policies (see part 6). Special provisions to implement the plan and to protect the corridor include:

1. Open space zoning for sections of the corridor.
2. Special setback lines along a major portion of Alpine Road.
3. An open space program which does and should include recommendations for land acquisition and regulations pertaining to the corridor.
4. The recreation element and the trails and paths element which include proposals for trails and paths in the corridor.

Scenic Roads and Highways Objectives

3302.1 To provide policies with respect to designation of highways within the planning area that are or may be eligible for scenic highway designation by the state.

3302.2 To provide guidance regarding the maintenance of the scenic qualities of our major roads. Because Portola Valley is a place of unusual natural beauty, all roads in Portola Valley can be considered "scenic." However, it is possible that the pressure of increasing development and the resultant traffic could lead to the erosion of the aesthetic quality of our roadsides if care is not taken.

Scenic Roads and Highways Principles

3303 These principles are intended to guide future actions of the town and private parties.

1. Regulate density and land use, as provided in the general plan and zoning ordinances, with special attention to the view from the road.
2. Give special consideration to site development, including controlled access for driveways and special setbacks for buildings.
3. Keep the amount of roadway cuts and fills required in road maintenance or construction to a reasonable minimum.
4. Contour and plant cut and fill slopes as an integral part of the road design, construction and maintenance process.
5. Carefully control earth moving, grading, contouring and replanting in areas adjacent to and visible from the road.
6. Keep traffic signs and markers to a minimum and place with consideration for the visual quality of the road. In addition, all commercial signs on scenic routes must be of such design as to be in keeping with a rural and natural atmosphere.
7. Control the design of all structures abutting scenic routes, including review by the Architectural and Site Control Commission.
8. Landscape all development along scenic routes and maintain such landscaping.
9. The town and user groups should be responsible for the regular pick up of trash in the rights of way of town scenic routes.
10. Encourage planting of native wildflowers, shrubs, and trees on public and private property. Wherever possible, remove aggressive exotic volunteers such as yellow star thistle, pampas grass, acacia, Scotch and French broom and eucalyptus.

11. Provide hiking and riding trails and bicycling paths separated from the pavement, where possible, as a part of future road improvements.
12. As a condition of their conditional use permit, require commercial developments along scenic roads to maintain a neat and tidy appearance. Surroundings of the buildings must be kept clean, and planted areas must be maintained.
13. Give high priority to placing underground all existing overhead utility lines, and structures to the extent possible, along the town scenic roads. Do not erect new or additional overhead facilities.

Alpine Scenic Corridor Plan

The General Plan includes the Alpine Scenic Corridor Plan, which is described and defined in the following excerpts. (See Chapter 4: Aesthetics for additional information including a portion of the diagram including the Project site as Figure 4.1**)**:

6203 The Alpine Scenic Corridor is of particular importance since it serves as the gateway from the more developed urban peninsula to the rural setting of Portola Valley. The roadsides and creeksides in the corridor remain in a natural state through much of the route, although the lower section of Alpine Road is a busy thoroughfare linking Portola Valley, Ladera and other foothill communities to Midpeninsula employment and shopping centers. Residential properties, shopping centers, and tennis and swim clubs touch the roadway, yet most of the land is still rural in appearance with grassland pastures, rolling grass-covered hills studded with oaks, and steeper wooded hill and mountain sides. Low density building, generous setbacks and the native woods have preserved much of the natural setting and rural feeling. Magnificent stands of trees border the San Francisquito and Los Trancos creeks—oaks, bays and alders, 75 to 100 feet tall, many of them hundreds of years old. Small open meadows remain in bends of the creeks.

6207 The watershed landscape is a major unifying element of the corridor. The creeks and creekside trees, the valleys through which they flow, the canyons, the confining ridges and the mountain tops all relate to the watershed of the San Francisquito and its tributaries, including the Corte Madera and Los Trancos Creeks.

6210 Although much of the scenic corridor is within the Town of Portola Valley, this scenic route is also of vital interest to the larger Midpeninsula community. Of prime concern are the creeks that form the common boundary of San Mateo and Santa Clara Counties. These creeks are not "wild" throughout their length, in the sense of remaining free flowing and unaltered by people, but they are largely unspoiled and offer opportunities by trail and path for education and enjoyment. They are a resource of great value, of a kind that is fast disappearing in our urban area. Therefore, these creeks and their immediate banks, including the well-defined band of trees along the creeksides and a suitable minimum width (at least 200') on either side of the creek, comprise a natural resource area which should be protected through public acquisition, stringent regulation and other appropriate means.

6211 The Alpine Scenic Corridor includes four areas of special concern: the Creekside environment, the immediate roadside, the primary vista corridor and secondary vista corridor. All four of these areas contribute to the natural quality of the scenic corridor. Distant views seen from the road are identified in the element but are not included within the corridor. While all structures and modifications to the natural environment within the corridor are of concern, the degree of concern with details decreases with distance from the road. Unless otherwise noted, the following items are of concern within the four areas described in

Sections 6212, 6213 and 6214, but the degree of concern should be tempered based on the visual impact when viewed from areas along the road.

1. Points of access to Alpine Road should be limited to the maximum extent possible.
2. All utilities along Alpine Road should be underground.
3. Building setbacks along Alpine Road should be increased as necessary to reduce the feeling of encroachment on the road.
4. In commercial areas, particular attention should be given to signs, lighting, parking and planting so as to provide the least possible intrusion on the natural feeling of the corridor.
5. Buildings and structures should be subservient to the natural landscape in design, materials and color.
6. Planting should be in keeping with the natural landscape, leaving native trees and open space grasslands where possible and using native plant materials or other drought resistant plants in keeping with the natural scene.
7. Removal of trees or other native vegetation cover should be stringently controlled.
8. On-street parking should be limited to the maximum extent possible.
9. The effects of any building near a riparian corridor or any alteration to the riparian corridor must be minimized in the planning and/or building process.

The Immediate Roadside

6212 This band on either side of the roadway, generally 50 to 100 feet wide, extends to the nearby stands of trees at the edge of the roadside, or to fences, banks or other features tending to define the roadside area. No specific limits of this area are indicated on the plan diagram. This strip is of great importance to the scenic values of the corridor. Here buildings, grading, clearing, planting and access roads should be carefully regulated.

Primary Vista Corridor

6213 The lands in view beyond the roadside determine the character of the scenic corridor and are thus designated as the "Primary Vista Corridor." This corridor takes in the nearby ridges viewed from the road and includes the foreground, up to an arbitrary 1000', where long vistas extend up valleys beyond the corridor. It is not practical to prohibit all building within this corridor, but in the development of individual properties, building construction and planting should be designed to be compatible with and retain the natural and rural appearance of the area.

Secondary Vista Corridor

6214 In the secondary vista corridor, including hills in the middle distance and the land in view down open valleys, all major projects should be carefully reviewed and stringently regulated to prevent any significant alterations of the natural scene.

The Project site frontage including the development site is identified on the Alpine Scenic Corridor Diagram as within the Primary Vista Corridor and the remainder of the site is within the Secondary Vista Corridor (see definitions above). The following additional notation is indicated for the Project site:

29. Steep wooded canyon and hillside (Stanford land); extreme care needed in design and construction if lands are developed in the future; maintain as permanent open space if possible.

Alpine Scenic Corridor Plan Objectives

1. To establish the San Francisquito Creek system as an important element in the Midpeninsula waterway system.
2. To protect the Alpine Scenic Corridor, providing a natural link between the mountains and the Bay plain, to add to the sense of order and well-being of those who live in the Midpeninsula – with intimate views of the creeks, the sight of rolling hills, and striking vistas of the Santa Cruz Mountains.
3. To retain the natural beauty of the scenic corridor, a route through which many people travel and will travel daily so that the corridor will continue to provide a welcome contrast with the nearby urban activity centers.
4. To define a scenic corridor that preserves the intrinsic qualities of the creeks and creeksides of the San Francisquito Creek system.
5. To provide for the use and enjoyment of the creeks, valleys and canyons in a manner consistent with preservation of their integrity as natural features.
6. To utilize the opportunity for passive and active recreation at appropriate locations within the corridor.
7. To provide a basis for interjurisdictional arrangements needed to protect and enhance the corridor.
8. To exercise extreme care to preserve the Corte Madera Creek riparian corridor when undertaking maintenance or improvement of Alpine Road between Willowbrook Drive and Ciervos Road. Particular attention should be given to utilizing biotechnical slope protection techniques.

Alpine Scenic Corridor Plan Future Actions

1. Additional open space acquisitions of land within the corridor are set forth in Open Space Element Appendix 2: Implementation of the Open Space Element.
2. Where acquisitions of land to protect the corridor are not appropriate, easements should be obtained to protect the corridor.
3. In any new developments with frontage on Alpine Road, care should be taken to preserve natural land forms and vegetation in close proximity to the road to protect the corridor.
4. Consideration should be given to adding the design review combining district of the zoning regulations to land along Alpine Road.
5. From Los Trancos Road to the southern town boundary, easements or dedications in fee should be secured as undeveloped acreage is subdivided. To the west of the road, implementation will be somewhat difficult because of the prevalence of small parcels of land. A combination of regulation and acquisition of easements or full fee title through purchase or dedication will be needed.

   For the trail and path system, easements for recommended trails should be acquired as part of the subdivision process. Some easements on the west may need to be purchased. A bicycle lane in the roadway is recommended. This will require more detailed design study.

6. It is recommended that the town request a resolution by San Mateo and Santa Clara County Supervisors declaring mutual concern in San Francisquito and Los Trancos Creeks and their watersheds as valuable natural resources along their common boundary and designating these streams as "scenic streams." The San Mateo County Supervisors should be asked to also designate Corte Madera Creek as a "scenic stream." The entire corridor should be designated as an open space scenic preserve.

7. Change in creek flow of Los Trancos and San Francisquito Creeks should be investigated to determine whether there have been long term undesirable effects from diversion of waters and what remedial action, if any, may need to be taken. The need for creek bank protection in critical locations should be evaluated.

8. Advice of an ecologist or arborist should be sought for recommendations on tree care, particularly for large important trees. Valley oaks are reportedly not replacing themselves. Seeding, with protection of young trees from grazing cattle and other damage for a few years, could ensure perpetuation of these valuable groves on the hillsides. Introduced species of trees such as eucalyptus have seeded along the creek in some section and should be removed where undesirable. County cooperation should be sought.

9. The town should continue to pursue undergrounding of overhead lines through funds obtained from the utility companies.

10. Outside of the town, the town should seek the cooperation of other jurisdictions in the corridor to have overhead lines placed underground.

11. The town should cooperate with CRMP (Coordinated Resource Management and Planning) Process in its efforts to protect the San Francisquito Creek.

12. The town should sponsor programs for appropriate tree planting and for encouraging cooperative actions by residents and other property owners in landscaping and maintenance compatible with the scenic corridor.

TOWN OF PORTOLA VALLEY ZONING

The Project site is zoned Residential Estate (R-E) and is subject to the 3.5A (3.5 acres) residential density combining district, the SD-2 slope-density combining district, and the D-R design review combining district.

Maximum allowable density at the site is governed by the Municipal Code and the State Density Bonus Law (Government Code section 65915). Municipal Code sections 18.50.040 and 18.50.050(A) impose a slope-density formula that yields 21 lots for the site. Municipal Code sections 17.20.215, 18.04.055 and 18.44.060(H) allow and require inclusionary housing that may take the form of lots transferred to the Town for construction by a third party or, alternatively, that the project subdivider itself may construct the multifamily housing. These provisions increase allowable units to 18 single-family units and 12 multifamily affordable units (30 total units prior to any density bonus). The Town's Housing Element recognizes that the Project site is one of only three sites in Town that contemplates multi-family housing (Program 2412).

The Applicant proposes for 6 of the affordable units (20 percent of the units) to be affordable at the "low income" level, which entitles the Project to a 35 percent affordable housing density bonus, allowing up to 41 units. The Project proposes development of 39 units.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project site as proposed would have a significant environmental impact if it were to result in the following:

1. Result in the physical division of an established community; or
2. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

The following conclusions are focused on an analysis of current policies and regulations that might lead to adverse effects on the physical environment. This environmental analysis is not intended to pre-suppose the Town's determinations on consistency, or prevent imposition of "conditions of approval" to correct any determined inconsistencies outside of the CEQA forum.

Conflicts with applicable plans, policies or regulations do not inherently result in a significant effect on the environment under CEQA. As stated in Section 15358(b) of the CEQA Guidelines, "[e]ffects analyzed under CEQA must be related to a physical change."

Further, Appendix G of the Guidelines makes explicit the focus on environmental policies and plans, asking if the Project would "conflict with any applicable land use plan, policy, or regulation . . . *adopted for the purpose of avoiding or mitigating an environmental effect*" (emphasis added). A response in the affirmative, however, does not necessarily indicate the Project would have a significant effect unless a physical change would occur.

PHYSICAL DIVISION OF AN ESTABLISHED COMMUNITY

1. Would the project result in the physical division of an established community?

Division of an established community typically occurs when a new physical feature, in the form of an interstate or railroad, physically transects an area, thereby removing mobility and access within an established community. The division of an established community can also occur through the removal of an existing road or pathway, which would reduce or remove access between a community and outlying areas.

Access to the proposed single-family residences and multifamily buildings would be provided via a new, private loop road that would connect at two access points to Alpine Road. A new 6-foot-wide public recreational trail would be constructed along the western edge of the development area and would connect to the existing horse trail along the Project site's Alpine Road frontage.

There are no aspects of the Project that would substantially reduce mobility or access. Development as proposed would enhance physical connectivity and access between different parts of the community. Therefore, the Project would not divide an established community (***no impact***).

CONFLICT WITH PLANS AND POLICIES

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

Impact Plan-1: Generally Consistent with Plans and Policies. The proposed Project is generally consistent with the Town's plans and policies related to development of the Project site, with allowable approvals as proposed and the proposed land use would not result in physical changes to the environment that results in significant impacts. The impact related to conflict with plans and policies would therefore be ***less than significant***.

The Project is required to comply with all Town policies and regulations, including those set forth in the General Plan and the zoning code. The Project would require a Conditional Use Permit from the Town to allow establishment of a Planned Unit Development. In Portola Valley, Planned Unit Development provisions allow design flexibilities including yards, heights, and building coverage (Municipal Code Chapters 18.52 and 18.54).

The Project proposes development of 39 residential units on a site designated as Conservation-Residential, where the intensity of development averages from 2 to 4 acres and is slope-dependent (i.e., the greater the slope, the greater the net residential land area per housing unit). The site is zoned Residential Estate (R-E) and is subject to the 3.5A residential density combining district, which allows for a density of 0.4 dwelling unit per acre. The Project site contains steep slopes and unstable areas, which limits the residential developable area to the 10.8-acre northeastern portion of the site.

The Project would use the State Density Bonus Law to receive a density bonus, incentives and concessions, waivers and reductions of development standards, and reduced parking requirements. The Project Applicant would construct and set aside 6 units (20 %) for low-income households, which allows the Project up to 11 additional market rate units under the 35% density bonus [Government Code 65915(f)(1)]. The Project Applicant is requesting 9 additional market rate units. With the provision of 20% low-income affordable units, the Project is eligible for two incentives or concessions. The Project Applicant is requesting to reduce the minimum parcel sizes from 20,000 square feet to approximately 3,300 to 8,300 square feet for the residential lots. The Project Applicant is also requesting to eliminate any potential application of a General Plan clustering provision (Principal 2105.4.1) to the Project which states, *"When residences are grouped or clustered in areas where intensity standards require one acre or more per dwelling unit: (a) Each residence should have a substantial direct frontage on a common open space of sufficient size to convey a feeling of being on the edge of a large and significant open space (b) Clusters should generally consist of a small number of detached residences, and each cluster should be well-separated from adjacent clusters rather than interconnected in a linear form."* The Project applicant is requesting waivers of:

- Municipal Code section 18.44.050(C), requiring specified spacing between main buildings in a residential planned unit development.
- Municipal Code section 18.48.010, establishing maximum floor area requirements.
- Municipal Code section 18.17.070, requiring similarity between market-rate and affordable units in density bonus projects.

The Project would provide parking consistent with the requirements of the State Density Bonus Law.

The Project is located on a site designated for residential development and surrounded by similar previous residential development and supports General Plan Objective 2102.1 and Principals 2103.2 and 2105.1.

The Project would preserve the majority of the site as a natural wooded slope while improving wildfire management and adding publically-accessible trails, supporting General Plan Objectives 2102.2, 2104.1, 2104.3, 2134.1, 2134.2, and 2134.3 and Principals 2103.8, 2103.9.1, 2103.13,

2103.14, 2105.4, 2105.5, 2105.7, 2105.8, and 2105.9. While clustered on the flatter portion of the site near the roadway access, development density is consistent with General Plan densities incorporating statewide affordable housing density bonuses, supporting General Plan Objective 2104.5 and Principals 2103.1, 2103.6, and 2105.3.

The potential environmental impacts of the proposed Project were analyzed in this EIR document and found to be below significance levels including in the topic of aesthetics and with respect to consistency with the Alpine Road Scenic Corridor (see Chapter 4:Aesthetics for additional detail). Development is not precluded along the corridor, but rather indicated for consideration of natural and rural appearance and scenic character when development otherwise allowed under the General Plan is proposed. The Project plans include the specified 75-foot scenic setback from Alpine Road in which no structures are proposed and the Project is consistent with the General Plan guidelines related to development along the Alpine Road Scenic Corridor including Objectives 1-8 and Future Actions 1-12.

The potential environmental impacts of the proposed Project were analyzed in this EIR document and found to be below significance levels following identified mitigation in all topic areas including biological resources (Chapter 7), flooding (Chapter 12), geology and soils (Chapter 9), utilities and energy (Chapter 17), service systems (Chapter 15), recreation (Chapter 15), and wildfire (Chapter 18), supporting General Plan Objectives 2102.4, 2102.5, 2104.5, 2102.6, 2163.1, 2163.2, and 2163.3 and Principals 2103.5, 2103.9, 2103.9.1, 2103.10, 2103.11, 2103.12, 2103.15, 2103.16, 2103.17, 2105.8, 2105.9, 2105.10, 2164.1, 2164.3, 2164.4, 2164.5, 2164.6, 2164.7, 2164.8, 2164.9, and 2164.10 and Safety Element Goal 4104, Objective 4105, Principal 4106, and Policies including 4143, 4144, 4145, 4146, 4147, 4149, 4150, 4151, 4158, and 4159.

In summary, the Project is generally consistent with General Plan policies intended to avoid or mitigate adverse impacts on the environment (***less than significant***). While it is ultimately in the domain of the Town's decision-makers to decide project consistency with applicable Town plans and policies related to Project approval, from a CEQA perspective, even if it were later determined by the Town that the Project is not consistent with applicable plans, this EIR has demonstrated that the Project would not conflict with plans or policies in any way that could have a significant adverse environmental impact.

14

NOISE AND VIBRATION

INTRODUCTION

This chapter of the EIR presents the results of the environmental noise assessment conducted for the Project by Illingworth and Rodkin, included in Appendix H.

Included in this section is a brief description of the fundamentals of environmental noise, a summary of the applicable regulatory criteria, and the results of the noise monitoring surveys. Future noise levels at the site and surrounding areas are calculated and summarized. The report then evaluates impacts resulting from the Project in terms of noise, vibration, and land use compatibility, temporary noise level increases resulting from the Project construction, and permanent noise level increases resulting from the operation of the Project.

FUNDAMENTALS OF ENVIRONMENTAL NOISE

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) with 0 dB corresponding roughly to the threshold of hearing. Decibels and other technical terms are defined in **Table 14.1**.

Most of the sounds which we hear in the environment do not consist of a single frequency, but rather a broad band of frequencies, with each frequency differing in sound level. The intensities of each frequency add together to generate a sound. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound in accordance with a weighting that reflects the fact that human hearing is less sensitive at low frequencies and extreme high frequencies. This is called "A" weighting, and the decibel level so measured is called the A-weighted sound level (dBA). In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve. Typical A-weighted levels measured in the environment and in industry are shown in **Table 14.2** for different types of noise.

Although the A-weighted noise level may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources which create a relatively steady background noise in which no particular source is identifiable. To describe the time-varying character of environmental noise, the statistical noise descriptors, L_{01}, L_{10}, L_{50}, and L_{90}, are commonly used. They are the A-weighted noise levels equaled or exceeded during 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period. A single number descriptor called the L_{eq} is also widely used. The L_{eq} is the average A-weighted noise level during a stated period of time.

In determining the daily level of environmental noise, it is important to account for the difference in response of people to daytime and nighttime noises. During the nighttime, exterior background noises are generally lower than the daytime levels. However, most household noise also decreases at night and exterior noise becomes more noticeable. Further, most people sleep at night and are very sensitive to noise intrusion. To account for human sensitivity to nighttime noise levels, a descriptor, L_{dn}

Table 14.1: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Table 14.2: Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.

(day/night average sound level), was developed. The L_{dn} divides the 24-hour day into the daytime of 7:00 AM to 10:00 PM and the nighttime of 10:00 PM to 7:00 AM. The nighttime noise level is weighted 10 dB higher than the daytime noise level. The Community Noise Equivalent Level (CNEL) is another 24-hour average which includes both an evening and nighttime weighting.

EFFECTS OF NOISE

Sleep and Speech Interference

The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors the thresholds are about 15 dBA higher. Steady noises of sufficient intensity (above 35 dBA) and fluctuating noise levels above about 45 dBA have been shown to affect sleep. Interior residential standards for multi-family dwellings are set by the State of California at 45 dBA Ldn. Typically, the highest steady traffic noise level during the daytime is about equal to the Ldn and nighttime levels are 10 dBA lower. The standard is designed for sleep and speech protection and most jurisdictions apply the same criterion for all residential uses. Typical structural attenuation is 12 to 17 dBA with open windows. With closed windows in good condition, the noise attenuation factor is around 20 dBA for an older structure and 25 dBA for a newer dwelling. Sleep and speech interference is therefore possible when exterior noise levels are about 57 to 62 dBA Ldn with open windows and 65 to 70 dBA Ldn if the windows are closed. Levels of 55 to 60 dBA are common along collector streets and secondary arterials, while 65 to 70 dBA is a typical value for a primary/major arterial. Levels of 75 to 80 dBA are normal noise levels at the first row of development outside a freeway right-of-way. In order to achieve an acceptable interior noise environment, bedrooms facing secondary roadways need to be able to have their windows closed; those facing major roadways and freeways typically need special glass windows.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that the causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest.[1] The Ldn as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. When measuring the percentage of the population highly annoyed, the threshold for ground vehicle noise is about 50 dBA Ldn. At a Ldn of about 60 dBA, approximately 12 percent of the population is highly annoyed. When the Ldn increases to 70 dBA, the percentage of the population highly annoyed increases to about 25 to 30 percent of the population. There is, therefore, an increase of about 2 percent per dBA between a Ldn of 60 to 70 dBA. Between a Ldn of 70 to 80 dBA, each decibel increase increases by about 3 percent the percentage of the population highly annoyed. People appear to respond more adversely to aircraft noise. When the Ldn is 60 dBA, approximately 30 to 35 percent of the population is believed to be highly annoyed. Each decibel increase to 70 dBA adds about 3 percentage points to the number of people highly annoyed. Above 70 dBA, each decibel increase results in about a 4 percent increase in the percentage of the population highly annoyed.

FUNDAMENTALS OF GROUNDBORNE VIBRATION

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One method is the Peak

[1] Kryter, K. D. (1985). *The Effects of Noise on Man*. Academic Press.

Particle Velocity (PPV). The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave in units of inches per second (in/sec).

Construction activities can cause vibration that varies in intensity depending on several factors. The use of pile driving and vibratory compaction equipment typically generates the highest construction related groundborne vibration levels. Because of the impulsive nature of such activities, the use of the PPV descriptor has been routinely used to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to cause damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level. The California Department of Transportation's *Transportation and Construction Vibration Guidance Manual* provides a summary of vibration human responses and structural damage criteria that have been reported by researchers, organizations, and governmental agencies. These thresholds are utilized as standards in environmental analysis of vibration impacts and are summarized in **Table 14.3** and **Table 14.4**.

Table 14.3: Vibration Threshold Criteria for Building Damage

Structural Integrity	Maximum PPV (in/sec)	
	Transient	Continuous
Historic and some older buildings	0.50	0.12 to 0.2
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial and commercial structures	2.00	0.50

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, 2020.

Table 14.4: Vibration Threshold Criteria for Human Response

Human Response	Maximum PPV (in/sec)	
	Transient	Continuous
Slightly perceptible	0.035	0.012
Distinctly perceptible	0.24	0.035
Strongly perceptible	0.90	0.10
Severe/Disturbing	2.0	0.7 (at 2 Hz) to 0.17 (at 20 Hz)
Very disturbing	--	3.6 (at 2 Hz) to 0.4 (at 20 Hz)

Source: Transportation and Construction Vibration Guidance Manual, California Department of Transportation, 2020.

Structural damage can be classified as cosmetic only, such as paint flaking or minimal extension of cracks in building surfaces; minor, including limited surface cracking; or major, that may threaten the structural integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher. The damage criteria presented in Table 14.3 include several categories for ancient, fragile, and historic structures, the types of structures most at risk to damage.

Most buildings are included within the categories ranging from "Historic and some old buildings" to "Modern industrial/commercial buildings". Construction-induced vibration that can be detrimental to the building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

The annoyance levels shown in Table 14.4 should be interpreted with care since vibration may be found to be annoying at lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

REGULATORY SETTING

The State of California and the Town of Portola Valley have established regulatory criteria that are applicable in this assessment. The State CEQA Guidelines, Appendix G, the California Building Code, and the Town of Portola Valley General Plan are used to assess the potential significance of impacts related to the construction and operation of the Project. A summary of the applicable regulatory criteria is provided below.

California Building Standards Code

The California Building Standards Code is contained in Title 24 of the California Code of Regulations and consists of 11 different parts that set various construction and building requirements. Part 2, California Building Code, Section 1207, Sound Transmission, establishes sound transmission standards for interior walls, partitions, and floor/ceiling assemblies. Specifically, Section 1207.4 establishes that interior noise levels attributable to exterior noise sources shall not exceed 45 dBA Ldn or CNEL (as set by the local General Plan) in any habitable room.

The California Green Building Standards Code is Part 11 to the California Building Standards Code. Chapter 5, Nonresidential Mandatory Standards, Section, establishes additional standards for interior noise levels:

- Section 5.507.4.1.1 sets forth that buildings exposed to a noise level of 65 dB Leq (1-hour) during any hour of operation shall have exterior wall and roof-ceiling assemblies exposed to the noise source meeting a composting sound transmission class (STC) rating of at least 45 (or an outdoor indoor transmission class (OITC) of 35, with exterior windows of a minimum STC of 40.
- Section 5.507.4.2 sets forth that wall and roof assemblies for buildings exposed to a 65 dBA Leq pursuant to Section 5.507.4.1.1, shall be constructed to provide an interior noise environment attributable to exterior sources that does not exceed 50 dBA Leq in occupied areas during any hour of operation. This requirement shall be documented by preparing an acoustical analysis documenting interior sound levels prepared by personnel approved by the architect or engineer of record.

California Environmental Quality Act

CEQA requires an evaluation of the significance of potential Project noise impacts. CEQA does not define what noise level increase would be considered substantial. Typically, an increase of 3 dBA CNEL or more caused by the Project would be considered a significant impact when projected noise levels would exceed those considered acceptable for the affected land use. A noise increase of 5 dBA

CNEL or more caused by the Project would be considered a significant impact when projected noise levels would remain at or below the noise levels considered acceptable for the affected land use.

Town of Portola Valley General Plan

Part 4 of the 2010 General Plan (Environmental Quality) discusses noise. The following goals and policies apply to the proposed Project:

4316 Goal 1: Develop Land Uses Compatible with the Noise Environment

Transportation Generated Noise (Policies 1–3)

1. The town will utilize the noise contours in Figure 1 and noise/land use compatibility standards on Figure 2.

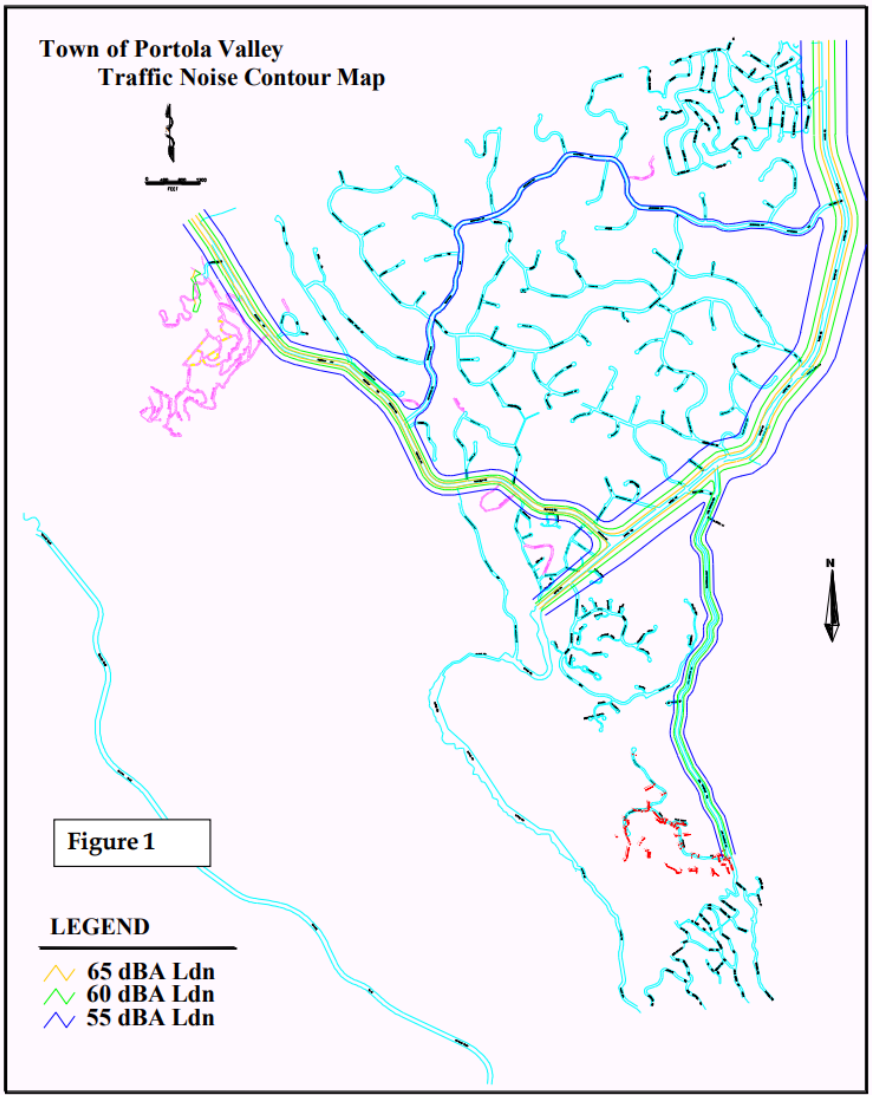
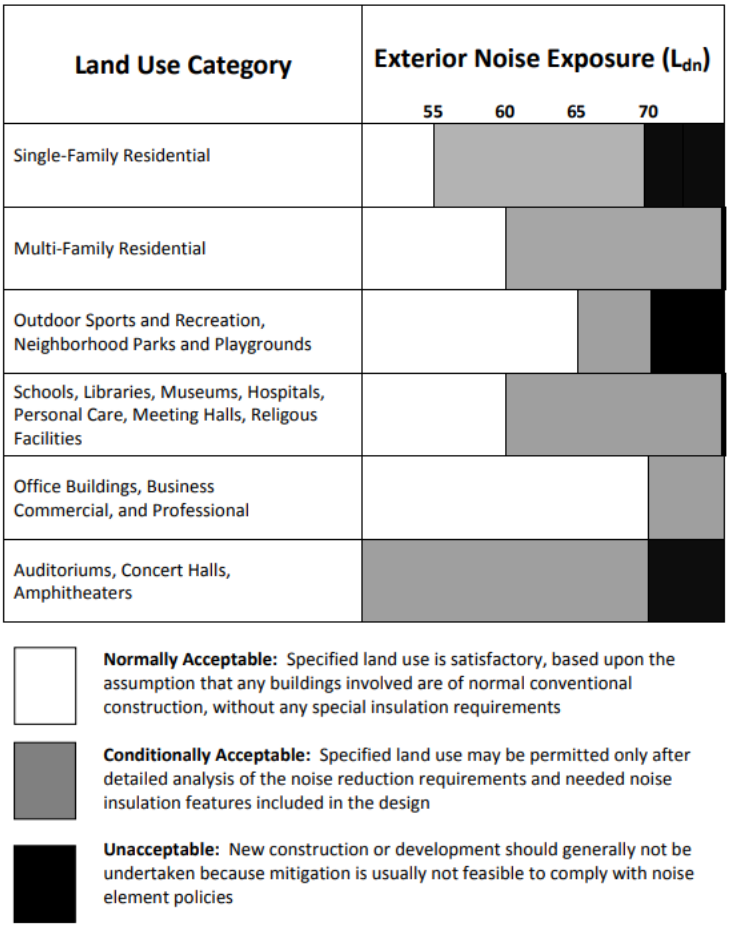


Figure 2 – Land Use Compatibility for Transportation Noise



2. New development of residential or other noise-sensitive land uses are discouraged in noise impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels in outdoor activity areas to 55 dBA Ldn or less.

3. Interior noise levels shall not exceed 45 Ldn in all new residential units (single- and multi-family). Residential development sites exposed to exterior noise levels exceeding 55 Ldn shall be analyzed following protocols in the 2007 California Building Code (Chapter 12, Appendix Section 1207.11.2) or the most recent revision.

Non-Transportation Noise (Policy 4)

4. New development of noise-sensitive land uses are discouraged where the noise level due to non-transportation noise sources will exceed the standards of Table 3. Where noise sensitive land uses exist or are proposed in areas exposed to existing or proposed exterior non-transportation noise levels exceeding the performance levels of Table 3, an acoustical analysis shall be submitted by an applicant so that the noise mitigation may be included in the design of the new development.

TABLE 3 Non-Transportation Noise Standards

Land Use Receiving the Noise	Hourly Noise-Level Descriptor	Exterior Noise-Level Standard In Any Hour (dBA)		Interior Noise-Level Standard In Any Hour (dBA)	
		Daytime (7am-10pm)	Nighttime (10pm-7am)	Daytime (7am-10pm)	Nighttime (10pm-7am)
Residential	L_{eq}	50	40	40	30
	L_{max}	65	55	55	45
Medical, convalescent	L_{eq}	55	45	45	35
	L_{max}	70	60	55	45
Theater, auditorium	L_{eq}	--	--	35	35
	L_{max}	--	--	50	50
Religious Facility, meeting hall	L_{eq}	55	--	40	40
	L_{max}		--	55	55
Office building	L_{eq}	--	--	45	--
School, library, museum	L_{eq}	55	--	40	--
	L_{max}		--	55	--
Playground, park	L_{eq}	55	--	--	--

Notes:

a) The Residential standards apply to all residentially zoned properties.

b) Each of the noise levels specified above shall be lowered by 5 dBA for tonal noises characterized by a whine, screech, or hum, noises consisting primarily of speech or music, or recurring impulsive noises.

c) The exterior noise standards are measured at the property line of the receiving property.

d) The thresholds for speech interference indoors are about 45 dBA if the noise is steady and above 55 dBA if the noise is fluctuating. Outdoors, the thresholds are about 15 dBA higher. Steady noise of sufficient intensity, above 35 dBA, and fluctuating noise levels above about 45 dBA have been shown to affect sleep.

4318 Goal 3: Mitigate Noise from New Projects

1. Noise created by new transportation noise sources (e.g., increased traffic or a new roadway) shall be mitigated so as to not cause the following criteria to be exceeded or to cause a significant adverse community response:

   - Cause the Ldn at noise-sensitive uses to increase by 3 dBA or more and exceed the "normally acceptable" level. See Figure 2 for the definition of "normally acceptable."
   - Cause the Ldn at noise-sensitive uses to increase by 5 dBA or more and remain "normally acceptable."

   Where a proposed transportation noise source is likely to produce noise levels that would exceed the above standards, an acoustical analysis shall be required as a part of project review or as part of the environmental review process so that noise mitigation may be included in the project design.

2. Noise created by new non-transportation noise sources shall be mitigated so as to not cause the land use receiving the noise to exceed interior and exterior noise level standards of Table 3. Where proposed non-transportation noise sources are likely to produce noise levels that would exceed the standards of Table 3, an acoustical analysis shall be required as a part of project review or as part of the environmental review process so that noise mitigation may be included in the project design.

3. All acoustical analyses shall:

   - Be the responsibility of the applicant for the project.

- Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- Include representative noise level assessments with sufficient sampling periods and locations to adequately describe local conditions.
- Estimate existing and projected (20 years) noise levels in terms of Ldn and/or the standards of Table 3, and compare those levels to the policies of this Element.
- Recommend mitigation to achieve compliance with the adopted policies and standards of this Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
- Describe a post-project assessment program that could be used to evaluate the effectiveness of the proposed mitigation measures.

4319 Goal 4: Control Noise from Construction and Yard Maintenance Activities

1. Implement appropriate standard controls for all construction projects carried out by contractors or homeowners.
2. Implement appropriate standard controls for yard maintenance activities carried out by commercial companies and homeowners.
3. Require ASCC review for all construction projects scheduled for or lasting more than 24 months and submittal of construction staging, timing and noise management plans.
4. Develop a guidance manual to provide information to the public regarding noise control.

Town of Portola Valley Municipal Code

9.10.030 - Noise Standards

It is unlawful for any person in any location in the town from the effective date of this chapter to create or cause to be created any noise that exposes properties in the vicinity to noise levels that exceed the levels indicated in Table 9.10-1, provided that, if the noise is generated by a structure or integral part of a structure, such compliance is required within twelve months after the effective date of the ordinance, August 21, 2009. Noises permitted by Sections 9.10.040 and 9.10.070 are not subject to Table 9.10-1.

Table 9.10-1 Non-Transportation Generated Noise Standards [excerpt]

Land Use Receiving the Noise	Hourly Noise-Level Descriptor	Exterior Noise-Level Standard in Any Hour (dBA)		Interior Noise-Level Standard in Any Hour (dBA)	
		Daytime (7:00 a.m.—10:00 p.m.)	Nightime (10:00 p.m.—7:00 a.m.)	Daytime (7:00 a.m.—10:00 p.m.)	Nightime (10:00 p.m.—7:00 a.m.)
Residential	L_{eq} L_{max}	50 65	40 55	40 55	30 45

In addition, the Municipal Code prohibits specific noise provoking activities throughout town, including persistent animals and fowl; sounding horns and signal devices; racing engine; musical instruments, sound amplifiers and human voice amplification; outdoor amplified sound on town-owned property; explosives, firearms, and similar devices; motor

vehicle maintenance and leaf blowers. Leaf blowers shall not produce a sound that exceeds sixty-five dBA when measured from a distance of fifty feet utilizing American National Standard Institute methodology. No person shall operate any leaf blower which does not bear an affixed manufacturer's label indicating the model number of the leaf blower and designating a noise level not in excess of sixty-five dBA. Any leaf blower that bears such a manufacturer's label shall be presumed to comply with any noise level limit of this chapter provided that it is operated with all mufflers and full extension tubes supplied by the manufacturer for that leaf blower. No person shall operate any leaf blower without attachment of all mufflers and full extension tubes supplied by the manufacturer for that leaf blower.

9.10.040 - Permitted Sources of Noise

The Portola Valley Municipal Code authorizes certain noise-generating activities associated with residential use. All vehicles, equipment and machines associated with the permitted activities shall incorporate design features in good operating order that meet current industry standards for noise muffling and noise reduction. Further permitted noise sources delineated in the Municipal Code shall be subject to applicable conditional use permit conditions, construction program agreements, town noise reduction guidelines, and other forms of regulation.

A. Construction Activities. Commercial construction activities may take place between eight a.m. and five-thirty p.m., Monday through Friday. Any resident may personally (including with the help of immediate family members) undertake construction activities during the following hours: Monday through Friday between eight a.m. and five-thirty p.m. and Saturday and Sunday between ten a.m. and five p.m. Commercial and resident construction activities are prohibited on holidays. Exceptions to these hours may be permitted in unusual circumstances pursuant to written authorization from the director of public works. No radios or other amplified sound devices shall be audible beyond the property line of the construction site.

B. Domestic Garden Tools. Domestic garden tools, including electric-powered leaf blowers, may be used by commercial companies only Monday through Friday between eight a.m. and five-thirty p.m. and Saturday between ten a.m. and five p.m.; provided that chippers and chain saws may not be used on Saturday. Any resident may personally (including with the help of immediate family members) use domestic garden tools during the following hours: Monday through Friday between eight a.m. and five-thirty p.m. and Saturday and Sunday between ten a.m. and five p.m. Domestic garden tools may be used by property owners only for the purpose of removing seasonal grasses and plant materials that pose a fire hazard on all days, except holidays, between eight a.m. and eight p.m. from April 15 to June 15; however, this provision does not allow the use of chain saws and chippers on Sundays. The commercial and resident use of domestic garden tools is prohibited on holidays.

C. Large Vehicle Delivery and Loading. For other than construction activities, the loading, unloading or delivery of goods, merchandise, vehicles or supplies by large trucks, tractor-trailers, or other similar vehicles is restricted to the hours between eight a.m. and five-thirty p.m., Monday through Friday, unless otherwise authorized by a conditional use permit.

D. Garbage Collection. Collection of garbage and other refuse is restricted to the hours between eight a.m. and five p.m., Monday through Friday, unless authorized otherwise by a franchise agreement with the town.

ENVIRONMENTAL SETTING

SENSITIVE RECEPTORS

Portola Valley Municipal Code Section 9.10.020 defines "Noise sensitive land use" as locations where there are greater sensitivities to excess noise, including, but not limited to, residences, hospitals, nursing homes, theaters, auditoriums, religious facilities, meeting halls, schools, libraries, museums, and parks.

The closest sensitive receptors to the site are residents in the single-family homes adjacent to the Project site. Residential properties are located to the north along Westridge Drive adjacent to the Residential Development Area. The Fire Access Road is 200 feet at the closest point to residential properties to the south of the Project site along Golden Oaks Drive/Minoca Road. Ladera Community Church UCC is located just over one half mile to the north of the Residential Development Area. Other than additional residential units, there are no other noise-sensitive receptors located less than a mile from the Project site. Once constructed, the Project would introduce new noise-sensitive receptors (i.e., residents) to the area.

EXISTING NOISE ENVIRONMENT

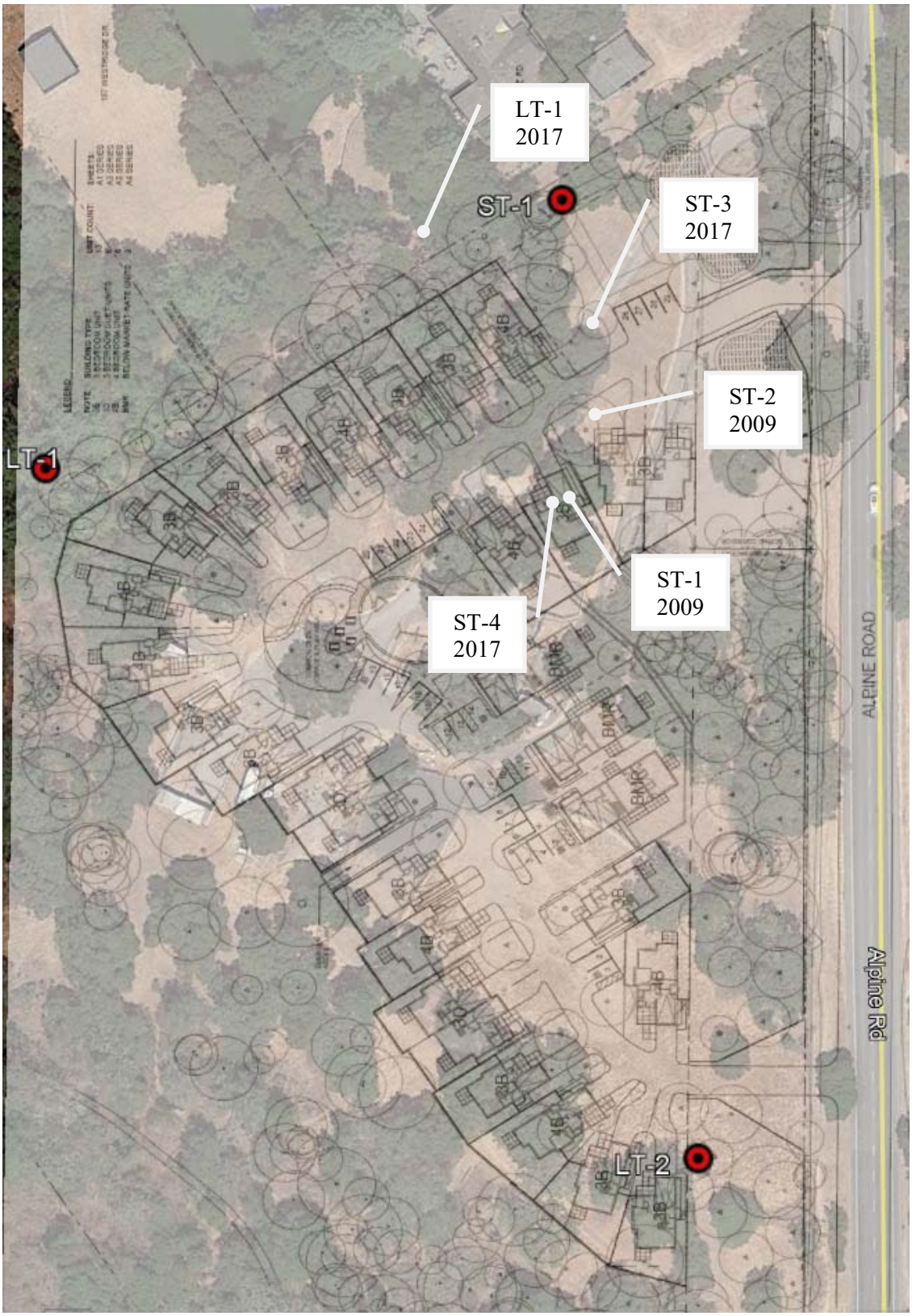
The Project site is located near the eastern boundary of Portola Valley, roughly three quarters of a mile west of Interstate 280, and near the intersection of Alpine Road and Westridge Drive. Residential properties exist just to the north of the site along Westridge Drive. Alpine Road runs along the eastern border of the site, while woodlands exist to the south and west.

A noise monitoring survey was performed to document existing noise levels in the Project vicinity beginning on Wednesday, January 22, 2020 and concluding on Friday, January 24, 2020. The monitoring survey included two long-term (LT-1 and LT-2) noise measurements and one short-term (ST-1) noise measurement. All measurement locations are shown in **Figure 14.1**. The existing noise environment in the Project vicinity results primarily from local vehicular traffic along Alpine Road. Occasional aircraft also contribute to the noise environment. Daily trend in noise levels at all measurement locations are summarized below and graphical representation is also included as Figures 2 through 7 in Appendix H.

Long-term noise measurement LT-1 was made at the north end of the Project site, approximately 530 feet west of the centerline of Alpine Road, and at the fence line of one of the nearest residential properties bordering the site. Hourly average noise levels typically ranged from 43 to 53 dBA Leq during the day and from 41 to 47 dBA Leq at night. The day-night average noise level on Thursday, January 23, 2020 was 52 dBA Ldn.

LT-2 was made at the south end of the Project site, approximately 110 feet west of the centerline of Alpine Road, which was representative of the setback of the proposed buildings adjacent to the roadway. Hourly average noise levels typically ranged from 50 to 57 dBA Leq during the day and from 34 to 53 dBA Leq at night. The day-night average noise level on Thursday, January 23, 2020 was 55 dBA Ldn.

Figure 14.1: Noise Measurement Locations



Source: Google Earth 2020

A short-term noise measurement was made over a 10-minute period, concurrent with the long-term noise data, on Wednesday, January 22, 2020 in order to complete the noise survey. ST-1 was made along the northern property line of the site between 11:30 am and 11:40 am. In addition to the roadway traffic, three jets passed overhead, producing maximum instantaneous noise levels of 53 to 60 dBA. During the 101 light passenger vehicle pass-bys, noise levels of 52 to 59 dBA were measured. Four trucks passed the site in this 10-minute period, generating noise levels of 61 to 65 dBA. The 10-minute average noise level measured at ST-1 was 55 dBA Leq(10-min). The short-term measurement results are summarized in **Table 14.5**.

Table 14.5: Summary of Short-Term Noise Measurements (dBA)

Noise Measurement Location (Date, Time)	L_{max}	$L_{(1)}$	$L_{(10)}$	$L_{(50)}$	$L_{(90)}$	$L_{eq(10\text{-}min)}$
ST-1: ~200' West of the Alpine Road Centerline (1/22/2020, 11:30-11:40 am)	65	64	58	54	47	55

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The following thresholds for measuring a Project's environmental impacts are based upon Appendix G of the CEQA Guidelines thresholds:

1. Would the project result in 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?

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

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

NOISE EXPOSURE

1. *Would the project result in 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?*

   The following standards are used to determine an impact under this threshold of significance:

   - A significant noise impact would be identified if construction-related noise would temporarily increase ambient noise levels at sensitive receptors. The Town of Portola Valley considers a Project that will cause the Ldn at noise-sensitive uses to increase by 3 dBA or more and exceed the "normally acceptable" level to be a significant noise impact.
   - A significant permanent noise level increase would occur if Project-generated traffic would result in the Ldn at noise-sensitive uses to increase by 5 dBA or more and remain "normally acceptable."

- A significant noise impact would be identified if the Project would expose persons to or generate noise levels that would exceed applicable noise standards presented in the General Plan or Municipal Code.

Construction Period

Impact Noise-1: **Temporary Construction Noise**. Existing noise-sensitive land uses would be exposed to a temporary increase in ambient noise levels due to Project construction activities, but these would be constrained to weekday daytime hours and require appropriate noise control measures according to existing Town regulations and requirements. This is a ***less-than-significant*** temporary noise impact.

The potential for temporary noise impacts due to Project construction activities would depend upon the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise-sensitive areas. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction lasts over extended periods of time. Policy 4319 of the Town's General Plan requires that all construction operations within the Town implement appropriate standard controls for all construction projects carried out by contractors or homeowners, implement appropriate standard controls for yard maintenance activities carried out by commercial companies and homeowners, require ASCC review for all construction projects scheduled for or lasting more than 24 months and submittal of construction staging, timing and noise management plans, and develop a guidance manual to provide information to the public regarding noise control. The Municipal Code permits commercial construction activities between 8:00 am and 5:30 pm Monday through Friday.

Construction activities can generate considerable amounts of noise, especially during earth-moving activities (such as for grading of the Residential Development Area and Fire Access Road and undergrounding of utilities) and during the construction of the building's foundation when heavy equipment is used. The highest noise levels would be generated during grading, excavation, and foundation construction. The hauling of excavated materials and construction materials would generate truck trips on local roadways, as well.

The construction schedule provided was approximately 22 months, or 462 construction workdays. Construction activities for individual projects are typically carried out in stages. During each stage of construction, there would be a different mix of equipment operating, and noise levels would vary by stage and vary within stages, based on the amount of equipment in operation and the location at which the equipment is operating. Maximum noise levels produced by various construction equipment, typical construction noise levels at a distance of 50 feet, and maximum instantaneous noise levels for various types of construction equipment are detailed in Appendix H (Tables 5 through 7). Most demolition and construction noise falls with the range of 80 to 90 dBA Lmax at a distance of 50 feet from the source. Average noise levels produced by the construction of domestic housing projects and related roadways generally fall within the range of 65 to 88 dBA Leq at a receptor approximately 50 feet from the construction work area. Construction-generated noise levels drop off at a rate of about 6 dBA per doubling of the distance between the source and receptor. Shielding by buildings or terrain often result in lower construction noise levels at distant receptors.

As discussed in the Environmental Setting above, the closest noise-sensitive receptors are the adjacent residential land uses to the north. Based on noise monitoring, ambient daytime noise levels typically ranging from 43 to 57 dBA Leq due to traffic along Alpine Road. Based on the proposed

Project details and surroundings, during busy construction periods, noise levels would generally fall within the range of 62 to 72 dBA Leq at these nearest receptors. Noise levels from construction of the Fire Access Road would be similar and farther away from receptors and as with the utility undergrounding along the Project's Alpine Road frontage, would move along a linear path at varying distances from receptors over time. As discussed above, noise levels are reduced at farther distances from the source. Therefore, this analysis focuses on the closest noise-sensitive receptors, and all other construction noise levels at vicinity noise-sensitive receptors would be the same or less than reported here. Noise levels due to construction activities would substantially exceed ambient conditions for the construction period at nearby receptors.

However, the potential short-term noise impacts associated with Project construction activities would be mitigated by the implementation of General Plan Policy 4319, requiring noise control measures during construction activities, which are incorporated into the construction plan and implemented during all phases of construction activity, and by consistency with Municipal Code requirements for construction hours. With required implementation of these existing Town measures, noise from Project construction activities would be consistent with applicable standards and requirements and the Project impact with respect to construction noise would be ***less-than-significant***.

Operation

Impact Noise-2: **Operational Noise**. The proposed Project would generate operational noise related to residential use of the site including home mechanical equipment, increased traffic noise, and ongoing vegetation management. However, operational noise from the Project and increased noise levels at existing sensitive receptors would comply with applicable standards. This is a ***less-than-significant*** operational noise impact.

Noise Levels Attributable to On-Site Operations

Residential mechanical equipment is generally assumed to run continuously during the daytime and nighttime hours. Per Municipal Code requirements, noise levels at nearby existing residential properties would be limited to 50 dBA during daytime hours (7:00 a.m. to 10:00 p.m.) and to 40 dBA at night (10:00 p.m. to 7:00 a.m.). No equipment is anticipated for a project of this type and scale that would make meeting the applicable noise limits with standard noise control measures difficult as demonstrated through the assessment below.

The Project would include mechanical equipment, such as heating, ventilation, and air conditioning systems. Based on a review of the Project plans, the condensing units of residential heat pump systems would be located at ground level on the side yards of each single-family unit. Noise levels produced by a typical residential heat pump are approximately 56 dBA at 3 feet away during operation and would be reduced the farther the receptor is located from the source. Mechanical equipment associated with the proposed Project is anticipated to produce noise levels less than 35 dBA at the nearest existing residential property lines to the north. Operational noise levels would not exceed the most conservative 40 dBA Leq nighttime residential threshold at surrounding land uses and would generally be below ambient noise levels in the area. This is a ***less-than-significant*** impact.

Noise Levels Attributable to Vegetation Management

As noted in Chapter 3: Project Description, a Vegetation Management Plan would be implemented to reduce and manage wildfire risk at the Project site. Initial Vegetation Management activities would involve hand-cutting trees for removal and a chipper or masticator to reduce size of remaining materials where there is not currently good access for material removal. Following construction of the

Fire Access Road, materials would be cut by hand and removed from the site via the Fire Access Road.

As noted above, the Fire Access Road is located at least 200 feet from the closest residential properties and while Vegetation Management activities would occur throughout the Project site, noise levels related to intermittent Vegetation Management on this site would not be expected to exceed noise levels from intermittent property management activities at surrounding residences. Ongoing Vegetation Management activities to manage wildfire risk at the site would be required to comply with section 9.10.040 of the Portola Valley Municipal Code, including the types of activities and allowable hours. This is a ***less-than-significant*** impact.

Noise Levels Attributable to Traffic

According to Policy 4318 of the Town's General Plan, a significant permanent noise increase would occur if the Project would increase noise levels at noise-sensitive receptors by 3 dBA Ldn or more where ambient noise levels exceed the "normally acceptable" noise level standard. Where ambient noise levels are at or below the "normally acceptable" noise level standard, noise level increases of 5 dBA Ldn or more would be considered significant. The Town's General Plan defines the "normally acceptable" outdoor noise level standard for the residential land uses to be 55 dBA Ldn. Existing ambient levels were 55 dBA Ldn at the proposed residential units nearest to Alpine Road. Therefore, a significant impact would occur if traffic due to the proposed Project would permanently increase ambient levels by 3 dBA Ldn. For reference, a 3 dBA Ldn noise increase would be expected if the Project would double existing traffic volumes along a roadway.

See Chapter 14 and Appendix I for details of the traffic analysis performed for the Project. The Project would result in trip generation of 26 net additional trips during the peak AM hour and 34 net additional trips during the peak PM hour. While traffic volumes in the vicinity are generally low, the nearby Alpine Road and Westridge Drive intersection carries just over 1,000 vehicles during the peak hours. The Project would make an even smaller contribution to traffic volumes along higher-volume corridors and with increased traffic from cumulative development. Project traffic does not have the potential to result in doubling of traffic volumes and would not result in a permanent noise increase of 3 dBA Ldn or more and the impact is therefore ***less-than-significant***.

GROUNDBORNE VIBRATION

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

   The following standard is used to determine an impact under this threshold of significance:

   - A significant impact would be identified if the construction of the Project would generate excessive vibration levels surrounding receptors. Groundborne vibration levels exceeding 0.3 in/sec PPV would have the potential to result in cosmetic damage to normal buildings.

Impact Noise-3: **Vibration**. Residential uses are not a source of substantial operational vibration and while construction activities can result in vibration, Project construction would not result in vibration levels exceeding applicable standards (0.3 in/sec PPV) at the surrounding sensitive land uses levels. This is a ***less-than-significant*** impact.

Construction Period

The construction of the Project may generate perceptible vibration when heavy equipment or impact tools (e.g. jackhammers, hoe rams) are used. Construction activities would include site demolition,

preparation work, foundation work, installation of project infrastructure (including roadways and utilities), utility undergrounding along Alpine Road, and new building framing and finishing. Pile driving, which can cause excessive vibration, is not expected to be required for Project construction.

The California Department of Transportation recommends a vibration limit of 0.5 in/sec PPV for buildings structurally sound and designed to modern engineering standards in order to reduce the potential for cosmetic damage to structures. Cosmetic damage is defined as hairline cracking in plaster, the opening of old cracks, the loosening of paint or the dislodging of loose objects. A vibration limit of 0.3 in/sec PPV has been used for buildings that are found to be structurally sound but where structural damage is a major concern.

Calculations were made to estimate vibration levels at the nearest residential and commercial structures surrounding the site. Vibration levels are highest close to the source, and then attenuate with increasing distance. Project-generated vibration levels would fall below the 0.3 in/sec PPV threshold at 20 feet from the Project site during construction activities producing the highest vibration levels (e.g., vibratory roller). Since all off-site structures are more than 20 feet from the Project site boundaries, neither cosmetic, minor, or major damage would occur at these conventional buildings. While vibration would not be expected to cause significant impacts, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and would not be considered significant, given the intermittent and short duration of the phases that have the highest potential of producing vibration (use of a vibratory roller, jackhammers, and other high-power tools). Therefore, the impact related to construction-period vibration would be a ***less-than-significant*** impact.

The potential for nuisances associated with vibration would be further reduced by the implementation of General Plan Policy 4319, which requires noise control measures during construction activities, and by consistency with Municipal Code requirements for construction hours, both of which would also affect construction-period vibration generation.

Operation

There are no known sources of substantial groundborne vibration at or near the Project site and the proposed residential use is not a use that would produce substantial groundborne vibration. Vegetation Management activities would not produce substantial groundborne vibration at nearby properties. This is a ***less than significant*** impact**.**

AIRPORTS

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

Impact Noise-4: **Excessive Aircraft Noise**. The Project site is located over 6 miles from a public airport or public use airport and would not expose people residing or working in the Project area to excessive aircraft noise. This is a ***less-than-significant*** impact.

Palo Alto Airport and Moffett Federal Airfield are public and civil-military airports located approximately 6.3 and 7.8 miles from the Project site, respectively. The Project site lies well outside both Palo Alto Airport and Moffett Federal Airfield noise contours, which means that aircraft noise would be less than 65 CNEL. Therefore, the Project would not be within two miles of an airport or

within areas subjected to excessive airport-related noise levels and would have a ***less-than-significant*** impact with respect to exposing people to excessive airport-related noise levels.

While not rising to the level of a significant impact under CEQA, residents can be aware of aircraft noise at lower noise levels than those considered excessive under airport planning. Additional discussion of airport-related noise levels is provided here for informational purposes. Ongoing noise monitoring reports for Portola Valley from the San Francisco International Airport Aircraft Noise Abatement Office have consistently demonstrated that aircraft noise within Portola Valley is generally the same or less than existing community levels at 50 CNEL or below.[2] CNEL is a more restrictive calculation of community nose levels than the Ldn calculation used in the Town's General Plan, so would show a higher noise level. Therefore, we can compare the reported CNEL of less than 50 for aircraft noise to the Town's General Plan land use compatibility table (Figure 2 in the General Plan, as excerpted in the Regulatory Setting above) indicating that noise levels of 55 Ldn or less are normally acceptable for all residential uses. This means that future exterior noise levels due to aircraft noise are compatible with the proposed land use.

[2] San Francisco International Airport Aircraft Noise Abatement Office, *Portola Valley Noise Monitoring Report*, issued quarterly and available from 2015 to quarter 3 of 2021, accessed 1/28/2022, available at: https://www.flysfo.com/community/noise/reports-and-resources/aircraft-noise-monitoring-reports#.

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POPULATION AND HOUSING, PUBLIC SERVICES, AND RECREATION

INTRODUCTION

This chapter of the Draft EIR contains discussion regarding three CEQA topic areas related to the increase in residents at the Project site: Population and Housing, Public Services, and Recreation. It describes the change in residents at the Project site and analyzes the potential for impacts on population and housing, public services, and recreation resulting from implementation of the proposed Project.

REGULATORY SETTING

CALIFORNIA

Housing Element Law: California Government Code Section 65584(a)(1)

Pursuant to California Government Code Section 65584(a)(1), the California Department of Housing and Community Development (HCD) is responsible for determining the Regional Housing Need Allocation (RHNA) segmented by income levels. HCD prepares an initial housing needs assessment and then coordinates with each region to arrive at the final regional housing needs assessment. To date, there have been five previous housing element update "cycles." California is now in its 6th cycle. Portola Valley's RHNA allocations are discussed under Environmental Setting below.

Affordable Housing Streamlined Approval (SB 35)

California Senate Bill 35 (SB 35) became effective January 1, 2018. SB 35 applies in California jurisdictions that are not meeting their RHNA goal for construction of above-moderate income housing and/or housing for households below 80% area median income (AMI). SB 35 amends Government Code Section 65913.4 to require local entities to streamline the approval of certain housing projects by providing a ministerial approval process.

Housing Crisis Act of 2019 – (SB 330)

The Housing Crisis Act of 2019 (SB 330) seeks to speed up housing production in the next half decade by eliminating some of the most common entitlement impediments to the creation of new housing, including delays in the local permitting process and cities enacting new requirements after an application is complete and undergoing local review—both of which can exacerbate the cost and uncertainty that sponsors of housing projects face. In addition to speeding up the timeline to obtain building permits, the bill prohibits local governments from reducing the number of homes that can be built through down-planning or down-zoning or the introduction of new discretionary design guidelines. The bill is in effect as of January 1, 2020 and expires on January 1, 2025.

Density Bonus Law: California Government Code Sections 65915 – 65918

This law provides incentives for private developers to construct affordable housing. Cities and counties are required to grant a density bonus, reduced parking rations and other incentives or concessions to housing projects which contains prescribed levels of deed restricted affordable housing.

Leroy F. Greene School Facilities Act – (SB 50)

The California Legislature passed SB 50 in 1998 adding Government Code Sections 65995.5-65885.7, which authorized school districts to impose fees on developers of new residential construction. SB 50 also restricts the ability of local agencies to deny project approvals on the basis that public school facilities (classrooms, auditoriums, etc.) are inadequate.

Under SB 50, school districts may collect fees to offset the costs associated with increasing school capacity as a result of development. Payment of school development fees is considered, for the purposes of CEQA, to mitigate in full any impacts to school facilities associated with a development project.

TOWN OF PORTOLA VALLEY

The Town of Portola Valley General Plan designates the Project site as Conservation-Residential, and the site is zoned Residential Estate (R-E). The Project site is subject to the 3.5A residential density combining district, the SD-2 slope-density combining district, and the D-R design review combining district. The Housing Element of the General Plan identified the Stanford Wedge site (Site 40) as one that could accommodate a number of new residences, including affordable housing through the Affiliated Housing Program, and noted that such development would need to be clustered along Alpine Road given the site constraints. The Housing Element noted that, "…up to 82.9 units could potentially be provided on this site, although the number would likely be lower" if the site were developed for multi-family affordable housing.

Maximum allowable density at the site is governed by the Municipal Code and the State Density Bonus Law (Government Code section 65915). Municipal Code sections 18.50.040 and 18.50.050(A) impose a slope-density formula that yields 21 lots for the site. Municipal Code sections 17.20.215, 18.04.055 and 18.44.060(H) allow and require inclusionary housing that may take the form of lots transferred to the Town for construction by a third party or, alternatively, that the project subdivider itself may construct the multifamily housing. These provisions increase allowable units to 18 single-family units and 12 multifamily affordable units (30 total units prior to any density bonus). The State Density Bonus Law allows additional units by right depending on the affordable housing component of the project. The Applicant proposes for 6 of the affordable units (20 percent of the units) to be affordable at the "low income" level, which entitles the Project to a 35 percent affordable housing density bonus under the law, allowing up to 41 units. The Project proposes development of 39 units.

The Town is currently in the process of updating their Housing Element, which will be required to be consistent with the increased RHNA allocation (see below).

ENVIRONMENTAL SETTING

REGIONAL HOUSING NEEDS

California state law (Government Code sections 65580 - 65589.11) mandates that all California cities, towns, and counties must plan for the housing needs of their residents, regardless of income. This state mandate is called the Housing Element and Regional Housing Needs Allocation, or RHNA. As

part of RHNA, the California Department of Housing and Community Development, or HCD, determines the total number of new homes the Bay Area needs to build and how affordable those homes need to be to meet the needs of the region.

The Association of Bay Area Governments (ABAG), working with the Housing Methodology Committee (HMC) and the Metropolitan Transportation Commission (MTC), then distributes a share of the region's housing need to each city, town, and county in the region. Each local government must regularly update the Housing Element of its General Plan to show the locations where housing can be built and the policies and strategies necessary to meet the community's housing needs. The 2023-2031 Regional Housing Needs Allocation (6th Cycle) was adopted on May 20, 2021, though we are still within the horizon year of the 2015-2022 plan. The Town of Portola Valley RHNA allocations are shown in **Table 15.1** below. As can be seen in the allocation table, the 6th Cycle RHNA allocations have increased substantially. This in large part reflects an updated RHNA methodology which incorporates an "equity adjustment" intended to help address existing racial and economic inequities between jurisdictions as well as an overall housing demand increase in the bay area.

Table 15.1: Portola Valley RHNA Allocations

Portola Valley RHNA for years	Very Low Income (<50% Median)	Low Income (50-80% Median)	Moderate Income (80-120% Median)	Above Moderate Income (>120% Median)	Total
2015-2022	21	15	5	13	64
2023-2031	73	42	39	99	253

Source: ABAG-MTC Regional Housing Needs Allocation (RHNA) Plans: San Francisco Bay Area, 2015-2022 and 2023-2031.

PERSONS PER HOUSEHOLD

The Town of Portola Valley Housing Element, last updated in 2015, reported persons per household based on the decennial US Census data as 2.58 in 2000 and 2.47 in 2010.[1]

As of January 1, 2021, the California Department of Finance estimated that there were 4,560 people living in the Town of Portola Valley, increased from 4,353 in 2010, which is an average population growth rate of less than 1 percent per year. 1,932 housing units were reported with about 81% of those single-family homes. The estimated average number of persons per household within Portola Valley was 2.55.[2] The average number of persons per household within Portola Valley was reported as 2.58 for the previous year.[3] While the General Plan had indicated a declining number of persons per household, tracking over the subsequent decade has shown that number generally rebound. For a conservative analysis, the higher 2.58 persons per household number for all Project units has been used throughout the analysis in this EIR.

[1] Portola Valley General Plan Housing Element, Adopted January 14, 2015, p. 12

[2] State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, January 1, 2010-2021. Sacramento, California, May 2021. Note that the persons per household calculation excludes group housing facilities and adjusts for vacant units.

[3] State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, January 1, 2011-2020. Sacramento, California, May 2020.

PUBLIC SERVICES AND RECREATION SERVING PORTOLA VALLEY

The proposed Project is within the jurisdiction of the Town of Portola Valley and would be served by Town of Portola Valley and San Mateo County public services, including the following.

Fire Protection

Portola Valley is within the service area of the Woodside Fire Protection District (WFPD), which also serves Woodside, Emerald Hills, Ladera, Los Trancos, Skyline, and Vista Verde. WFPD provides fire suppression, emergency medical services, fire prevention and fire-related public education within these areas. WFPD serves a population of about 25,000 out of their fire stations with about 13 personnel on shift at any given time.[4] The closest fire station is Station 8 at 135 Portola Road in Portola Valley, approximately three minutes away from the Project site. Additionally, the WFPD Station 7 in Woodside is 7 minutes from the site, and if a fire event(s) requires response from additional stations, this could include mutual aid response from Menlo Park Fire Protection District; or Palo Alto Fire Department Stations 2, 6, and 8 in Palo Alto, located between 8 and 11 minutes from the Project site. Cal Fire may also respond depending of the scope of the incident and resources needed.

Police Protection

Police services are provided by the San Mateo County Sheriff's Office (SMCSO). Portola Valley's current contract (through 2023) provides one patrol deputy 24 hours a day, and a shared deputy with Woodside.[5] SMCSO reports service call volumes by annual quarter. In the latest available data for the second quarter of 2021 (April, May, June), the SMCSO responded to a total of 568 calls (including traffic incidents) in Portola Valley.[6] SMCSO reports that the average response time for Priority 1 calls (those representing an imminent threat) remains within their target of five minutes.[7]

Schools

Senate Bill 50 (SB 50), which is funded by Proposition 1A, limits the power of Cities and Counties to require fiscal mitigation on home developers as a condition of approving new development and provides for a standardized developer fee. The State Allocation Board (SAB) approves increases in developer fee rates per Government Code Section 65995 (b) in response to inflation.

Public schools are provided within Portola Valley for Transitional Kindergarten (TK) to 8th grade by the Portola Valley School District (PVSD), which serves approximately 550 students in two schools located near Stanford University: Ormondale (TK - 3rd) and Corte Madera (4th - 8th). Public High School students (grades 9 through 12) in Portola Valley attend the Sequoia Union High School District Woodside High School at 199 Churchill Avenue in Woodside, CA.

The Portola Valley School District reports an expected student yield of 0.5 TK to 8th grade students per residential unit.[8] The Sequoia Union High School District reports an expected student yield of 0.2 high school students per residential unit.[9]

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[4] Woodside Fire Protection District Website, available at: https://www.woodsidefire.org/about.

[5] Portola Valley website, available at: https://www.portolavalley.net/departments/san-mateo-county-sheriff

[6] San Mateo County Sherriff's Office Incident Reports April 1 – June 30, 2021, Available at: https://www.portolavalley.net/home/showpublisheddocument/14815/637625470411300000

[7] San Mateo County Sherriff's Office website, available at: https://performance.smcgov.org/stories/s/Sheriff-s-Office-Patrol-Division-3051P-/3bi2-qgr6/.

[8] Jack Shrader & Associates, March 30, 2020, Level I Developer Fee Study for Portola Valley School District,

Library

San Mateo County Library provides library services from thirteen branch libraries in the cities of Atherton, Belmont, Brisbane, East Palo Alto, Foster City, Half Moon Bay, Millbrae, North Fair Oaks, Pacifica (two branches), Portola Valley, Sanchez and Woodside. Portola Valley Library is a branch of the San Mateo County Library located at the Town Center on Portola Valley Road.[10]

Parks and Recreation

The Town of Portola Valley offers a variety of recreational facilities and programs for residents of the Town, including various recreational playing fields and a Community Hall for classes and activities at the Town Center approximately 3.3 miles from the Project site. A comprehensive trails system – with nearly the same number of miles as the Town's roadways - provides additional recreational opportunities for pedestrians, equestrians, and bicyclists. The Project would maintain the adjacent trail along Alpine Road and construct new trails on the hillside within the greater Project site boundaries to add to the trail network.

Additionally, numerous open space areas are located within Portola Valley that provide additional recreational opportunities, including the 1,132-acre Windy Hill Open Space (within Portola Valley limits but part of the Peninsula Regional Open Space District lands), and the Town-owned 544-acre Coal Mine Ridge & Blue Oaks Trails, both with parking located as close as 2.6 miles from the Project site. Additional open space areas are located within and near the Town of Portola Valley.

Since the passage of the 1975 Quimby Act (California Government Code §66477), cities and counties have been authorized to pass ordinances requiring that developers set aside land, donate conservation easements or pay fees for park improvements.

Per Portola Valley Municipal Code section 17.20.200, for subdivisions containing 50 lots or less, the developer must pay a fee to be used toward parks or other recreational purposes based on the land value and projected number of residents unless land dedication is instead coordinated to the Town's satisfaction.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project site as proposed would have a significant environmental impact if it were to result in:

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

page 8, available at: http://p11cdn4static.sharpschool.com/UserFiles/Servers/Server_60962/File/2020%20PVSD%20Developer%20Fee%20Justification%20Study.pdf

[9] Jack Shrader & Associates, May 8, 2014, Level I Developer Fee Study for Sequoia Union High School District, page 8, available at https://www.seq.org/DEPARTMENTS/Administrative-Services/Maintenance--Operations/School-Impact--Developer-Fees/index.html

[10] San Mateo County Library website, http://www.smcl.org.

2. The displacement of substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere

3. 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:
   - fire protection
   - police protection
   - schools
   - parks
   - other public facilities

4. Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated

5. Project-related recreational facilities, or the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment

POPULATION GROWTH

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

Impact Pop-1: **Planned Population Growth.** The Project would result in an increase of 39 units (approximately 101 residents) at the Project site. However, this increase is consistent with the Town's General Plan to develop the Project site with residential (including affordable) units and helps fulfill the Town's Regional Housing Needs Allocation and would therefore not be considered "unplanned." The impact related to substantial unplanned population growth would be a ***less than significant*** impact.

Development of the Project as proposed would result in the addition of 39 new housing units on an infill site within the Town of Portola Valley that is currently designated and zoned for such development. This equates to an increase of approximately 101 residents at the Project site (at an average of 2.58 residents per unit as discussed in the setting above). The Project would increase the number of housing units in the Town of Portola Valley by 2% over that existing, and increase the population by about 2%. While this is greater than the average 1% growth rate the Town historically experiences, developing the Project site into residential units is specifically identified as part of the Town's Housing Element plans to help meet Portola Valley's identified Regional Housing Needs. Additionally, the Town's 6th Cycle Housing Element will include an additional 253 housing units, well above the amount anticipated in the current element. Therefore, because the project is consistent with local and regional planning, the Project's population growth would not be considered to be "unplanned" and the impact on population growth from both a project-specific and cumulative perspective would be ***less than significant***.

DISPLACEMENT OF EXISTING HOUSING UNITS AND/OR PEOPLE

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

There are no housing units or people living on the site currently and the Project would therefore not displace any housing units or people (***no impact***).

PUBLIC SERVICES AND RECREATION

3. *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:*
    - *fire protection*
    - *police protection*
    - *schools*
    - *parks*
    - *other public facilities*

4. *Would the project result in increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated*
5. *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?*

Impact Services-1: Increased Public Service and Recreation Demand. The Project would increase the number of residents at the site and therefore demand for public services and recreational opportunities. However, the Project would be served with existing facilities and those proposed as a part of the Project and the impact related to public services and recreation would be considered ***less than significant***.

Additional discussion is provided by subtopic below.

Fire Protection

The Project site is located within the existing WFPD service area, approximately 3 minutes away from WFPD Station 8. Note that substantial additional discussion of Wildfire is included in Chapter 18 and Appendix J of this EIR. The Project includes a fire access road on the hillside and Vegetation Management Pplan to be implemented across the site to reduce and manage wildfire risk. Overall, this analysis concludes that the risk of wildfire at the site would be decreased with the Project due largely to implementation of the proposed Vegetation Management Plan to reduce and manage wildfire risk and increased access to the site for fire suppression activities via the proposed fire access road. Although increased human activity could result in increased ignition risk, in addition to the elements discussed above, the Project includes Wildfire Reduction Measures to minimize the potential for human activity-related fires including "defensible space" separation between home sites and wildland areas and "hardening" homes by reducing the ignitability of roofs, siding, decks, windows and other assemblies (see Chapter 18: Wildfire for additional information). Therefore, the impact with respect to fire protection would be ***less than significant***.

Police Protection

The Project site is located on a site within the existing service area of the SMCSO, which reports operating within their target response times (see setting). Although the proposed Project would add new residents to the site, which could result in some increase in the current demand for services, the amount of residents would not be enough to by itself require the construction of new or physically altered police facilities. Future home owners would pay any relevant annual fees, which could go toward any future increases in services. Therefore, the Project would have a ***less than significant*** impact with respect to police facilities.

Schools

Based on relevant student generation rates (see setting above), the 39 proposed residential units would be estimated to add about 20 Transitional Kindergarten to 8th grade students to the Portola Valley School District and about 8 high school students to the Sequoia Union High School District. This amount of students is not enough to by itself require construction of new public schools. The Project applicant will be required to pay all applicable school impact mitigation fees established by the PVSD prior to the issuance of any building permits. Under Government Code Section 65995, the payment of these fees is deemed to be full and complete mitigation for Project-related impacts on school facilities. Therefore, the impact of the Project with respect to school facilities would be ***less than significant***.

Parks and Recreation

The Project proposes recreational elements as a part of the proposed development, including hillside trails to be publicly available and a mini-park with a children's play area for use by the Project residents. The recreational trail areas will remain under Project ownership, but made available for use by all Portola Valley residents. The applicant will pay additional park in-lieu fees consistent with Portola Valley Municipal Code section 17.20.200. The applicant will also enter into a restrictive covenant ensuring that the undeveloped portion of the site will remain as open space land.

Residential development at the Project site as proposed would result in an incremental increase in the number of local residents using local parks and recreational facilities, but a project of this size would not be expected to result in substantial deterioration of existing facilities or to by itself result in the need for new or expanded facilities. In-lieu fees would be paid to the Town toward area parks and recreational opportunities per the Town's planning and to offset additional demand from Project residents. Some recreational facilities are proposed as a part of the Project, but the environmental effects associated with the construction of the proposed on-site recreational facilities have been evaluated as part of the proposed Project in this EIR and the Project and as discussed throughout this document, would not result in significant environmental impacts. Therefore, the Project would have a ***less than significant*** impact with respect to parks and recreation.

Other Facilities

As with the public services listed above, the Project could result in a marginal increase in use of other facilities in Portola Valley, such as libraries, due to increase of residents on the Project site. The Project site is located in an area where development has been anticipated under the General Plan, and included in planning for public services. A project of this size would not be expected to require new or expanded facilities by itself and would pay applicable development fees toward larger planning efforts. Therefore, the Project impact with respect to other public facilities would be ***less than significant***.

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TRANSPORTATION

INTRODUCTION

PURPOSE

This chapter discusses the potential impacts of the implementation of the proposed Project on transportation.

The discussion in this chapter presents the results of the transportation impact study conducted by Hexagon Transportation Consultants, Inc. for the proposed Project. The complete analysis is included as Appendix I.

SETTING

This section describes the existing transportation conditions in the Project study area, including the roadway network and transit, pedestrian, equestrian, and bicycle facilities in the vicinity of the Project site.

ROADWAY SYSTEM

Regional access to the Project site is provided by Interstate 280 (I-280). Local access to the Project site is provided on Alpine Road via Portola Road, Westridge Drive, and Arastradero Road.

I-280 is an eight-lane freeway in the vicinity of the site. I-280 extends northward through San Francisco and southward to US 101 in San Jose. East of US 101, it makes a transition into I-680 to Oakland. Access to and from the site is provided via a full interchange at Alpine Road.

Alpine Road is a north-south two-lane road that transitions from Santa Cruz Avenue at Junipero Serra Boulevard in the north and transitions into Ciervos Street in the south. It serves as an arterial from Junipero Serra Boulevard to Portola Road in the Project vicinity. Striped shoulders exist along both sides of Alpine Road, between Corte Madera Road and Junipero Serra Boulevard. A pedestrian/equestrian trail exists along the east side of the street near the Project site. On-street parking is prohibited along the project frontage on the west side of the street. The speed limit ranges from 35 miles per hour (mph) to 40 mph. Alpine Road provides direct access to the site.

Portola Road is a two-lane arterial that mainly runs in a north-south direction from Alpine Road in the south to Mountain Home Road in the north, where it transitions into Sand Hill Road. Striped shoulders exist along both sides of the street. A pedestrian/equestrian trail exists along one side of the street. On-street parking is prohibited. The speed limit is 35 mph. Portola Road provides access to the Project via its intersection with Alpine Road.

Westridge Drive is an east-west two-lane major collector from Portola Road in the west to Alpine Road in the east. A pedestrian/equestrian trail exists along the north side of the street. On-street parking is

prohibited along both sides of the street. The speed limit is 30 mph. Westridge Drive provides access to the Project via its intersection with Alpine Road.

Arastradero Road is an east-west two-lane road from Alpine Road in the west to Page Mill Road in the east. A bike route is designated between Alpine Road and Tracy Court in the City of Palo Alto, where it transitions into bike lanes along both sides of the street for the rest of the street. On-street parking is prohibited along both sides of the street. The speed limit is 35 mph. Arastradero Road provides access to the Project via its intersection with Alpine Road.

PEDESTRIAN AND EQUESTRIAN FACILITIES

Pedestrian and equestrian facilities consist of trails and crosswalks in the Project vicinity. A paved pedestrian trail exists on the east side of Alpine Road, and an unpaved pedestrian/equestrian trail exists on the west side of Alpine Road. Pedestrian/equestrian trails also exist along one side of Portola Road and the north side of Westridge Drive. Crosswalks are present along all of the study area roadways at unsignalized study intersections. Crosswalks are present crossing Alpine Road at La Cuesta Drive, La Mesa Drive, and Portola Road. Crosswalks are also present along the east leg of the Alpine Road and Arastradero Road intersection and along the west leg of the Alpine Road/Portola Road intersection.

BICYCLE FACILITIES

Although the Town has not designated any bicycle facilities on its roadways, bicycle usage is allowed on Town roadways. Within one mile of the Project site, striped shoulders on Alpine Road and Portola Road are commonly used by cyclists as bike lanes. Arastradero Road is mostly within the City of Palo Alto, where it is a designated bike route marked with painted shared lane markings (sharrows) on the roadway.

TRANSIT SERVICE

Existing public transit services in the study area are provided by the San Mateo County Transit District (SamTrans). SamTrans operates bus services in San Mateo County. SamTrans Routes 87 and 286 ran along Alpine Road prior to April 2020. Due to COVID-19 and shelter-in-place orders, both routes have been temporarily suspended within the Project vicinity. The nearest bus stop was located on Westridge Drive at Alpine Road, approximately 1,000 feet from the Project site, and was served by both Routes 87 and 286 on school days, during school start and end hours.

Stanford University provides free Marguerite shuttles between the campus and various points of interest near the campus. The shuttle route with a stop closest to the site is the SLAC route that operates on weekdays. The nearest stop is located on Sand Hill Road at Sharon Park Drive, approximately 2.8 miles from the Residential Development Area.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The following thresholds are based on Appendix G of the CEQA Guidelines:

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

2. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) [relative to VMT]?

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

4. Would the project result in inadequate emergency access?

ROADWAY AND INTERSECTION OPERATIONS

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

Impact Trans-1: Consistency with Circulation System Plans and Policies. The Project would improve pedestrian and equestrian facilities at the site and while it would add some use of bicycle, pedestrian, transit, and roadway facilities, it would not conflict with applicable plans and policies. This is a ***less than significant*** impact.

Pedestrian facilities in the vicinity consist of trails and crosswalks in the Project vicinity. A paved pedestrian trail exists on the east side of Alpine Road, and an unpaved pedestrian/equestrian trail exists on the west side of Alpine Road. Pedestrian/equestrian trails also exist along one side of Portola Road and the north side of Westridge Drive. Crosswalks are present along all of the study area roadways at unsignalized study intersections, except at the freeway ramp intersections. Crosswalks are present crossing Alpine Road at La Cuesta Drive, La Mesa Drive, and Portola Road. Crosswalks are also present along the east leg of the Alpine Road and Arastradero Road intersection and along the west leg of the Alpine Road/Portola Road intersection.

Although the Town has not designated any bicycle facilities on its roadways, bicycle usage is allowed on Town roadways. Within one mile of the Project site, striped shoulders on Alpine Road and Portola Road are commonly used by cyclists as bike lanes. Arastradero Road is mostly within the City of Palo Alto, where it is a designated bike route marked with painted shared lane markings (sharrows) on the roadway.

Potential Effects on Pedestrians, Equestrian, Bicycles, and Transit Facilities

Pedestrian and Equestrian Trails

Impact Trans-2: Additional Vehicle Crossings Across Alpine Road Trail. The Project would increase in vehicle access points and vehicle crossings across the Alpine Road trail, which would increase the potential for conflict between vehicles and trail users and is considered a potential safety hazard. This impact is ***less than significant with mitigation***.

In the Project vicinity, an unpaved pedestrian/equestrian trail runs on the west side of Alpine Road along the Project frontage, and a paved pedestrian trail exists on the east side of Alpine Road. Pedestrian/equestrian trails also exist along one side of Portola Road and the north side of Westridge Drive. It is expected that the Project would generate some pedestrian/equestrian trips, which could utilize these trails. However, the increase in trail usage is not expected to degrade the quality of these trails because of the small number of pedestrian/equestrian trips that would be generated by the Project.

The Project proposes to construct a new loop trail within its property boundaries to the south of the housing development site. The trail would be accessible to the general public and would connect to the existing pedestrian/equestrian trail that runs on the west side of Alpine Road at two locations. The Project would also improve the existing dirt trail along the frontage of the entire property. Both the new loop trail and the existing trail along Alpine Road would have a minimum six-foot width with all-

weather compacted base-rock surface. The new loop trail and improvement to the existing trail would increase the capacity and quality of the Town's trail system.

The Project would have two driveways crossing the pedestrian/equestrian trail that runs along its frontage. As discussed below, under Site Design Hazards and Emergency Access, the Project would provide adequate sight distance at the driveways with low-level landscaping to ensure a clear line of sight between exiting drivers and pedestrians/horses on the trail. The Project would install split rail fencing along the Project frontage. Split rail fencing enables pedestrians/equestrians on the trail and outbound vehicles to see each other when approaching the driveway.

Based on observations at the site, the trail along the Project's Alpine Road frontage is lightly used and the Project traffic on the Project intersections would also be low; therefore, the chance of the pedestrians/horses and the Project traffic arriving at the crossing simultaneously is expected to be small. Regardless, any increase in vehicle access points along the trail would increase the potential for conflict between pedestrians/equestrians and is considered a potential safety impact.

Mitigation Measure

Trans-2: **Trail Crossing Warning.** The Project shall install a sign at the driveways "STOP HERE LOOK FOR TRAIL USERS STOP AGAIN AT ROAD" for outbound traffic approaching the trail to alert the exiting drivers of the presence of trail users.

Implementation of mitigation measure Trans-2 would reduce potential safety impacts related to additional vehicle crossings across the Alpine Road trail to a level of ***less than significant with mitigation***.

Bicycle Facilities

Although the Town has not designated any bicycle facilities on its roadways, the striped shoulders on Alpine Road and Portola Road are commonly used by cyclists as bike lanes. Cyclists riding on Alpine Road can connect to the bike lanes on Junipero Serra Boulevard and Sand Hill Road to Stanford University. The small number of vehicle trips added by the Project would not substantially impact bicycle travel on Alpine Road or the surrounding roadways.

The Town does not require developments to provide bicycle parking. However, the site plan shows that each garage would provide wall-hung bike racks for two bicycles (long-term spaces) and 9 bicycle racks (short term spaces) for 18 bicycles around the Project site.

The Project would not conflict with any adopted plans or policies associated with bicycle facilities.

Transit Services

The Project site is served by SamTrans Routes 87 and 286 with the bus stops approximately 1,000 feet from the Project site. Due to COVID-19, both routes have been temporarily suspended within the Project vicinity, but are expected to be reinstated with a return to normal operations. Regardless, the Project is expected to create minimal, if any, transit ridership given that Routes 87 and 286 only provide a few busses per day near the Project site, which could be accommodated by normal service.

The Project would not remove any transit facilities, nor would it conflict with any adopted plans or policies associated with new transit facilities.

Pedestrian and Bicycle Access to Schools

The Town of Portola Valley has two public schools and two private schools within Town limits. The Town's public schools include Ormondale School for grades Kindergarten through 3 and Corte Madera School for grades 4 through 8. Both schools are located two or more miles away from the Project site. The Town's private schools include Woodland School for grades preschool to 8, approximately 1.2 miles north of the Project site, and Woodside Priory for grades 6 to 12, approximately 3.1 miles southwest of the Project site. Some older students at Woodland School may ride their bikes, using the striped shoulders on Alpine Road and the trail behind the plaza north of La Mesa Drive. The distances to the other schools are longer than typical walking (one mile) or bike (3 miles) distance for students. Thus, it is likely that most students would be driven to school, rather than walk or bike.

Access to Stanford University

The Project site is located approximately 4 miles southwest of Stanford University. Bicyclists could utilize Alpine Road and Junipero Serra Boulevard to access Stanford University. Currently, the Stanford University Marguerite Shuttle does not provide any shuttle lines along Alpine Road. Although new residents could utilize SamTrans Routes 87 or 286 when bus services return to pre-COVID conditions to access the Marguerite Shuttle Line S, Routes 87 and 286 only provide a few busses per day during school operational hours.

To reduce vehicle trips and promote alternative transportation, Stanford University has a transportation demand management (TDM) program that offers various programs to eligible university employees. Although the Stanford University Marguerite Shuttle does not currently provide service along Alpine Road, future residents who wish to commute to the University using alternative transportation modes could utilize the following programs/resources:

- Free transit passes for eligible university employees.
- Free parking passes and reserved spaces for employees who commute by carpool or vanpool.
- Commute Club – an incentive program that offers various rewards and services for alternative transportation commuters, including vanpool subsidies, emergency ride home, free rental car vouchers, and Zipcar driving credit. (The Commute Club was suspended in April 2020 due to the COVID-19 pandemic but is expected to reinstated with a return to normal operations.)
- Zipcar fleet on Campus with discounted rates.
- Discounted rates on rental cars.
- Ride matching services.

VEHICLE MILES TRAVELED

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

Vehicle Miles Traveled Methodology

Per California Senate Bill 743, the California Natural Resources Agency, with assistance from the Governor's Office of Planning and Research (OPR), adopted new CEQA guidelines in December 2018. The new guidelines state that automobile delay, as measured by level of service (LOS), will no longer constitute a significant environmental impact under CEQA, and that Vehicle Miles Traveled (VMT) is considered the most appropriate metric to evaluate a Project's transportation impacts. The new guidelines became effective July 1, 2020. The legislation is intended to promote infill development, a

diversity of land uses, transit, and active transportation modes while reducing greenhouse gas emissions. OPR recommends the following threshold for residential projects:

"A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or a city VMT per capita."

Lead agencies have the discretion to choose the VMT analysis methodology and to set or apply their own thresholds of significance different from OPRs guidance. Otherwise, as in Portola Valley and therefore for this Project, OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018, with the relevant section detailed in the quote above) can be used.

The Project's VMT was estimated based on home-based trips as described in the OPR recommendations. The OPR's Technical Advisory states that the VMT thresholds "can be applied to either household (i.e., tour-based) VMT or home-based (i.e., trip-based) VMT assessments." In simple terms, tour-based analyses capture all types of trips persons make in a day, including various stops on a trip, whereas trip-based analyses focus on the primary trip (generally commuting to and from work). As excerpted above, the advisory allows for assessment using either methodology. The market rate housing units would be reserved for Stanford University faculty. Because it is known that some of the residents' daily primary trip would be the commute trip to Stanford University, the trip-based analysis contains the most reliable project-specific data and is therefore most appropriate for this Project.

The VMT analysis for the Project was conducted by comparing the daily VMT estimated for the proposed development to the average VMT for the Town of Portola Valley. The OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA states that "Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita." Therefore, the advisory allows for assessment using regional or city VMT averages. In practice, this allows for cities with high relative VMT, which is the case in Portola Valley, to use this as a mechanism to encourage reductions against their own averages. (Conversely, it also allows projects in denser/transit rich cities to show how location in those areas helps reduce regional VMT even though they may not be able to reduce much from their own city average.)

The VMT estimates were obtained from the Metropolitan Transportation Commission (MTC)'s VMT database, which is estimated using the MTC travel demand forecast model for Plan Bay Area 2040. MTC's forecasted average daily VMT per capita for residential projects in Portola Valley is 25.68 in year 2020, 25.09 in year 2030, and 25.04 in year 2040.

Per state guidelines, LOS has not been considered in this CEQA analysis. An analysis and discussion of LOS is included as an informational item in Appendix I.

Trip Generation

Through empirical research, data have been collected that quantify the estimated amount of traffic produced by many types of land uses. The data are published in the Institute of Transportation Engineers' (ITE) manual, the most recent of which is the Trip Generation, 10th Edition (2017). The magnitude of traffic added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates by the size of the development. The rates published for Single-Family Housing (Land Use 210) and Multi-Family Housing (Low-Rise) (Land Use 220) were used to estimate the trips generated by the proposed Project. The ITE Trip Generation Manual describes low-rise multi-family housing as residential buildings with one or two floors. The BMR buildings consist of two floors each, so would fall into this category. The Project is estimated to

generate 26 trips during the AM peak hour (6 in and 20 out), and 34 trips during the PM peak hour (21 in and 13 out) (see **Table 16.1**).

Table 16.1: Trip Generation Table

Land Use	Size	Unit[2]	Daily Trips	AM Peak Hour Trips[1]			PM Peak Hour Trips[1]		
				Total	In	Out	Total	In	Out
Single-Family Residential	27	DU	255	20	5	15	27	17	10
Multi-Family Housing	12	DU	88	6	1	5	7	4	3

Notes:
[1] All trip rates (in trips per dwelling unit) are from ITE Trip Generation (10th Edition) land use category 210 (Single-Family Detached Housing) or category 220 (Low-Rise Multi-Family).
[2] DU = Dwelling Units

Source: Hexagon, 2021 (Appendix I)

Population Estimates

In order to calculate trips made by the various types of residents (faculty, non-faculty, and BMR residents), the Project population needed to be determined for each type of resident, because the different types have different levels of VMT. The Town of Portola Valley Housing Element, prepared in 2015, reported persons per household based on the decennial US Census data as 2.58 in 2000 and 2.47 in 2010.

The California Department of Finance generates yearly population and housing tables, and those are the usual source for population data outside of the decennial census. As of January 1, 2020, the California Department of Finance estimated the average number of persons per household within Portola Valley as 2.58.[1]

Neither of these sources further break down this average by type of unit or by number of bedrooms. Inherent to any average, it will be above the population of some units and below the population of other units but should be a reasonable estimate for the project as a whole. Therefore, the study uses the 2020 average (2.58 persons per household, which is consistent with the higher of the reported averages from the Town's Housing Element) across the entire Project for both the market rate and Below Market Rate (BMR) units and is also consistent with the most recent reported data published by the California Department of Finance.

Impact Assessment

Impact Trans-3: **Consistency with Circulation System Plans and Policies.** The Project would add trips to the circulation system, but would have an average Vehicle Miles Traveled below the Town of Portola Valley and below applicable significance thresholds. This is a ***less than significant*** impact.

As detailed in Table 16.2 below, because each single-family unit was assumed to have at least one person working at the Stanford University campus on typical weekdays, the roundtrip distance between

[1] State of California, Department of Finance, May 2020, E-5 Population and Housing Estimates for Cities, Counties and the State, January 1, 2011-2020, 2019 Persons per Household for Portola Valley.

the Project site and the campus (9.5 miles) was used for those working on campus (one person in each of the single-family homes).

Table 16.2: Project VMT

Land Use	Units	Persons per Household	Total Persons	Daily VMT per Capita	Total Daily VMT
Stanford Housing	27	2.58			
Stanford Faculty[1]		1.0	27	9.50[2]	256.50
Non-Stanford Household Member		1.58	43	25.68[3]	1104.24
Affordable Housing	12	2.58	31	23.11[4]	716.47
Total	***39***		***101***		***2077.21***
Average VMT for the Project				***20.57*** [5]	
Year 2020 VMT per capita for Portola Valley				25.68	
VMT Threshold (15% below Portola Valley Average VMT)				21.83	
Does Project Exceed VMT Threshold?				***No***	

Notes:

[1] Each Single-Family home was assumed to have one person working at the campus on typical weekdays.

[2] Daily VMT for Stanford Faculty is the round trip distance between the site and Stanford Campus.

[3] Daily VMT for non-Stanford household members in the single-family homes is based on the year 2020 VMT per capita for Portola Valley.

[4] Daily VMT for the affordable housing units is set to 10% below the year 2020 VMT per capita for Portola Valley. This is an industry-standard reduction and is supported by the following research: Income, Location Efficiency, and VMT: Affordable Housing as a Climate Strategy paper published by Gregory L. Newmark, Ph.D and Meter M. Haas Ph.D from the Center for Neighborhood Technology in December 2015.

[5] Average VMT for the Project was calculated by dividing the total VMT by the total population of the site.

Source: Hexagon, 2021

As discussed in the methodology section above, OPR recommends a threshold of 15 percent below the existing VMT per capita for residential projects, which equates to 21.83 for Portola Valley. As shown in Table 16.2 above, the average VMT for the Project was calculated to be 20.57 VMT per capita, which is more than 15 percent below the Portola Valley average VMT. Thus, the Project is expected to have a ***less-than-significant*** transportation impact.

Additional requirements for BMR units that may consider prioritizing local workers, existing Portola Valley residents, or similar were being considered by the Town during preparation of this analysis. While such potential requirements have not been taken into account in this analysis, the results would be the same or improved from that reported here if they were implemented.

SITE DESIGN HAZARDS AND EMERGENCY ACCESS

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

4. Would the project result in inadequate emergency access?

Impact Trans-4: **Site Access and Circulation.** The design of the Project would meet all applicable Town and safety standards related to circulation and emergency access. This is a ***less than significant*** impact.

The Project's site access and circulation were evaluated in accordance with generally accepted traffic engineering standards. The Project would provide two new full access intersections on Alpine Road. Within the site, a two-way internal road would be provided to access the private garages and surface parking spaces. For the single-family homes, parking would be provided within each attached one car garage and on the driveway to each single-family home. For the BMR housing units, parking would be provided within private garages and surface parking spaces in various locations on site.

On-Site Circulation

Within the site, a two-way internal road would be provided to access the private garages and surface parking spaces. The internal road would range from 20 feet to 27 feet wide. The pavement width meets the minimum pavement width of 20 feet for residential service streets and fire access roads, according to the Portola Valley Municipal Code and the Woodside Fire Protection Department Fire Code. The Project would provide 90-degree street parking spaces in five areas along the internal road. The roadway width would be 27 feet where street parking is provided, and the drive aisles to the BMR parking spaces would be 25 to 28 feet wide, both of which meet the Town's requirement of 25-foot aisles where surface parking is directly accessed. The Project would provide 90-degree uniform parking stalls within the site.

Project Roadway Design and Sight Distance

The proposed roadway intersections on Alpine Road measure 20 feet in width, which meets the Town's maximum of 20 feet for roadways entering a road. The two roadway intersections would be approximately 550 feet apart.

The proposed roadway intersection locations were evaluated to determine if the sight distance at the intersections would be adequate. Adequate sight distance reduces the likelihood of a collision at intersections and provides drivers with the ability to locate sufficient gaps in traffic to exit a driveway. Sight distance of an intersection is evaluated based on the stopping sight distance recommended by Caltrans for a given design speed.

Alpine Road has a speed limit of 40 mph near the Project intersections. The Caltrans stopping sight distance is 350 feet (based on a design speed of 45 mph). Thus, a driver must be able to see 350 feet in both directions of Alpine Road to locate a sufficient gap to turn out of the Project roadway. Both intersections have a sight distance of greater than 350 feet in both directions. Therefore, the sight distance is adequate.

The Project would provide adequate sight distance at the Project intersections with low-level landscaping to ensure that exiting drivers would be able to see any pedestrians on the trail along the Project frontage as well as oncoming vehicles. According to the site plan, the landscape plan shows street trees would be added along the Project frontage. Note that street trees have a high canopy and would not obstruct the view of drivers exiting the Project roadway, and the trees would not be placed within the sight triangles of the intersections. The Project would also install low split rail fencing along the Project frontage. Split rail fencing enables trail users and outbound vehicles to see each other when approaching the roadway. Thus, the landscaping features shown on the site plan are not expected to obstruct the vision of exiting drivers.

Project Intersection Operations

As shown in Table 16.1, the Project is expected to generate 6 inbound and 20 outbound trips during the AM peak hour and 21 inbound and 13 outbound trips during the PM peak hour between the two driveways. The peak hour with the greater number of trips for any given turn movement is discussed below.

For outbound trips leaving the Project site, some minor on-site vehicle queuing could occur due to a combination of the inherent unpredictability of vehicle arrivals at the intersection and the random occurrence of gaps in traffic along Alpine Road. However, given the estimated 20 outbound trips in the AM peak hour between the two Project intersections, which calculates to an average of about one outbound trip every 6 minutes, the probability of two or more outbound vehicles exiting the site at the same time from the same intersection would be low. The maximum outbound queue is not expected to substantially affect the on-site circulation.

Most of inbound trips would make southbound right turns, which would be a generally free-flowing movement not requiring breaks in traffic. Of the 21 inbound PM peak hour trips, the 17 southbound vehicles turning right into the Project site from Alpine Road may momentarily affect the southbound traffic flow due to vehicles slowing down to turn into the driveway, but such temporary slowing for turn movements is a normal occurrence along roadways, and would not have a substantial adverse effect on traffic operations.

Of the 21 inbound PM peak hour trips, 4 of those trips would be making northbound left turns into the site. The estimated 4 trips turning from northbound Alpine Road into the site calculates to approximately one inbound vehicle every 30 minutes split between the two driveways, so would be unlikely to cause substantial queues.

Therefore, no operational issues related to vehicle queueing and/or vehicle delay are expected to occur on Alpine Road at the driveways.

Passenger Loading

The Project does not propose any specific passenger loading area on-site for residents. However, it is presumed that loading could occur on the internal road, as the Project traffic is expected to be very low.

Bike and Pedestrian On-Site Circulation

The site plan provides some pedestrian paths within the common open area space and play area, but there are no sidewalks along the internal road or pedestrian paths leading to the common area. Due to the low traffic volume and speed within the internal neighborhood, it is presumed that bicyclists would be able to safely utilize the internal road.

Emergency Response Vehicles and Truck Access and Circulation

Emergency response vehicles and garbage collection vehicles would access the Project site from the internal road. As is a standard requirement, it is presumed that trash bins would be wheeled out to the internal road for garbage truck pickup. Per the Project description, vehicle parking on the internal road will be prohibited, which should be enforced by the HOA to ensure that access and circulation for emergency response vehicles and other large vehicles is not obstructed by parked vehicles. As a private roadway, the Sherriff would not enforce parking rules on the proposed Project roadway. It is customary for private roads to include signage indicating no parking at any time and who to contact if towed. Chapter 18: Wildfire includes a further discussion of emergency evacuation.

Adequacy of Parking

Because the project proposes 12 BMR units, according to State of California Density Bonus Law (SDBL) (Government Code section 65915(p)), for a development that meets the density bonus requirements, a city, county, or city and county shall not require a vehicular parking ratio, inclusive of handicapped and guest parking, that exceeds the following ratios:

- 1 on-site space for each studio or one-bedroom unit.
- 1.5 on-site spaces for each dwelling with two or three bedrooms.
- 2.5 on-site spaces for each dwelling with four or more bedrooms.

The single-family homes would consist of 19 three-bedroom units and 8 four-bedroom units, which would require a total of 49 spaces. Each BMR building consists of 2 studio units, one one-bedroom unit, and one two-bedroom unit, which would require 5 spaces for each building. The three BMR buildings would require 15 spaces. The Project would require a total of 64 residential parking spaces in accordance with SDBL.

The site plan shows all single-family homes would be provided one garage parking space and one driveway space. Each BMR building would provide two garage parking spaces and three adjacent surface parking spaces. There would be an additional 20 off-street surface parking spaces indicated on the site plans as for use by visitors. In total, the Project would provide 89 parking spaces (33 spaces in garages, 27 spaces on single-family home driveways, 9 spaces in multi-family lots, and 20 off-street surface parking spaces). The Project meets the SDBL-required number of parking spaces, and parking on site would be adequate.

According to the General Plan Circulation Element Section 3105.9, on-road parking should be discouraged. The General Plan Alpine Scenic Corridor Plan Section 6211.8 also states that on-street parking should be limited to the maximum extent possible. On-street parking is prohibited along the Project site frontage on the west side of Alpine Road with signs to indicate no parking at any time. However, on-street parking on the east side of Alpine Road is not expressly prohibited. As discussed above, the Project would provide more on-site parking spaces than required by 25 spaces. Therefore, parking demand is expected to be accommodated within the site and the Project would not significantly generate demand for parking on Alpine Road.

The Project would install electric vehicle charging infrastructure to facilitate future installation and use of electric vehicle chargers at all the single-family units, which meets the requirement of the California Green Building Standards Code (Section 4.106.4).

Conclusions

The site plan shows adequate site access and on-site circulation. The Project would not have an adverse effect related to site hazards or emergency access.

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UTILITIES AND SERVICE SYSTEMS AND ENERGY

INTRODUCTION

This chapter describes existing public utilities at and near the Project site. This chapter also evaluates the impact of the proposed Project on the provision of public utilities and possible adverse physical impacts on the environment that could result from constructing expanded facilities.

REGULATORY AND ENVIRONMENTAL SETTING

WATER SUPPLY

California Water Service Company and the Urban Water Management Plan[1]

The water system in Portola Valley is owned and operated by the California Water Service Company (Cal Water). The Cal Water Bear Gulch District is located in southern San Mateo County. The Bear Gulch District serves the communities of Atherton, Portola Valley, Woodside, parts of Menlo Park, parts of unincorporated Redwood City, and adjacent unincorporated portions of San Mateo County, including West Menlo Park, Ladera, North Fair Oaks, and Menlo Oaks.

Cal Water is required by State law to prepare an Urban Water Management Plan (UWMP) to identify existing and projected water supply sources, develop demand projections for each of its districts, and identify strategies for ensuring that long-term water supplies are sufficient to meet demand under all future demand conditions, including during single- and multiple-year droughts. The UWMP must be updated every five years. The normal UWMP submittal cycle requires that the plans be prepared and submitted in December of years ending in five and zero.

The Bear Gulch District delivers a combination of local surface water and water purchased from the City and County of San Francisco's Regional Water System, operated by the San Francisco Public Utilities Commission (SFPUC). The local surface water comprises about nine percent of total supply. It is collected and treated at the Bear Gulch District's reservoir and treatment plant in Atherton. The remaining 91 percent of the Bear Gulch District supply is purchased from the SFPUC. Purchased SFPUC potable supply is predominantly from the Hetch Hetchy Reservoir. This regional supply is delivered through a network of pipelines, tunnels, and treatment plants and is treated by SFPUC prior to delivery to Cal Water. A recycled water system for beneficial use within the Bear Gulch District is not planned at this time due to low demand and high unit cost, though Cal Water will continue to evaluate the potential over time.

The District delivers roughly 12 million gallons of water per day to more than 18,000 service connections and a service area population of 60,814 in 2020. Total system demand in 2020 was

[1] Information in this section is from the following document unless otherwise noted: California Water Service. 2020 Urban Water Management Plan, Bear Gulch District. June 2020. Available at: https://www.calwater.com/docs/uwmp2020/BG_2020_UWMP_FINAL.pdf

12,972 acre-feet,[2] 84 percentage of which went to residential customers. Total gallons per capita per day in the District for 2020 was 190.

Water use has been decreasing in the District since the mid-2000s due to several factors, including:

- In 2009, California Water Service Company (Cal Water) began implementing conservation pricing to supply stronger financial incentives to use water efficiently.
- Starting around 2012, Cal Water tripled the level of expenditure on conservation programs aimed at helping customers use water more efficiently.
- Appliance efficiency standards and plumbing codes (including CalGreen) have contributed to significant improvement over time in the average water use efficiency of the installed base of appliances and plumbing fixtures. For example, a new toilet uses roughly one-third the amount of water as a toilet manufactured in the 1980s while a new clothes washer uses about half the amount of water as an older washer. Per capita water use in 2020 was 24 percent below its peak in the early 2000s.

The UWMP projects that water use will decrease slightly over time, from 12,796 in 2020 to 12,730 in 2035, to 12,694 in 2045. This reflects increasing water efficiency and conservation paired with development and population growth in the District and is within both the existing water rights and reasonable available volume through the planning horizon of 2045. During drought periods, however, shortfalls up to 20% or more are projected. Drought conditions trigger implementation of Cal Water's Water Shortage Contingency Plan. Consistent with system-wide planning, drought periods would require temporary water use reductions depending on the "tier" of drought level, with Tier One requiring incremental reductions up to 20% and Tier Two requiring reductions greater than 20%. Water shortage contingency planning is frequently updated as new information and regulations come into play, including the Bay-Delta Plan Amendment, if fully implemented (it was adopted in 2018 but has been in litigation and does not include implementation procedures).

The Project site would be served by the Cal Water Bear Gulch District. There is no water main in Alpine Road along the project frontage. As a part of the Project, the water main would be extended approximately 1,700 feet within Alpine Road from the intersection of Westridge Drive to provide water connection to the Project site. The Project would connect to both an existing 12-inch water main and an existing 6-inch water main located near the intersection of Westridge Drive and Alpine Road. Since these two water mains are fed from two separate sources of water, this would create a dual connection, providing a redundant source of water to the Project site and surrounding area for both potable water supply and water for fire fighting.

WASTEWATER COLLECTION AND TREATMENT

West Bay Sanitary District (WBSD) provides wastewater collection and treatment services in portions of Portola Valley, while other portions of Portola Valley are served by private septic systems. All of Portola Valley is within the WBSD sphere of influence.[3] WBSD also serves City of Menlo Park and portions of Atherton, East Palo Alto, Woodside, south county unincorporated areas

[2] An acre-foot is the amount of water necessary to cover 1 acre of land to a depth of 1 foot, and is equivalent to 325,851.43 gallons, or 43,560 cubic feet.

[3] A sphere of influence (SOI) is a plan that designates an agency's probable future boundary and service area. SOIs are intended to encourage efficient provision of organized community services and prevent duplication of service delivery. Annexation of a territory to a city or district cannot occur unless the territory is within that agency's SOI.

and several parcels in Santa Clara County near Los Trancos Creek. The WBSD service area encompasses nearly 13 square miles, and includes approximately 20,000 service connections to serve a population of 52,900.[4]

All wastewater collected within WBSD is transported via main line trunk sewers to the WBSD Menlo Park Pumping Station located at Bayfront Park and from there to the South Bayside System Authority Regional Treatment Plant in Redwood City. In the Town of Portola Valley area, services include grinder pump and other types of on-site wastewater disposal system maintenance where topography does not allow gravity connections to the sewer main.

WBSD has planned for the eventual end of the useful lives of the existing septic systems, and the eventual required connections to the public sewage collection system. Annexations to the WBSD are typically triggered by the need to abandon existing septic systems or to serve new development, and the WBSD has an adopted ordinance requiring connection to the sewer after annexation.

The dry weather or base wastewater flow for the WBSD, as measured during the 2009/2010 flow monitoring program was 4.6 million gallons per day (mgd), which translates to approximately 87 gallons per capita per day (gpcpd). This base wastewater flow is within industry standard and closely matches the WBSD design criteria of 85 gpcpd.[5] The peak wet weather flow was estimated at 22 mgd reflecting reductions in inflow and infiltration.

Sewer lines are available for connection to the Project site from the adjacent Alpine Road. The Project site is not currently a part of WBSD, and would therefore require annexation prior to connecting to sewer service.

SOLID WASTE

Solid waste collection and disposal services are provided in Portola Valley by GreenWaste Recovery. GreenWaste Recovery provides the weekly collection of mixed compostables, recyclable materials, and yard trimmings for the Town of Portola Valley. GreenWaste owns and operates Zanker Materials Recovery and Landfill in San Jose, where all of Portola Valley's material is processed. The processing facility is permitted for a maximum throughput of 1,800 tons/day, and the landfill is permitted for a maximum throughput of 350 tons/day. The maximum permitted capacity for the landfill is 640,000 cubic yards.[6]

The Project would be required to comply with the Town's Construction & Demolition (C&D) Debris Ordinance which requires at least 75% of construction and demolition debris be diverted from landfill by using recycling, salvage for reuse, and diversion programs. A Waste Management Plan is also required under this ordinance.

STORM DRAINAGE

The Project site is mostly undeveloped and is covered with grasses, shrubs, and trees. Elevations within the site range from approximately 323 feet to 678 feet above sea level, with steep hillsides to the sides and rear of the property. Stormwater runoff from the Project site drains downslope across

[4] West Bay Sanitary District, Wastewater Collection System Master Plan and Update, July 2011 and February 2013. Available at: https://westbaysanitary.org/about-us/documents/

[5] Ibid.

[6] CalRecycle, Solid Waste Information System Facility/Site Database. Website accessed August 2021 at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1359?siteID=3386.

the site and toward Alpine Road, which contains a storm drain line that conveys storm flows to Los Trancos Creek to the north.

Stormwater collection and management would be accommodated on-site with proposed stormwater detention and bioretention treatment facilities meeting required capacity and stormwater treatment quality standards before connecting to the line in Alpine Road.

GAS AND ELECTRIC SERVICE

Natural gas and electricity are currently provided within Portola Valley by the Pacific Gas and Electric Company (PG&E) and Peninsula Clean Energy (PCE). PG&E electric lines are available for connection to the Project site from the adjacent Alpine Road. The overhead electrical line on Alpine Road would be brought underground within the new private road and the Project would also underground the electrical line along the entire Project site Alpine Road frontage. The Project does not propose use of natural gas or new natural gas connections.

Since 2017, PCE has been Portola Valley's official electricity provider, utilizing PG&E electrical lines for distribution. Households in Portola Valley are automatically enrolled in PCE's ECO100 program, with 100% of electricity from renewable, carbon-free sources like wind, solar, geothermal and hydropower. Households can opt down to ECOplus, a program that delivers at least 50% renewable electricity to customers or opt out and return to PG&E electricity service.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project site as proposed would have a significant environmental impact if it were to result in the following:

1. 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.
2. Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
3. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
4. Generate solid waste in excess of State or local standards, or in excess of capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
5. Conflict with federal, state, and local management and reduction statutes and regulations related to solid waste?
6. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
7. Conflict with or obstruct state or local plan for renewable energy or energy efficiency.

UTILITY AND SERVICE SYSTEM FACILITIES

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

Impact Util-1: **Increased Utility Demand.** The proposed Project represents development of a site that does not currently utilize public utilities, but on which the General Plan anticipated such development and therefore would be expected to generate related utility demand. While the proposed Project would lead to an increase in utility demand at the site, the Project would utilize existing service systems with connections to the Project site as applicable and included in this analysis and no other new or expanded off-site utility facilities are proposed. As a standard condition of any project, the proposed Project will pay appropriate development impact and utility connection fees toward ongoing improvement and maintenance and comply with all applicable regulations and would be required to present "Will Serve" letters from the applicable utility providers demonstrating availability of services prior to construction. Therefore, the impacts related to increased utility demand are ***less than significant***.

Development of the Project would add residences where there currently are none, and utility services would need to be extended to serve the new residential community. Utilities would be connected to existing infrastructure, installed underneath the new private road and extended to individual residences. Other than as needed for connection to nearby utility lines, no off-site improvements are proposed as a part of this Project. As a standard condition of any project, the Project would be required to present "Will Serve" letters from the applicable utility providers demonstrating availability of services prior to construction. Additional detail is provided below.

As shown on the Project's utility plans (see Figures 3-10a and 3-10b in Chapter 3: Project Description), electric and sewer lines are available for connection from the adjacent Alpine Road. All new connections would occur underground within the proposed Project roadway. The electricity line along the entire Project site frontage along Alpine Road would be undergrounded as a part of the Project. This proposed electricity line undergrounding has been included in the analysis in this EIR and would not result in significant and unavoidable impacts.

The Project site is not currently a part of the West Bay Sanitary District, and would require annexation into the sewer district prior to connecting sewer service within Alpine Road for the new residences.

Stormwater collection and management would be accommodated on-site with proposed stormwater detention and bioretention treatment facilities meeting required capacity and stormwater treatment quality standards before connecting to the line in Alpine Road. More detail regarding the proposed stormwater system is included in Chapter 12: Hydrology.

There is no water main in Alpine Road along the Project frontage. As a part of the Project, the water main would be extended approximately 1,700 feet within Alpine Road from the intersection of Westridge Drive to provide water connection to the Project site. This proposed water line extension has been included in the analysis in this EIR and would not result in significant and unavoidable impacts. The Project would connect to both an existing 12-inch water main and an existing 6-inch water main located near the intersection of Westridge Drive and Alpine Road. Since these two water mains are fed from two separate sources of water, this would create a dual connection, providing a

redundant source of water to the Project site and surrounding area for both potable water supply and water for fire fighting. Cal Water provided a Will Serve letter on September 2020 indicating they would provide water to the Project.

The Project would require extension of utility lines onto the Project site and extension of the water line to the Project site, and proposes undergrounding of the electricity line along Alpine Road, all of which has been assessed as part of this Project. The Project would utilize existing service systems and does not otherwise propose new or expanded off-site utility facilities. The impact of the Project related to the relocation or construction of new or expanded utility and service system facilities would be ***less than significant***.

WATER SUPPLY

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

Development of the Project site as proposed would result in an increase in demand for water relative to that associated with the existing uses at the site. Construction and occupancy of 39 residential units would require water supplied by Cal Water. At an average use rate of 190 gallons per capita per day (see setting), the estimated 101 Project residents (See Chapter 15: Population, Public Services, and Recreation) could be expected to use a total of 19,190 gallons of water a day based on averages. (Note that new construction like the Project would actually be expected to result in less than average water usage due to compliance with current water-efficient appliances and fixture requirements.) Project demand for water would represent a fraction of a percent of the average daily water consumption within the Cal Water service area (12 million gallons per day).

Cal Water's Urban Water Management Plan (UWMP), which plans for provision of water, anticipates future growth in the region that includes the project, as allowed under existing land use and zoning designation. The Project is not required to prepare a separate Water Supply Assessment under Senate Bill 610 because the Project proposes less than 500 new residential units and can instead rely upon the planning within the current UWMP, which indicates available supply for area development. Based on Cal Water's adopted Urban Water Management Plan (UWMP), there would be sufficient water supplies to continue serving the needs of Portola Valley, though temporary system-wide usage reductions would continue to be required during drought periods. Cal Water takes into account existing and projected future land uses in the Bear Gulch District when making water demand projections for purposes of planning future water supply. The proposed Project is consistent with the land use designation and density for the site. Cal Water provided a Will Serve letter on September 2020 indicating they would provide water to the Project.

The temporary consumption of water during Project construction (e.g., for dust suppression, soil conditioning, equipment washing) would be short-term and would be a minute fraction of the daily water consumption in the area. This short-term water demand would be less than the Project's long-term annual operational demand and would not adversely affect the water supply or require new entitlements.

Based on the adopted UWMP for the Cal Water Bear Gulch District, there would be sufficient water supplies to continue serving the needs of the Project, and impacts on water supply would be ***less than significant*** (see Impact Util-1).

WASTEWATER COLLECTION AND TREATMENT

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

As the site is currently undeveloped and not contributing to the wastewater system, development of the Project as proposed would result in the generation of additional wastewater volume to the WBSD system. WBSD will be able to provide sanitary sewer service to the proposed 39 residential units through connection to the existing 16-inch sanitary sewer line in Alpine Road. The Project site would be annexed into the WBSD prior to connecting to sewer service. Development of the Project would result in an incremental increase in wastewater treatment demand; however, that increase would not exceed existing treatment capacity or require the construction of new or expanded treatment facilities. WBSD has confirmed, based on existing flows, that there is sufficient capacity within the existing main to support the Project. Impacts of the Project on wastewater collection and treatment would be considered ***less than significant*** (see Impact Util-1).

SOLID WASTE

4. *Would the project generate solid waste in excess of State or local standards, or in excess of capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?*

5. *Would the project conflict with federal, state, and local management and reduction statutes and regulations related to solid waste?*

Development of the Project would add 39 residential units to the Project area, resulting in an increased demand for solid waste disposal at the site. The Project is estimated to generate approximately 38.38 tons of solid waste per year,[7] which would amount to approximately 0.006 percent of the permitted daily throughput. The Project would not exceed the capacity of solid waste landfill, and would be required to comply with statutes and regulations related to solid waste (***less than significant,*** see Impact Util-1).

ENERGY

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

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

Impact Util-2: **Increased Energy Consumption.** The Project would have an incremental increase in the demand for energy at the Project site. However, the Project is expected to be served with existing capacity and would not require or result in construction of new energy facilities or expansion of existing off-site facilities and would not violate applicable federal, state and local statutes and regulations

[7] Based on a statewide average of 0.38 ton per resident per year as reported by CalRecycle: https://www2.calrecycle.ca.gov/WasteCharacterization/Study

relating to energy standards. Additionally, development at the Project site is required to meet or exceed applicable energy efficiency standards. The Project would have a ***less than significant*** impact relating to energy.

The Project would include short-term construction activities that would consume energy, primarily in the form of diesel fuel (e.g., mobile construction equipment) and electricity (e.g., power tools). Energy would also be used for conveyance of water used in dust control, transportation and disposal of construction waste, and energy used in production and transport of construction materials.

The Project would implement construction management practices per mitigation measure Air-1 (See Chapter 6: Air Quality). While focused on emissions and dust reduction, the construction management practices would also reduce energy consumption through anti-idling measures and proper maintenance of equipment.

Based on modeling standards, operation of the Project would be estimated to increase energy consumption by approximately 280 megawatt hours/year of electricity and 1,415 million British Thermal Units (MMBTU) of natural gas.[8] However, consistent with Green Building guidelines and to reduce Greenhouse Gas emissions, the Project has proposed all-electric construction with no gas connections. With no natural gas usage, that would equate to approximately 694 megawatt hours/year of electricity use.

Electricity infrastructure would be extended onto the Project site as a part of the Project. This Project is anticipated to have similar energy requirements as other similar developments in the vicinity and as a relatively small project, would not have a substantial effect on energy supplies or resources. The following elements of the Project would increase efficiency of energy use during operation:

- Compliance with all standards of Title 24 of the California Code of Regulations and CalGreen standards, as applicable, aimed at the incorporation of energy-conserving design and construction
- Compliance with Town's Green Building Ordinance (Municipal Code Chapter 15.10), which requires completion of a Build It Green checklist to estimate a GreenPoint Rating. (The Project has calculated a GreenPoint Rating of 173, which is better than the Town's required minimum of 75. The Project received points for roof-top solar panels, electric vehicle charging stations, energy efficient appliances and lighting, water efficient appliances and fixtures, construction-period waste diversion, environmentally-friendly building materials and finishes, and resource-efficient landscaping. Many of these measures would reduce energy usage.)

The Project site is located on a site intended for residential development per the Town's General Plan, within the service area of existing utility providers and the residential development component is proposed on the flat portion of the site where required construction activities and length of utility connections would be lessened compared to development of the larger, steeply sloped portion of the site area. As discussed above, the Project's construction or operational activities would comply with all energy standards and regulations that reduce energy consumption and include other measures to reduce energy use.

As discussed above, all households in Portola Valley are automatically enrolled in PCE's ECO100 program, with 100% of electricity from renewable, carbon-free sources like wind, solar, geothermal

[8] Electricity and natural gas usage reported by the CalEEMod emissions model utilized for the emissions modeling and included in Appendix C.

and hydropower. Households can opt down to ECOplus, a program that delivers at least 50% renewable electricity to customers or opt out and return to PG&E electricity service though PG&E service is generally more costly than PCE options.

Development and operation of residential units per local planning efforts would not be considered an unnecessary use of energy. With compliance with applicable regulations and standards, energy usage would not be considered wasteful or inefficient. Therefore, the Project would not result in the inefficient, wasteful, or unnecessary consumption of energy or conflict with or obstruct energy-related plans and the impact related to energy would be ***less than significant***.

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18

WILDFIRE

INTRODUCTION

Although fire can benefit natural ecosystems that have evolved with occasional fire and that benefit from the stimulation of growth through the reproduction of plants and wildlife habitat, fire can also be detrimental to biological and other natural resources. In addition to having social and economic impacts, wildfires affect air quality through pollutants in smoke, and water quality through erosion and sedimentation, and changes in water chemistry and pollutants from fire retardants.

The discussion and analysis in this chapter is based largely upon the following report prepared for this analysis:

Stanford Wedge Wildland Fire Behavior Assessment, prepared by Wildland Resources Management. (included as Appendix J to this EIR.)

ENVIRONMENTAL SETTING

TERRAIN OF STANFORD WEDGE

Topographic features, such as slope, aspect, and the overall form of the land, directly and indirectly affect the intensity, direction, and spread rate of wildfires. Fires burning in flat or gently sloping areas tend to burn more slowly and to spread more horizontally than fires on steep slopes.

The terrain on the site is comprised of steep, topographic bowl, generally descending from a high of roughly 680 feet in elevation in the western portion of the site down to approximately 320 feet in elevation in the northeastern portion of the site (the development area).

Slope steepness varies across the site, with the flattest part being the area designated for residential development in the northeast. Another flatter knoll is located on the western border. Approximately 30% of the site has a slope steepness of greater than 30 percent.

VEGETATION TYPES OF STANFORD WEDGE

The vegetation map shown below (**Figure 18.1**) identifies major vegetation classes within and surrounding the target property. The majority of the Project site is best characterized by densely vegetated slopes, with several small drainages at the southern tip and a minor drainage to the north. Deciduous hardwood and evergreen hardwoods dominate throughout the Project site and extending into the surrounding area. Pockets of shrub (chamise and chaparral) exist along the western boundary and in the center of the property. There is a small amount of herbaceous grasslands, primarily in the northeastern corner, which is the location of the proposed development area.

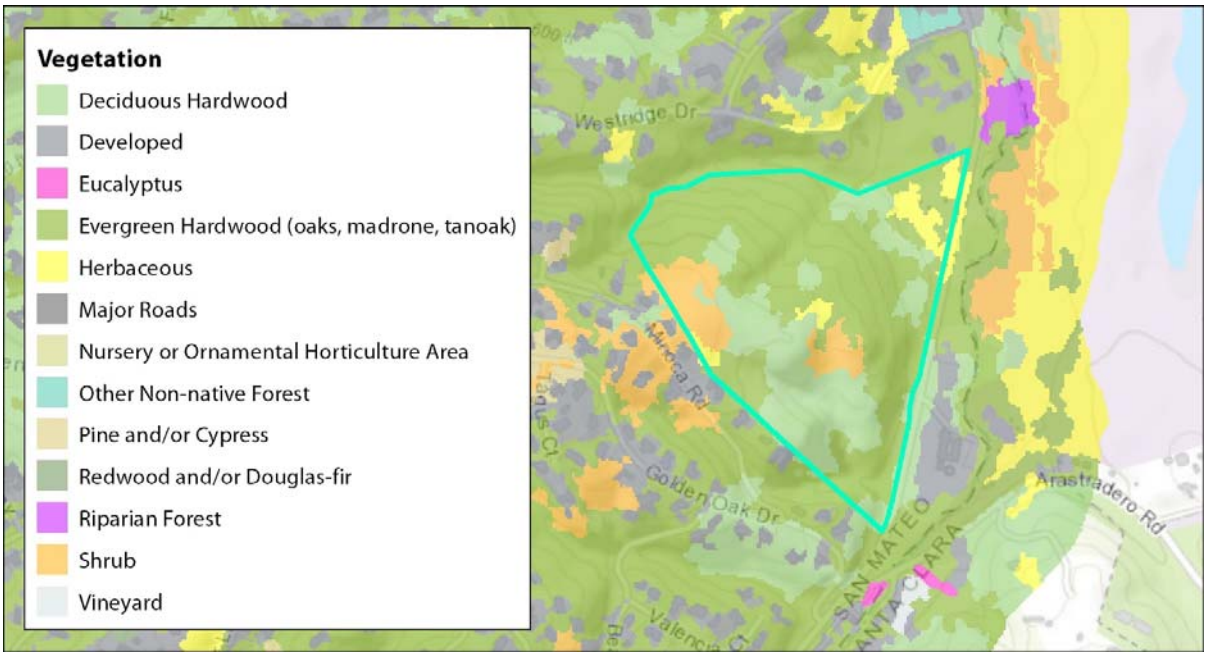


Figure 18.1: Vegetation Types

Source: Stanford Wedge Wildfire Behavior Assessment, included as Appendix J

WILDLAND VEGETATIVE FUEL TYPES OF STANFORD WEDGE

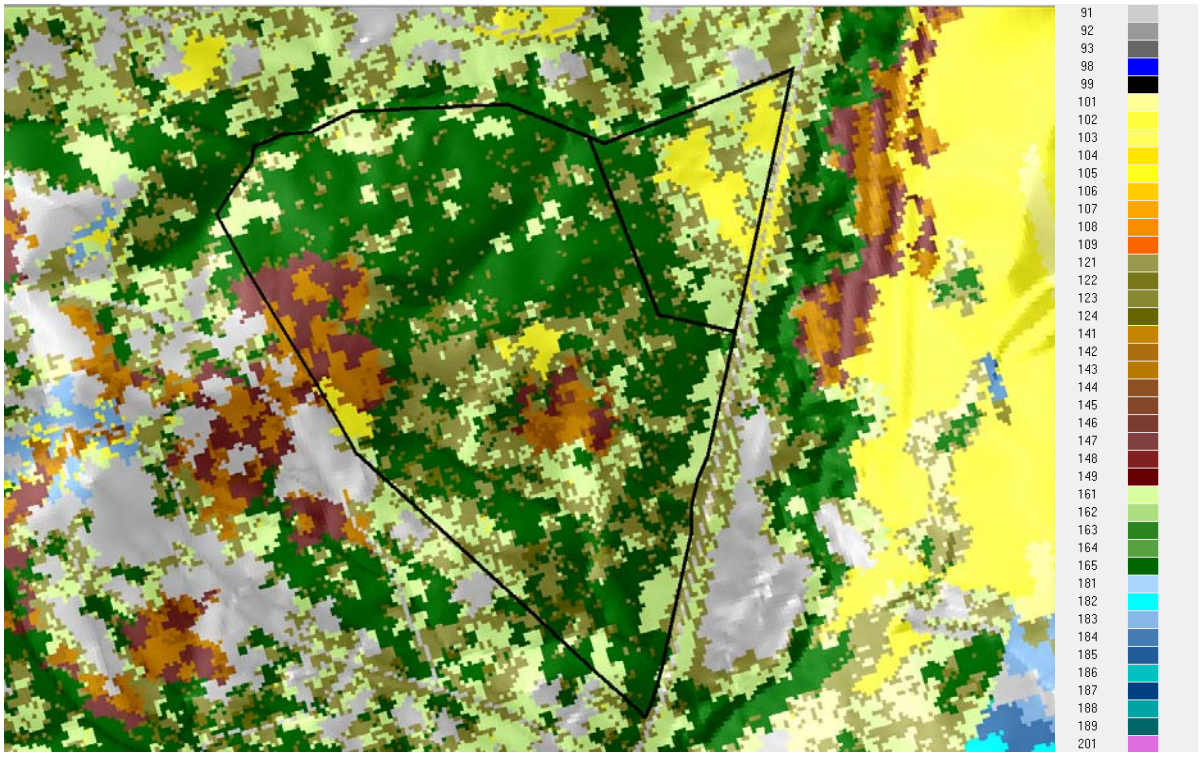
In order to predict fire behavior, vegetation is categorized into "fuel models", each of which burns in a slightly different manner. Fuel models describe such vegetation as tall and short chaparral, tall and short grass, forest with and without an understory, and oak woodlands with and without understory vegetation. The structure (or arrangement) of the vegetation is just as important as the kinds of plants that grow in the vegetation.

The six properties of fuel complexes that determine the potential fire behavior include quantity (loading), sizes (distribution of fuel particle sizes), chemistry (volatile content, silica-free ash content), moisture (percent water content, proportion of dead material in the vegetation, etc.), continuity (vertical and horizontal), and compactness (depth). These properties change over time with treatments, vegetative growth, or disturbance.

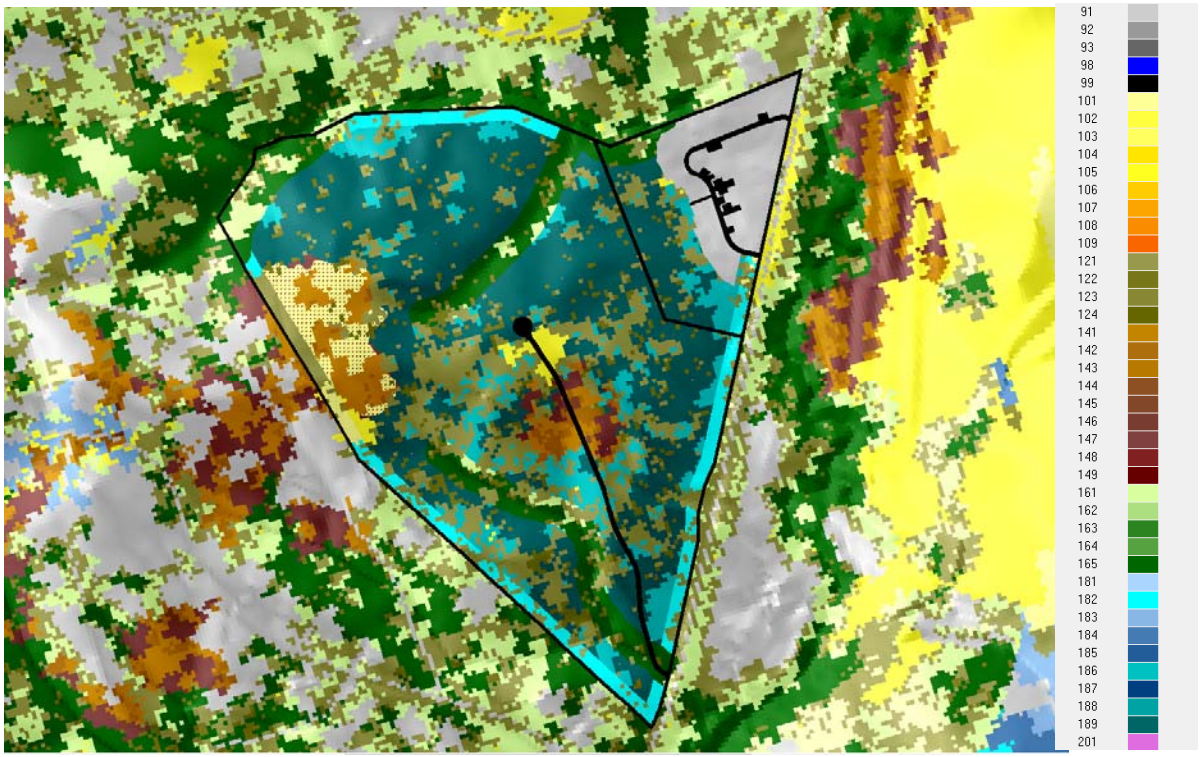
In addition, the canopy fuels are also described for fire behavior prediction. The fuels in the tree canopy are described in three ways: tree height, canopy cover, and height of live branches.

The different fuel model classes on the Project site are shown in **Figure 18.2** and described in **Table 18.1** under both existing conditions and with Project conditions.

Compared to Existing conditions, with the Project, there would be a significant increase in the Urban classification (91 - NB1) as well as a shift of forested models from the forested with understory (165 - TU5) to forested with litter (no understory, 189- TL9). There is also a reduction of tall, high fuel load shrub model (147 - SH7), and thinning of the canopy cover in the oak forests (excluding riparian areas). How this relates to Wildfire Risk is detailed in Appendix J to this EIR and summarized under the threshold 2 heading: *Exacerbate Wildfire Risk and Pollutant Exposure* in the Impacts section later in this chapter.



Existing Conditions



With Project Conditions

Figure 18.2: Fuel Model Maps, Existing and Proposed Project Conditions

Source: Stanford Wedge Wildfire Behavior Assessment, included as Appendix J
See Table 18.1 for description of applicable fuel types by number in the above key.

Table 18.1: Fuel Model Acres, Existing and With Project

				EXISTING		WITH PROJECT	
Value	**FBFM40**	**Title**	**Description**	**Acres**	**Percent**	**Acres**	**Percent**
91	NB1	Urban	Urban/Developed	0.01	0.02%	5.10	7%
99	NB9	Bare ground	Bare ground/Road	1.53	2%	1.53	2%
101	GR1	Short, Sparse Dry Climate Grass	Short, sparse dry climate grass is short, naturally or heavy grazing, predicted rate of fire spread and flame length low	2.09	3%	2.09	3%
102	GR2	Low Load, Dry Climate Grass	Low load, dry climate grass primarily grass with some small amounts of fine, dead fuel, any shrubs do not affect fire behavior	3.63	5%	0.76	1%
121	GS1	Low Load, Dry Climate Grass-Shrub	Low load, dry climate grass-shrub shrub about 1 foot high, grass load low, spread rate moderate and flame length low	14.45	19%	13.73	18%
122	GS2	Moderate Load, Dry Climate Grass-Shrub	Moderate load, dry climate grass-shrub, shrubs are 1-3 feet high, grass load moderate, spread rate high, and flame length is moderate	3.81	5%	3.57	5%
141	SH1	Low Load Dry Climate Shrub	Low load dry climate shrub, woody shrubs and shrub litter, fuelbed depth about 1 foot, may be some grass, spread rate and flame low	2.5	3%	2.24	3%
142	SH2	Moderate Load Dry Climate Shrub	Moderate load dry climate shrub, woody shrubs and shrub litter, fuelbed depth about 1 foot, no grass, spread rate and flame low	0.8	1%	0.70	1%
145	SH5	High Load, Dry Climate	High load, humid climate grass-shrub combined, heavy load with depth	0.07	0.1%	0.30	0.4%

				EXISTING		WITH PROJECT	
Value	**FBFM40**	**Title**	**Description**	**Acres**	**Percent**	**Acres**	**Percent**
		Shrub	greater than 2 feet, spread rate and flame very high				
147	SH7	Very High Load, Dry Climate Shrub	Very high load, humid climate shrub, woody shrubs and shrub litter, dense finely branched shrubs with fine dead fuel, 4-6 feet tall, herbaceous may be present, spread rate and flame high	2.98	4%	0.76	1%
161	TU1	Low Load Dry Climate Timber-Grass-Shrub	Low load dry climate timber grass shrub, low load of grass and/or shrub with litter, spread rate and flame low	11.48	15%	1.19	2%
165	TU5	Very High Load, Dry Climate Timber-Shrub	Very high load, dry climate shrub, heavy forest litter with shrub or small tree understory, spread rate and flame moderate	35.45	47%	5.73	8%
182	TL2	Low Load Broadleaf Litter	Low load broadleaf litter, broadleaf, hardwood litter, spread rate and flame low	3.95	5%	3.95	5%
186	TL6	Moderate Load Broadleaf Litter	Moderate load broadleaf litter, spread rate and flame moderate	6.36	8%	6.36	8%
189	TL9	Very High Load Broadleaf Litter	Very high load broadleaf litter, may be heavy needle drape, spread rate and flame moderate	27.10	36%	27.10	36%
201	SB1	Low Load Activity Fuel	Low load activity fuel, light dead and down activity fuel, fine fuel is 10-20 t/ac, 1-3 inches in diameter, depth < 1 foot, spread rate moderate and flame low	0.01	0.02%	0.01	0.02%

Source: Stanford Wedge Wildfire Behavior Assessment, included as Appendix J, tables 1 and 11. See Figure 18.2 for mapping of the fuel types in and around the Project site.

WEATHER CONDITIONS

A weather analysis offers insights into the frequency of fire weather and especially wind speed and direction.

The project site's location in proximity to the coast influences its weather conditions. It has the warm, dry summers and cool, moist winters characteristic of the fog belt area. Based on data from local weather stations, the area averages about 25 inches of precipitation a year, primarily in the fall and winter. Most of the measurable rainfall generally occurs during the winter months (mid-October to mid-April). Thus, the fire season (the time of highest fire danger) comprises the dry months of May to October.

Although summertime temperatures are usually warm (75 to 85°F), it is common for the fog to roll in during the early evenings and creep over the ridge tops to the site. The Project site's proximity to the bay often creates a pattern of warm days and cool nights. Fog also sometimes keeps summertime temperatures cool in the Project area.

The most important influence on fire behavior is wind. Wind can greatly affect the rate of spread and the increase in the heat output of a fire. Wind increases the flammability of fuels both by removing moisture through evaporation and by angling the flames so that they heat the fuels in the fire's path. The direction and velocity of surface winds can also control the direction and rate of the fire's spread. Aloft winds -- defined as those that blow at least 20 feet above the ground -- can carry embers and firebrands downwind. These burning fuels can ignite spot fires that precede the primary front. Gusty winds cause a fire to burn erratically and make it more difficult to contain.

Local topography influences microclimate conditions. Wind will tend to follow the pattern of least resistance and is therefore frequently deflected and divided by land forms. Summer winds are influenced by air movement into the predominant inland low from the higher-pressure area existing over the ocean. The slopes on the site produce pronounced diurnal up-canyon and down-slope winds caused by differential heating and cooling of air during the day

In the region, the wind normally blows from the west but the most severe fire conditions occur in association with strong north or northeast winds in the vicinity of the Project site, which are common in the fall. These types of winds, which originate far to the east in the Great Basin and are directed by local topography, can cause fire to spread downhill and southward with speeds that equal uphill spread under normal wind conditions. However, the Project site itself would not necessarily experience this type of wind because the air mass would necessarily flow over a body of water, and because of an absence of significant hills to the east or north of the Project site, so wind could not subside over it.

Because of the high ridges to the west of the Project site, occasional episodes consisting of several still, stagnant days formed by stationary highs would be expected to occur during summer months. During these periods—characterized by continuous high temperatures and low relative humidities—fuels can dry to a National Fire Danger Rating System rating of over 81 for the Burning Index, indicating extreme resistance to fire-control. This overall weather pattern can enhance the possibilities of ignition and extreme fire behavior.

DESCRIPTION OF NEIGHBORING PARCELS

Residential parcels surround the Project site on three sides and are generally uphill from the project site. Lots vary in size from approximately one to four acres. Most homes are located further away than 100-feet from the boundary with the Project site, however, some, especially those west of the site, have buildings within 100-feet, which makes creation and maintenance of defensible space problematic. Some of the adjacent parcels have moderate volumes of vegetation that are well-spaced

and relatively fire-safe, while others have abundant vegetative fuels. Similarly, while many residences, especially those dating after 1996, are built with ignition-resistant construction features, others, particularly the older ones, have wooden exteriors that can be readily ignited from a wildfire.

FIRE HISTORY OF THE AREA

California has long been recognized as having fire-prone natural landscapes. The State of California Hazard Mitigation Plan states that wildfire represents the third greatest source of hazard to California, behind flood and earthquake hazards, both in terms of recent state history as well as the probability of future destruction.

The Bay Area's combination of hot dry summers and strong winds, conducive topography, flammable vegetation, dense urban development, and limited fire-fighting access can present significant risks to the public and to structures and property located along the wildland-urban interface (generally defined as the zone of transition between wilderness and human development).

Luckily, wildfire is a rare occurrence in the area, and locally, the area has been spared of large, damaging wildfires. The CZU Complex reached the southern edges of San Mateo County, but did not extend into the immediate area. The Skeggs Fire in 2017 (also caused by lightning), burned 50 acres near Skyline Rd and Skeggs Point, 3 miles west of Woodside. In addition, small fires have occurred recently in the Palo Alto Arastradero Preserve.

FIRE SUPPRESSION RESPONSE

The Project area is served by the Woodside Fire Protection District, with a fire station just three minutes away from the Project site. All fire suppression personnel are certified to the California State Firefighter II level and participate in the California Incident Command Certification Program. They have responded to several large wildland fires outside their district, supporting the incident. Stations are equipped with fire response apparatus suitable for wildfire response.

REGULATORY SETTING

FEDERAL

There are no federal regulations that apply to the proposed project with regard to wildfire hazards.

STATE

California Department of Forestry and Fire Protection (Cal Fire)

Cal Fire protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens.

As part of the Cal Fire team, the Office of the State Fire Marshal supports Cal Fire's mission by focusing on fire prevention. It provides support through a wide variety of fire safety responsibilities including by regulating buildings in which people live, congregate, or are confined; by controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death, and destruction by fire; by providing statewide direction for fire prevention in wildland areas; by regulating hazardous liquid pipelines; by reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

Cal Fire is responsible for areas identified as State Responsibility Areas (SRAs). The Project site is within a Local Responsibility Area (LRA) and not an SRA and is served by the Woodside Fire Protection District as discussed above.

State Fire Regulations

Fire regulations for California are established in Sections 13000 et seq. of the California Health and Safety Code and include regulations for structural standards (similar to those identified in the California Building Code); fire protection and public notification systems; fire protection devices such as extinguishers and smoke alarms; standards for high-rise structures and childcare facilities; and fire suppression training.

California Strategic Fire Plan

The Strategic Fire Plan is a cooperative effort between the State Board of Forestry and Fire Protection and the California Department of Forestry and Fire Protection. While intended to provide broad, strategic direction to Cal Fire, it also acts as a source of information about state-wide trends and as a model for more localized fire plans. The current plan was finalized in 2018.

Fire Hazard Severity Zones

Public Resources Code (PRC) Sections 4201–4204 and Government Code Sections 51175–89 direct Cal Fire to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as fire hazard severity zones (FHSZ), define the application of various mitigation strategies to reduce risk associated with wildland fires.

CAL Fire - Fire Hazard Assessments

Mapping of the Very High FHSZs, is based on data and models of, potential fuels over a 30-50 year time horizon and their associated expected fire behavior, and expected burn probabilities to quantify the likelihood and nature of vegetation fire exposure (including firebrands) to buildings. Cal Fire created this state-wide data layer to show areas of significant fire hazard based on vegetative fuels, structure density, terrain, weather, and other relevant factors.

Cal Fire wildland fire hazard maps for cities, referred to as Local Responsibility Areas or (LRA's),[1] include "Very High", "High" and "Moderate" fire maps. The "High" and "Moderate" maps are only released in draft form, are not vetted by cities and have no legal significance.

Properties located in LRAs classified as "Very High" are subject to higher building code standards (known as California Building Code Chapter 7A[2]); mandatory real estate disclosures and mandatory vegetation clearance under State law.[3]

Fuel Hazard Assessment Study – Town of Portola Valley

The Town of Portola Valley commissioned a study by Moritz Arboriculture Consulting to provide information on relative wildfire hazards posed by different vegetation types. This study categorized the vegetation into eleven different vegetation fuel types and assigned a hazard rating to each, based on fuel models. The study assigned flame lengths to the fuel models but did not explain how they were determined. Mapping of areas, each larger than 5 acres, was done using aerial imagery, and ground reconnaissance.

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[1] Local responsibility areas are areas where cities have financial responsibility for fire protection. Public Resources Code Section 4125.

[2] Government Code Section 51178. The Portola Valley Town Council has expanded Chapter 7A to all properties in Town.

[3] Government Code Section 51182.

The conclusions of this study formed the basis of the Town's Safety Element and a suite of programs and measures. It recommended general standards and specific recommendations for vegetative treatments along eight main roads (including Alpine Road) that would serve as evacuation routes.

A History of Fire Hazard Mapping in Portola Valley

- The 2008 draft Cal Fire map showed no "Very High" fire zones in Portola Valley. On April 23, 2008, the Town Council unanimously accepted the draft map showing no "Very High" fire areas in Town.
- Subsequently, the Woodside Fire Protection District (Fire District) contested the Cal Fire map and created its own map and submitted it to Cal Fire. The Fire District) map contained 4 Very High fire areas (Westridge Hills, Alpine Hills, Ranch and majority of western hillside).
- CalFire accepted Woodside Fire's map and re-issued its draft map in May 2008 showing four "Very High" fire areas.
- The Town retained a professional fire consultant Ray Moritz of Moritz Arboricultural Consulting to survey the entire town and prepare a fuel hazard assessment study. The Moritz survey utilized eleven categories of fuel assessment, ranging from "very high" to "low." In October 2008 Moritz prepared a map showing the vegetative fuel hazard for the entire town broken down into eleven categories. This is known as the Moritz map and it is included as Attachment C.
- The Town working with Moritz, the Fire District and the Chief of Cal Fire reviewed the May 2008 map and collectively agreed to some modifications. These modifications reduced the overall area of the "Very High" fire zone.
- On November 23, 2008, Cal Fire re-issued its map (third revision) and it showed only the northern quadrant of Town as "Very High". Per meeting minutes, Cal Fire, Town staff, Woodside Fire District and Moritz were all in agreement on this final revision.
- In February 2009, the Town Attorney and Town Manager recommended the Council adopt the "Very High" fire map agreed to by everyone. Residents contested this staff recommendation and the Council ultimately decided to take no action on the designation. The Council reasoned that action was unnecessary because they had already adopted Building Code 7A town-wide and they believed the Moritz Map was more accurate than the modified Cal Fire map.
- Cal Fire uses a model to classify the zones. The latest set of maps was developed in 2007-2010. These maps did not take into account wind patterns, a substantial factor in the November 2018 Camp Fire and in the North Bay during the October 2017 fires. The new model is expected to account for severe wind and dry weather into account.
- Cal Fire was expected to release new draft maps to test in winter 2019/2020 that took new risk factors into account. So far, these maps have not been made public.

Project Site Fire Hazard Mapping

As it now stands, Cal Fire does not designate the site as a Very High FHSZ on their adopted map.[4] On the draft "High" and "Moderate" map, the Project site is mapped as a mixture of "Medium" and "High" FHSZ.[5]

[4] Cal Fire, Very High Fire Hazard Severity Zones in LRA, San Mateo County, 2007, https://osfm.fire.ca.gov/media/6800/fhszl_map41.pdf

[5] Cal Fire, Draft Fire Hazard Severity Zones in LRA, San Mateo County, 2007, available at https://osfm.fire.ca.gov/media/6801/fhszl06_1_map41.pdf.

The Town's Moritz Map designates most of the site as FPO (h+) FIRE-PRONE OAK WOODLAND, and CH (h+) CHAPARRAL, both of which are "highest" risk. The portion of the site currently occupied by the Alpine Rock Ranch horse boarding facility is considered developed land and was therefore not given a wildfire hazard risk rating on this map. The excerpted portion of the Moritz Map is included as **Figure 18.3**.[6]

The analysis included in Appendix J and reflected in this chapter are based on a focused site-specific analysis of wildfire risks performed with more updated information and to a more refined scale than the above mapping efforts and which takes into account specifics of the proposed VMP.

California Fire Code

The California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

Senate Bill 1241

In 2012, Senate Bill 1241 added Section 66474.02 to Title 7 Division 2 of the California Government Code, commonly known as the Subdivision Map Act. The statute prohibits the legislative body of a County from approving subdivision of parcels designated very high fire hazard, or that are in a State Responsibility Area, unless certain findings are made prior to approval of the tentative map. The statute requires that a city or county planning commission make three new findings regarding fire hazard safety before approving a subdivision proposal. The three findings are, in brief: (1) the design and location of the subdivision and its lots are consistent with defensible space regulations found in PRC Section 4290-91, (2) structural fire protection services will be available for the subdivision through a publicly funded entity, and (3) ingress and egress road standards for fire equipment are met per any applicable local ordinance and PRC Section 4290. This legislation only applies to land in the unincorporated county and is therefore not applicable to the Project. Further, the Project site is neither in a State Responsibility Area nor is it officially designated as a very high fire hazard zone.

LOCAL

Woodside Fire District Fire Code (Ordinance 11)

The Woodside Fire District has adopted a Fire Code used in review of project application within the Woodside Fire District and code enforcement. The California Fire Code is incorporated into the Fire Code with local amendments. The Portola Valley Town Council ratified this Code.

Portola Valley Municipal Code

The Town of Portola Valley has adopted Chapter 7A (development in Wildland Urban Interface [WUI] areas) of the Building Code and it is applicable to all properties in town regardless of location.

[6] Moritz Arboricultural Consulting, Fuel Hazard Assessment Study, Town of Portola Valley, October 2008

Figure 18.3: Moritz Map Excerpt

On this map are the following designations:
FPO (h+) FIRE-PRONE OAK WOODLAND (highest)
CH (h+) CHAPARRAL (highest)
FPUF (h or h+ as labeled) FIRE-PRONE URBAN FOREST (high or highest)
MG (l) MOWED GRASS (low)

Source: Basemap: Town of Portola Valley, Vegetation Data Source: Moritz Arboricultural Consulting, Map: TRA Environmental Sciences, Inc., October 2008.

The Town adopted the Wildfire Preparedness Building Code amendments adopted on December 8, 2021. These amendments require additional "home hardening" measures including use of non-combustible exterior materials and construction to exclude of embers, among others. Although the Project application was submitted prior to adoption of these new requirements, the Project sponsor has agreed to implement all applicable requirements.

Portola Valley General Plan

The Portola Valley General Plan includes the following policies concerning Fire Hazards (subpolicies under policy number 4151):

1. Do not construct buildings for human occupancy, critical facilities and high value structures in areas classified as having the highest fire risk unless it is demonstrated that mitigation measures will be taken to reduce the fire risk to an acceptable level.
2. Prior to the approval of any subdivision of lands in an area of high fire risk, the planning commission should review the results of a study that includes at least the following topics:

   a. A description of the risk and the factors contributing to the risk.

   b. Actions that should be taken to reduce the risk to an acceptable level.

   c. The costs and means of providing fire protection to the subdivision.

   d. An indication of who pays for the costs involved, and who receives the benefits.
3. Homeowners should provide adequate clearance around structures to prevent spread of fire by direct exposure and to assure adequate access in times of emergency and for the suppression of fire.
4. Adopt a town program to reduce fire hazards along the town's public roads.
5. Establish a public information program regarding fire hazards and how property owners can reduce such hazards.
6. In locations identified as presenting high fire hazard, require special protective measures to control spread of fire and provide safety to occupants, including but not limited to types of construction and use of appropriate materials.
7. When reasonable and needed, make privately owned sources of water, such as swimming pools, in or adjacent to high fire risk areas, accessible to fire trucks for use for on-site fire protection.
8. Establish street naming and numbering systems to avoid potential confusion for emergency response vehicles.
9. Design and maintain all private roads to permit unrestricted access for all Woodside Fire Protection District equipment.
10. Apply Chapter 7A of the California Building Code to the entire town to increase the resistance of buildings to fire ignition, and when reviewing developments under Chapter 7A, attempt to choose those materials and colors that are consistent with the visual aspects of the town.
11. When undertaking actions to reduce fire risk by removing or thinning vegetation, homeowners should try to remove the most hazardous material while leaving some native vegetation to reduce risks of erosion, habitat loss and introduction of potentially dangerous invasive weeds.

IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Three applications were used in the analysis included in full in Appendix J. Wildfire spread is normally assessing an industry standard, FARSITE, which is based on Rothermel's fire spread model. This model, in turn, is based on a set of wildland vegetative fuel models. FARSITE indicates fire growth patterns based on a specified ignition location, and BEHAVE provides tabular outputs not linked to a particular location. FlamMap is a fire analysis application that can simulate potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.), fire growth and spread and conditional burn probabilities under constant environmental conditions (weather and fuel moisture). FARSITE and FlamMap were used to predict fire behavior at near-maximum potential to determine wildfire intensity. Wildfire intensity is the primary wildfire characteristic related to the potential for harm or damage – typically, the greater the intensity, the greater the potential for harm or damage.

After running the models, the various fire prediction outputs were combined and reclassified into a low, moderate, high, and very high scale of overall Wildfire Hazard.

Potential Ignition Risk was mapped on a scale of very low to very high based on physical proximity to potential ignition sources such as proximity to housing/structures, roads, and distribution powerlines.

While the predicted Wildfire Hazard and Potential Ignition Risk increase overall risk to wildfire, the expected Wildfire Suppressions Response can lessen that risk. Response times we mapped throughout the site based on how many minutes it would take to reach any given discrete location for fire suppression.

Finally, to determine overall Wildfire Risk, the weighted results from the Wildfire Hazard analysis, the Potential Ignition Risk analysis, and the Wildfire Suppression Response were used to determine overall Wildfire Risk on a scale of 1 to 10; 1 being equal to a low risk of wildfire and 10 being the highest risk of wildfire.

This chapter includes the summary Wildfire Risk figures and data under threshold 2 heading: *Exacerbate Wildfire Risk and Pollutant Exposure* below, but the full breakdown of modeling and results by the modeling components discussed above can be found in the full Stanford Wedge Wildfire Behavior Assessment, included as Appendix J to this EIR.

THRESHOLDS OF SIGNIFICANCE

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the Project site as proposed, if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would have a significant environmental impact if it were to:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan
2. 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
3. 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

4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes

The closest Cal Fire-mapped very high fire hazard severity zone is located over a mile to the northwest, across the Town of Portola Valley from the Project site, so would not be considered "near" (see the analysis in this chapter and the attached Appendix J for detailed information about timing of fire spread in the area). Note that the Project site is not located in or near a state responsibility area or lands classified as very high fire hazard severity zones, so the above topics would not necessarily apply. However, because site-specific wildfire modeling of the Project site has determined that the site contains areas of very high fire hazard under existing conditions, these topics were assessed for the Project as if it were located in or near a very high fire hazard severity zone.

EMERGENCY RESPONSE AND EVACUATION

1. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Impact Wildfire-1: **Reduced Wildfire Roadway Blockage**. Overall, if the Project including proposed vegetation management activities were implemented, it would result in slower spread of wildfires and resultant fewer blockages of roadways and intersections during an evacuation despite small increases in vehicles to be evacuated from Project residences. Therefore, the Project would not substantially impair emergency response or evacuation and would have a ***less than significant*** impact in this regard.

The Woodside Fire Protection District keeps on file an Evacuation Plan for the Town of Portola Valley to provide for the orderly and coordinated evacuation of all or any part of the population of Portola Valley and identifies evacuation routes. This Plan was taken into consideration during preparation of the analysis in this chapter and Appendix J.[7]

Network Analyst in ArcMap was used to determine traffic accumulations along expected routes residents would likely use to exit the area.[8] The analysis assumed two vehicles per structure and 50 vehicles at the inn/stables located on Alpine Road.[9] Evacuation destinations include three intersections along Highway 280: Sand Hill Road, Alpine Road, and Arastradero road on-ramps. Under existing conditions, a total of 3,884 vehicles were modeled from structures located within the area bounded by Arastradero Road, Portola Road, and Sand Hill Road. The analysis shows that much of the Central Portola Valley and Westridge neighborhoods heavily rely on exiting the area via Alpine Road. The intersection of Alpine Road and Westridge Road could experience up to 2,260 vehicles trying to pass through in a relatively short amount of time during an evacuation.

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[7] Woodside Fire Protection District, Evacuation Plan for the Town of Portola Valley, available at: https://www.woodsidefire.org/attachments/article/50/Town%20of%20Portola%20Valley%20Evacuation%20Plan.pdf

[8] Note that this was a project-specific analysis focusing on the evacuation routes from this Project site. A Town-wide evacuation study was being undertaken separately during preparation of this analysis, which looks more comprehensively at all Portola Valley evacuation traffic and routes.

[9] The number of cars used per household to evacuate from wildfires ranges from 0.89 cars to 1.5 cars per household. A higher assumption of 2 cars per household was utilized for a conservative analysis that could account for some of the existing units having ADUs and if anything would over-estimate cars during an evacuation.

The Project, with 39 residential units, would be expected to add about 78 vehicles during an evacuation, which were added to the existing vehicle counts above for this analysis.

Multiple fire growth scenarios were modeled to determine how each might affect expected evacuation routes. Four potential ignition scenarios were analyzed. These were chosen based on proximity to property and expected human activity and to provide a reasonable range of different scenarios.[10] The four modeled scenarios included ignitions (1) on a property off Westridge Drive, near the northern boundary of the Stanford Wedge, (2) along Minoca Road where there are well-developed brush fields on residential lots and on the Stanford Wedge property, (3) along the proposed fire access road, and (4) slightly outside the area that would be managed as defensible space. Summary conclusions are included in this section though more detailed analysis and discussion can be found in the full Stanford Wedge Wildfire Behavior Assessment, included as Appendix J to this EIR.

Under existing conditions, two of the four modeled scenarios would result in fires affecting the important evacuation route along Alpine Road within the modeling period (at 75 minutes and 3 hours) and all scenarios would affect various other area roadways.

With Project implementation including vegetation management, even without fire suppression activities, a wildfire would spread more slowly on/across the Project site. According to the modeling, in all scenarios, fires would grow to less than a tenth of an acre in the first 15 minutes, which is considered manageable with local, firefighting crews. Due to the topography of the site (with fire generally spreading uphill faster than downhill) and Project reductions in fire hazard along Alpine Road and especially in the development area, modeled wildfire scenarios would not affect the important evacuation route along Alpine Road within the modeling period (4 hours) following Project implementation. The Project would increase access to the site for fire suppression activities through provision of a residential development roadway with two connection points to Alpine Road, an access point between lots 8 and 9 to allow public safety personnel to access the open space immediately behind the project, and a fire access road within the undeveloped portion of the Project site, which would be anticipated to further reduce the potential impact of fires involving the Project site.

Under all modeled scenarios, the addition of evacuating vehicles from the Project site did not make a statistically significant difference in evacuation times.[11]

As also shown in the modeled scenarios, the slowing of fire spread due to proposed defensible space, increased fire access, and vegetation management would provide more time before area roadways including Alpine Road would be affected by fires and therefore would be generally beneficial with respect to emergency evacuation of the area.

Therefore, because fewer roads and fewer intersections would be blocked during an evacuation due to a wildfire involving the Project site and increases in evacuating vehicle counts due to Project

[10] No fire ignition scenario considered random ignitions (i.e. as in a lightning storm) because despite the recent fires caused by lighting, the proportion of ignitions from lightning is historically very low, compared to ignitions caused by human activity. Additionally, lightning strikes are usually located on ridgelines, and elevations higher than the Project site. Also, the four ignition scenarios chosen provide a reasonable range of analysis scenarios.

[11] Evacuation times are modeled in 15 minute increments. While the addition of any vehicles could lead to slightly longer evacuation times, changes from the addition of the 78 vehicles from the Project site were within the within the standard error of this type of analysis and therefore are not able to be effectively quantified but can be determined not to be statistically significant.

residents would not significantly increase evacuation times, the impact related to impairing an adopted emergency response plan or emergency evacuation plan would be ***less than significant***.

EXACERBATE WILDFIRE RISK AND POLLUTANT EXPOSURE

2. *Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?*

3. *Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

Impact Wildfire-2: **Lessened On-Site Wildfire Risk but Increased Activity and Related Ignition Risk**. Overall, if the Project and proposed vegetation management activities were implemented, it would substantially lower Wildfire Risk at the Project site. However, the additional human activity creates a greater likelihood of ignition at the site if not mitigated. Therefore, the Project impact with respect to Wildfire Risk would be ***less than significant with mitigation***.

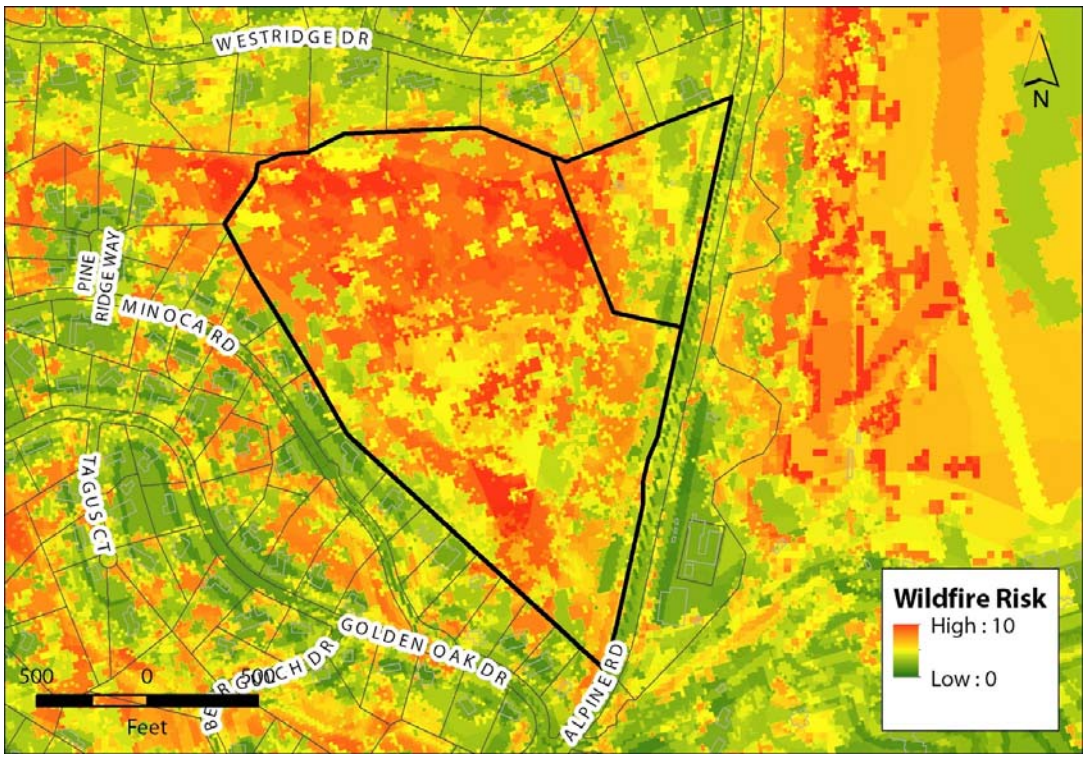
Wildfire Risk

The Wildfire Risk was determined as described in the Methodology section above and more fully detailed in the full Stanford Wedge Wildfire Behavior Assessment, included as Appendix J to this EIR. Overall Wildfire Risk is represented on a scale of 1 to 10; 1 being equal to a low risk of wildfire and 10 being the highest risk of wildfire. Wildfire Risk under existing conditions and conditions with the Project are shown in **Table 18.2** and **Figure 18.4**.

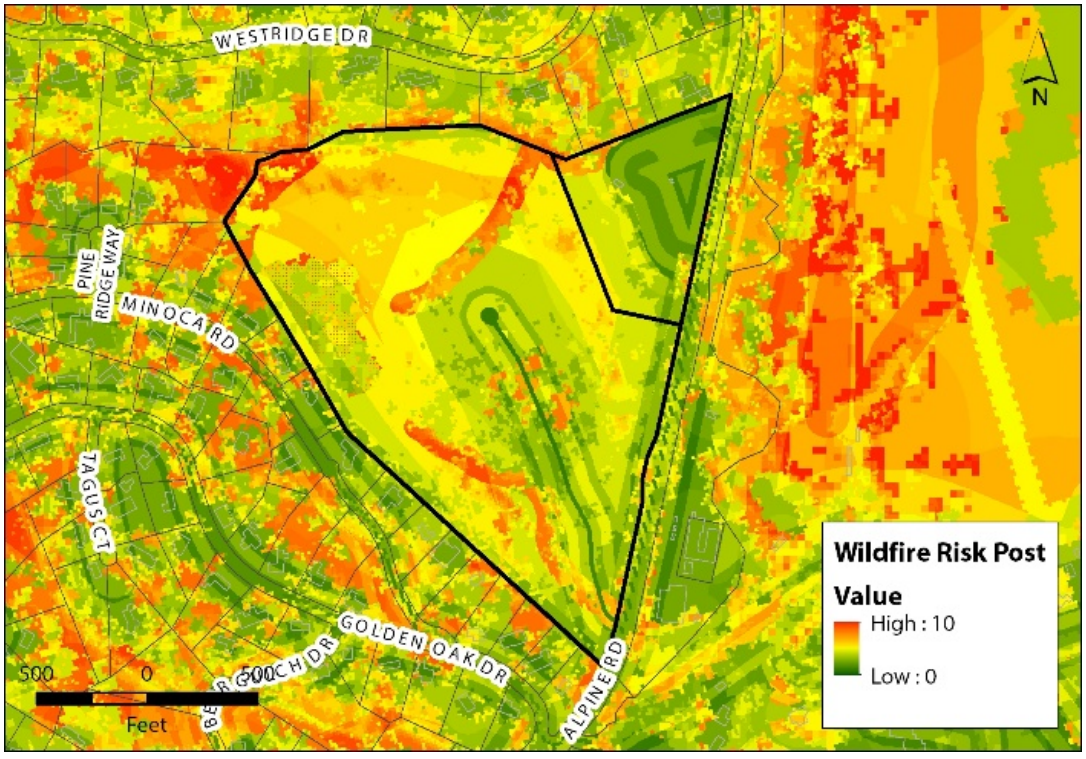
Table 18.2: Overall Wildfire Risk, Existing and With Project

	EXISTING		WITH PROJECT	
RISK CATEGORY (1-10)	Acres	Percent	Acres	Percent
0 – VERY LOW TO NONE	0.0	0%	0	0%
1 – LOW	1.1	1%	3.2	4%
2	5.1	7%	10.0	13%
3	7.3	10%	13.6	18%
4	12.6	17%	29.8	40%
5 – MODERATE	12.1	16%	10.3	14%
6	8.8	12%	3.8	5%
7	20.7	28%	2.6	4%
8 – HIGH	7.6	10%	1.5	2%
9 – VERY HIGH	0.03	0.04%	0.25	0.3%
10 – EXTREME	0.0	0%	0	0%

Source: Stanford Wedge Wildfire Behavior Assessment, included as Appendix J, tables 8 and 16.
See Figure 18.3 for mapping of overall Wildfire Risk in and around the Project site.



Existing Conditions



With Project Conditions

Figure 18.4: Overall Wildfire Risk, Existing and Proposed Project Conditions

Source: Stanford Wedge Wildfire Behavior Assessment, included as Appendix J
See Table 18.2 for description of applicable fuel types by number in the above key.

As compared to existing conditions, with the Project, there would be an overall lessening of Wildfire Risk at the site. Specifically, there would be a reduction of areas with higher Wildfire Risk ratings of 7 or more. Under existing conditions, over a third of the property experiences Wildfire Risk ratings above 7. After treatment, less than 10% of the property experiences Wildfire Risk rating above 7. In addition, the areas with lower Wildfire Risk ratings of 3 or lower has increased to 35% of the Project site from 18% under existing conditions. The resultant with-Project Wildfire Risk levels are representative of a generally well-managed wilderness area with some areas left untreated mainly due to regulatory restrictions for environmental sensitivity, such as along riparian corridors.

From a wildfire potential standpoint, the overall Wildfire Risk would be substantially reduced under Project implementation. However, untreated areas within the Project site (many due to regulatory restrictions) could remain a risk to structures within and outside the property. With Project implementation, from a fire growth standpoint, if a fire were to start within the Project area, fire spread would be much slower and the spot fire generation potential has been reduced due to treatments linked to the Project. However, Project vegetation management activities are constricted to the Project site, and untreated fuels outside of the Project site and therefore not under the control of the Project applicant would remain a threat to surrounding structures.

Human Activity and Ignition Potential

Additional human activity creates a greater likelihood of ignition if not mitigated, which in this case includes human activity due to the residential development as well as new trails and increased use of trails. The analysis of wildland fires is by definition specific to wildland areas. Structures are not incorporated into wildfire spread model. While there are fuel models that characterize grass, or chaparral, or different types of oak forests, there is no “Structure” fuel model. Some have tried to fit different types of structures into wildland fuel models, but the attempt is too speculative for application.

While not incorporated specifically into wildland fire spread modeling, research and regulations have focused primarily on reducing the potential for structures to be impacted by or contribute to the spread of wildland fires by providing “defensible space” separation from wildland areas and “hardening” homes by reducing the ignitability of roofs, siding, decks, windows and other assemblies.

The Project sponsor has indicated the following Wildfire Reduction Measures would be incorporated into the Project:

1. The project has been designed as a clustered development. The design, maintenance, and use of defensible space for fire protection is more effective when neighborhoods are developed more densely and are built to stringent fire-resistant building codes. Such neighborhoods are more compact and easier to defend with a smaller firefighting force, and help achieve goals for climate resiliency. Denser neighborhoods often have lower amounts of flammable vegetation and more pavement, making them generally less flammable than larger homes on large lots.

2. The proposed project will be located at the base of the hills and close to Alpine Road. The proposed project is not located in uphill flow of heat and flames. (Developments located on or at the top of steep slopes can be at particular risk from wildfire because fire and heat generally flow faster uphill.)

3. The project site design proposes a loop road with two points of ingress and egress to/from Alpine Road.

4. At the request of the Woodside Fire Protection District, the project has incorporated an access point between lots 8 and 9 to allow public safety personnel to access the open space immediately behind the project.

5. Electrical utilities lines serving all residences will be installed below ground.

6. Stanford has committed to constructing "all electric" homes, and the project will not provide natural gas to the homes. Therefore, the homes will not have gas water heaters or gas valves that can potentially create a fire hazard during an earthquake.

7. The project will construct "fire-hardened" homes that meet or exceed the Town of Portola Valley's Wildfire Preparedness Building Code.

8. Stanford contracted with wildfire professionals to prepare a Vegetation Management Plan (VMP) for both the developed and undeveloped portions of the property. Areas with high fire hazard are mitigated through modifications to the live vegetation and removal of dead fuels onsite to reduce the risks. Several treatments or prescriptions (the modification of vegetation to reduce a fire's potential) are available in vegetation management practice. The type of treatments to be utilized within the project parcel depend on the vegetation type, cover, and location. The VMP identified two types of vegetation cover on the project site that can exhibit extreme fire behavior, which are chaparral and oak woodland. Given the existing condition of the vegetation on-site, three treatment areas were developed in the VMP, including defensible space areas around structures and recommended maintenance activities within the oak woodland chaparral areas of the property.

9. The project has been designed to establish a defensible area around the perimeter of all homes as well as the common open space areas within the development area. This defensible area will consist of irrigated, low-fuel landscaping.

10. The project landscape plan has been designed with fire prevention in mind. In lieu of traditional solid wall fencing, the project is proposing the use of wood/wire "deer" fencing to secure the resident's rear and side yards. Fences at all residential buildings in the Portola Terrace project will be constructed so that fence material within 10' of buildings is noncombustible. Flame-resistant materials will be used as a substitute to wood mulch in common area landscaping and around all homes.

11. A wildfire buffer area, consisting of mowed and maintained natural vegetation, will surround and buffer the development area from the surrounding natural undeveloped area. This buffer area will be owned and maintained by the project homeowner's association.

12. In order to facilitate the maintenance of the undeveloped portions of the property, Stanford has proposed the construction of a fire access road. The road will provide vehicular access from Alpine Road up and into the center of the Wedge property to allow mechanized equipment to clear and remove vegetation from areas not presently accessible by crews required to hike into the property. This fire access road was prescribed by the Vegetation Maintenance Plan to improve the effectiveness of the measures called out in the VMP.

13. As part of the construction of the Project, Stanford will underground the existing PG&E overhead power line that runs along the Alpine Road frontage of the Stanford property. The undergrounding of this overhead line will eliminate a potential ignition source across the length of the property along Alpine Road.

14. As part of the project, Stanford will be extending a water line approximately 1,700 feet south along Alpine Road from the Alpine Road/Westridge Drive intersection to the project site. The project will connect to both an existing 12-inch water main and an existing 6-inch water main located near the intersection of Westridge Drive and Alpine Road. Since these two water mains are fed from two separate sources of water, Stanford will create a dual connection, providing a redundant source of water to the project site and surrounding area. The project itself will install several new fire hydrants on Stanford owned property and in the Alpine Road right-of-way, which will deliver additional fire safety for the Project and the immediate neighbors as well as providing a source of water for fire equipment in the event there is a fire event in the undeveloped portion of the site. (At present, there are no existing fire hydrants on the Project site or along Alpine Road.)

15. At the request of the Woodside Fire Protection District, Stanford is investigating the possibility of constructing a fire staging area along the Project frontage in the Alpine Road right-of-way. In case of fire incident in the vicinity, this fire staging area will allow for a variety of WFPD and/Cal Fire apparatus to stage in a safe manner. If feasible, water hydrants will be provided adjacent to this staging area.

The analysis in Appendix J concludes that with required implementation of the treatments and defensible space required by the Woodside Fire Protection District and/or proposed in Project plans and the Vegetation Management Plan, both fire hazard and risk would be substantially lowered across the Project site. In addition, the new structures at the site are proposed to recently-updated ignition-resistant standards. Combined with stringent vegetation treatments, this area can serve as a fuel break, buffering adjacent areas from fire spread.

Conclusions

As discussed above, the Project represents an overall reduction in the fire hazard or risk at the Project site. However, because of the increased development and human activity at the site, the potential for ignition of a new fire at the site would be increased requiring additional measures to minimize ignition risks and fire spread.

Mitigation Measures

Wildfire-2a: **Further Increase Effectiveness of the Vegetation Management Plan.** The Project sponsor shall implement the following measures to further increase the effectiveness of the VMP, as feasible:

i. Consideration of less thinning of the oak woodland canopy cover than the 40% thinning proposed in the VMP. This level of canopy opening can promote growth of understory shrubs and small trees - ladder fuels that contribute to tree torching, and ember production.

ii. Consideration of allowable methods to remove over-abundant fuels in riparian forests and creekbeds in consultation with the California Department of Fish and Wildlife.

iii. No mechanical equipment use on days of Red Flag Warning.

Wildfire-2b: **Ignition Reduction.** The Project sponsor shall implement the following measures to further reduce the potential for ignitions within the Residential Development Area:

i. Annual third-party inspection and certification of defensible space in HOA-property; the letter of compliance should be sent to the Woodside Fire Protection District.

ii. As feasible, obtain fuel management easements on adjacent properties where defensible space is not 100-feet from structures so that the HOA can treat fuels appropriately.

iii. Installation of non-combustible fences on sides as well as rear yards. Solid, non-combustible fences could form a radiant heat barrier rather than a source of heat.

iv. Installation and maintenance of ember-resistant zones 5-feet from side walls, per AB 3074.

v. Prohibition of smoking in common areas, outdoor fireplaces, and pizza ovens in yards and common areas, and use of mechanical equipment on hot, dry windy days. No mechanical equipment use on days of Red Flag Warning.

vi. Robust and regular education of residents regarding ignition prevention to be coordinated by the HOA.

Implementation of mitigation measure Wildfire-2a and Wildfire-2b would reduce potential impacts related to wildfire and ignition risk to a level of ***less than significant with mitigation*** through increased effectiveness of the VMP in the undeveloped portion of the Project site and additional ignition reduction measures in the Residential Development Area.

EXPOSURE TO POST-FIRE RISK

4. Would the project 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?

Impact Wildfire-3: **Post-Fire Risk.** The Project would follow applicable construction and post-development best management practices and would not create conditions that result in post-fire risk or expose people or structures to significant post-fire risks. The Project would have a ***less than significant*** impact in this regard.

Construction and operation of the Project would not create conditions that cause runoff, post-fire slope instability, or drainage changes that would expose people or structures to significant risks. The applicant would implement construction-related and post-development best management practices and comply with regulatory requirements that manage stormwater runoff and erosion. Development would not substantially alter on-site natural drainage channels and patterns. Chapter 8: Geology and Soils, and Chapter 11: Hydrology and Water Quality, provide a detailed discussion of stormwater runoff, slope stability, and drainage changes.

Therefore, the Project would not expose people or structures to significant risks as a result downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes in the Project area and the impact would be ***less than significant***.

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OTHER CEQA CONSIDERATIONS

INTRODUCTION

This chapter of the Draft EIR contains discussion of the following additional CEQA considerations:

- Mandatory Findings of Significance
- Significant Irreversible Modifications in the Environment
- Growth Inducing Impacts

MANDATORY FINDINGS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines (Environmental Checklist) contains a list of a list of mandatory findings of significance that may be considered significant impacts if any of the following occur:

1. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of California history or prehistory?
2. Does the project have impacts that are individually limited, but cumulatively considerable?
3. Does the project have environmental effects which will cause substantial adverse effects on human beings either directly or indirectly?

QUALITY OF THE ENVIRONMENT

Project implementation could lead to development that adversely affects the environment in terms of impacts to various CEQA issue topics, as discussed in this EIR. However, all impacts of the Project are considered to be less than significant with mitigation. Therefore, implementation of the Project would not substantially degrade the quality and extent of the environment provided all policies, rules, and regulations of all relevant governing bodies are adhered to, and the mitigation measures contained within this document are implemented.

CUMULATIVE IMPACTS

The immediate vicinity of the Project site is largely already developed. The cumulative context for analysis in this EIR includes the existing development as well as other known projects in the immediate vicinity of the Project with the potential to substantially contribute to shared impacts. This includes the WFPD fire station 8 remodel (about 2 miles to the west of the Residential Development Area) and the Willow Commons supportive housing project (approximately 1.5 miles west of the Residential Development Area).

As detailed in Chapters 4 through 18 of this EIR, impacts of the Project are considered to be less than significant or reaching that level with mitigation for all topic areas and the same would therefore be true for cumulative impacts given the cumulative scenario for this site. Localized impacts such as aesthetics, emissions, noise, and transportation for these types of projects (including the Stanford Wedge Housing Project) would not contribute to cumulative impacts more than about 1,000 feet away – much less the 1.5 to 2 miles to these cumulative projects. Therefore, there is no potential for additional significant cumulative localized impacts between these projects and the Stanford Wedge Housing Project. Implementation of the Project would not cumulatively impact the environment provided all policies, rules and regulations of all relevant governing bodies are adhered to, and the mitigation measures contained within this document are implemented.

ADVERSE EFFECTS ON HUMAN BEINGS

While human beings could be affected by a variety of impacts described above, the Project would not have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. Potential impacts on people include air quality emissions, site soils and seismic activity, routine hazardous materials use, and wildfire risk; however, these impacts are ***less than significant with mitigation***. The Project would not expose people to substantial new hazards. There would be no other adverse effects on human beings.

SIGNIFICANT IRREVERSIBLE MODIFICATIONS IN THE ENVIRONMENT

An EIR must identify any significant irreversible environmental changes that could be caused by a project. These may include current or future uses of non-renewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified. The *CEQA Guidelines* describe three distinct categories of significant irreversible changes: 1) changes in land use which would commit future generations to specific uses; 2) irreversible changes from environmental actions; and 3) consumption of non-renewable resources.

Changes in Land Use Which Would Commit Future Generations

The Project proposes residential development on a site indicated for such use in the Town's Housing Element and clustered along the roadway so as to preserve the majority of the site as open space. The type of use is consistent with plans and policies for development of the site and would not constitute a change in land use which would commit future generations.

Irreversible Changes from Environmental Actions

The Residential Development Area is generally confined to the area being used as a horse boarding facility under existing conditions. Redevelopment of that portion of the site would not represent a change from a natural environmental state. This Project would contribute to regional emissions of air pollutants and greenhouse gasses, largely from vehicle emissions of residents traveling to and from the site. However, the level of impact was determined to be less than significant and is expected to be further reduced over time as regulations and changes in travel habits lead to reduced vehicle emissions. There would be no other potential irreversible changes from environmental actions.

Consumption of Nonrenewable Resources

Consumption of nonrenewable resources can include increased energy consumption, conversion of agricultural lands, and lost access to mining reserves. The Project would not result in the loss of

agricultural lands or mining reserves, as these are not located at the site. Development of the Project area as proposed could result in the commitment of nonrenewable resources (e.g., gravel and petroleum products) and slowly renewable resources (e.g., wood products) used in construction. The operation of the proposed use would also require commitment of water and energy resources (e.g., petroleum products for vehicle operations, natural gas and electricity for lighting, heating, and cooling). However, the relative amount of resource use is low and this Project represents development of a residential use on a site indicated for such development in the Town's Housing Element and helping to meet the Town's Housing Needs Allocation, so would not be considered a new allocation of resources.

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ALTERNATIVES

INTRODUCTION

The California Environmental Quality Act Guidelines (CEQA Guidelines, 1970, as amended, Section 15126.6) require an EIR to include a discussion of a reasonable range of alternatives to the proposed project. The CEQA Guidelines also require that the EIR explain why specific project alternatives considered at one time were rejected in favor of the proposed project. The selection of alternatives is to be guided by the provision of reasonable choices and the promotion of informed decision making and informed public participation. An EIR need not evaluate alternatives that would have effects that cannot be determined, or for which implementation would be remote and speculative.

The Guidelines also require that the EIR specifically evaluate a "no project" alternative within this discussion and that an "environmentally superior" alternative be identified (Section 15126.6 [e]).

The alternatives addressed in this EIR were selected based on the following factors:

1. The extent to which the alternative would accomplish most of the basic project objectives.
2. The extent to which the alternative would avoid or lessen any of the identified significant environmental effects of the project (discussed in Chapters 4 through 15).
3. The potential feasibility of the alternative (as discussed in this Chapter).
4. The extent to which the alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice.

The proposed Project is fully described in Chapter 3 of this EIR (Project Description). The environmental consequences are addressed in Chapters 4 through 19 of this EIR.

PROJECT OBJECTIVES

CEQA requires the analysis of alternatives that would feasibly attain "most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project."[1] Therefore, the stated objectives can be used as a metric against which an alternative can be measured when determining overall feasibility.[2] Additionally, CEQA requires the evaluation of a proposed project to address only impacts to the physical environment; economic and social effects can be analyzed only as one link in a chain of cause and effect from a proposed decision (e.g., physical

[1] *CEQA Guidelines*, Section 15126.6 (a)

[2] Ibid., Section 15126.6 (a)

changes caused, in turn, by economic and social changes).[3] However, economic viability can be considered when determining the feasibility of a project alternative.[4]

The following are the objectives that would be fulfilled by the proposed Project. Alternatives are evaluated in part based on their ability to meet these objectives.

1. Maximize single-family housing opportunities in an area the Town has studied and identified for housing.
2. Reduce wildfire risk at the site, increase access for fighting wildfires, and contribute to a more fire resilient community.
3. Include sufficient affordable housing to make progress toward the Town's fair share of low-income housing needs under the Housing Element of the Town's General Plan, enable a density bonus, and comply with the Town's inclusionary housing ordinance.
4. Cluster development closest to existing infrastructure on relatively flat land, in a manner that avoids development of unstable ground, preserves substantial open space, minimizes grading, and fosters a sense of community.

PROJECT IMPACTS

Based on the analysis contained in this EIR, implementation of the Project would not result in any impacts that would remain significant and unavoidable after the implementation of identified mitigation.

The Project would result in potentially significant impacts that would be reduced to less than significant levels with the implementation of mitigation measures recommended in this document associated with the following topics.

- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Geology and Soils
- Hydrology and Water Quality
- Wildfire

All other topic areas would have no impact or less than significant impacts only, with no mitigation warranted.

A comparison of the alternatives with respect to all the topic areas listed above is included in Table 20.1 at the end of this chapter.

ALTERNATIVES ANALYSIS

The alternatives analysis is presented as a comparative analysis to the proposed Project. A project may have the potential to generate significant impacts, but changes to certain features may also afford the opportunity to avoid or reduce such impacts. The following alternatives analysis compares the

[3] *CEQA Guidelines*, Section 15131.

[4] Ibid., Section 15126.6(f)(1).

potential significant environmental impacts of the alternatives with those of the proposed Project for each of the environmental topics analyzed in detail in Chapters 4 through 19 of the EIR and discusses feasibility of implementation, and ability to meet objectives.

SELECTION OF ALTERNATIVES

Three alternatives to the Project are evaluated in this chapter. Each of the alternatives is located on the Project site.

A. No Project

B. Larger Setback (from Nearby Lots)

C. No Clustering

These alternatives are described in more detail in the following analysis.

As detailed in the previous chapters of this EIR, no significant and unavoidable impacts of the proposed Project were identified. In addition to the "no project" alternative required under CEQA, alternatives were selected based on known neighborhood concerns related to increased setbacks from lots to the north ("Larger Setback" Alternative) and development that could be allowed with no Planned Unit Development, which would mean no clustering ("No Clustering" Alternative).

Alternatives Rejected From Further Consideration

Section 15126.6(c) of the CEQA Guidelines requires an EIR to identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination.

Off-Site Alternative

An off-site alternative would be an alternative that places the proposed development at a different site instead of at the proposed site. The current proposal is specific to the Project site and consistent with zoning for the site and the Town's Housing Element (see Chapter 13: Land Use). While the applicant may own other sites suitable for residential development, the development of one site does not preclude them from proposing development on any other sites. Therefore, because residential development is not unique such that consideration of residential development on a different site would mean it was no longer considered at this site, an off-site alternative was determined not to provide a useful discussion for this analysis. Also, not developing this site which is identified in the Town's Housing Element for residential housing (and affordable housing) could affect the Town's ability to meet its share of the Regional Housing Need, and could lead to the Town being non-compliant regarding state housing law. Further, Stanford owns the site across the street from this site, but that site is substantially smaller than the existing site and would therefore would not accommodate the Project. For these reasons, an off-site alternative was rejected from further consideration.

Increased Unit Count Alternative

The Town of Portola Valley Housing Element contains a section on Affiliated Development, including on sites owned by Stanford University, as follows:

2472d Portola Valley is a rural community with a history of single family development on large lots. To accommodate some multifamily development, however, the town developed a housing program in the early 1990s that would allow multifamily housing on institutional

sites for employees and staff affiliated with the institutions that own the parcels. This program allows affiliated affordable multifamily housing on three designated sites in town, each with a planned development permit.

2472e The Stanford Wedge is an 89 acre site owned by Stanford University, which was discussed above as one of the large parcels of land remaining in town that could be developed with housing. The town's regulations would allow 27.625 single family dwelling units on the parcel overall, and Section 2106e of the General Plan allows this density to increase by a factor of three for Portola Valley General Plan Housing Element, Adopted January 14, 2015 66 multifamily affordable housing, as long as the overall floor area does not exceed the amount allowed for market rate development. Therefore, up to 82.9 units could potentially be provided on this site, although the number would likely be lower.

As noted in the Town's Housing Element, it could potentially be possible to develop up to 82.9 units for multi-family housing on the Project site. This General Plan provision requires the construction of affordable units and deed restricting all of the 82.9 units as affordable would not meet the Project objective of providing faculty housing near Stanford University. While meeting general objectives to provide housing and multi-family housing, the increased unit count would have the same or increased environmental impacts than the proposed Project. Because it would not have the potential to result in reduced environmental impacts, it was determined that assessment of such an increased unit count as an alternative to the Project would not meaningfully contribute to the analysis in this EIR and this alternative was therefore rejected from further consideration.

Reduced Unit Count Alternative

As detailed in the previous chapters, the Project would not result in significant impacts dependent on the number of units (such as transportation impacts or operational emissions). The level of the construction-related impacts depends mostly on the area of the site to be disturbed and amount of grading. Because the proposed Project is already clustered on the generally flat portion of the site, the un-developed portion of the site would be subject to vegetation management disturbances to manage wildfire risk, and the unit count is not necessarily tied to site disturbance as larger lots could be allowed, a reduction in unit count would not be tied to a reduction in construction-related impacts. Additionally, a reduced unit count would reduce the Town's ability to meet its share of the Regional Housing Need. Alternatives B and C will present discussion of development of a different or additional portion of the site. Therefore, because a reduced unit count would not be tied to a reduction in significant impacts, such an alternative was determined not to meaningfully contribute to the analysis in this EIR and a reduced unit count alternative was rejected from further consideration.

Larger Setbacks between Buildings

The National Fire Protection Association (NFPA) is a global self-funded nonprofit organization, with a stated purpose to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. While not a regulation or requirement for Project's in Portola Valley, NFPA issues codes and standards that can be used by those establishing criteria for building, processing, design, service, and installation around the world. One of these standards (1140), recommends a 30 foot separation between buildings and an alternative conforming to this informational standard was considered.

As discussed in Chapter 18: Wildfire and Appendix H, the Project as proposed would result in a reduction of wildfire hazard and risk at the site and would implement additional measures to further reduce the potential for ignitions due to human activity. Because the clustering of development along Alpine Road with surrounding defensible space separating the development from wooded slopes is

identified as a component contributing to reduced wildfire risk at this site, consideration of an expanded development with larger spaces between units would a) result in a larger development footprint closer to wooded slopes; b) not serve to substantially reduce potential wildfire impacts; and c) not achieve project objectives. Therefore, an alternative with larger setbacks between buildings was rejected from further consideration.

Other Alternatives Considerations

Obviously, not every possible alternative to the Project can be fully evaluated. Alternatives A through C satisfy the requirement to consider and discuss "a range of reasonable alternatives to the project" pursuant to CEQA Guidelines section 15126.6. As discussed in this chapter, these alternatives were chosen as reasonable alternatives at this site and no additional alternatives were identified that would substantially contribute to a meaningful evaluation, analysis, and comparison of the Project to possible alternatives.

ALTERNATIVE A: "NO PROJECT" ALTERNATIVE

Alternative Description

Alternative A is a "no project" alternative. It assumes the proposed Project is not approved and the existing Alpine Rock Ranch horse boarding facility use (or a similar use) remains in operation on the site. The Town currently has limited regulatory authority to require comprehensive vegetation management activities or construction of the fire road with no project, so this alternative assumed no change in the site conditions related to wildfire.

This alternative satisfies the CEQA requirement to evaluate a "No Project" alternative, which means "the existing conditions, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (CEQA Guidelines, Section 15126.6[e][2]). While the Guidelines allow the no project alternative to assess development under the continuation of the existing plan, policy, or operation into the future, the site is currently partially developed with a horse boarding facility, and while it is possible that plans to intensify the existing development on the site may be proposed at some future point, there is no reason to believe this would happen in the near-term. Therefore, Alternative A presumes the site would remain largely in its current state.

Impact Summary

Under the "No Project" Alternative, the Project site would remain as it is today with no substantial construction activities or changes to operations at the site. Therefore, the potential for all of the less than significant impacts and need for mitigation would be avoided.

While continuance of existing conditions would not be considered an impact under CEQA, the "No Project" Alternative also would not develop the site for the residential uses identified for the site in the Town's Housing Element, would not develop additional public trails, and would not reduce wildfire risk at the site through a comprehensive vegetation management plan and fire access road as proposed under the Project.

Aesthetics

The "No Project" Alternative represents no substantial change to the site and therefore no potential for aesthetics impacts.

Agricultural, Forestry, and Mineral Resources

There are no agricultural, forestry, or mineral resources or regulations at the Project site and therefore no potential for impact. The proposed Project and all alternatives would have no impact with respect to these topics.

Air Quality and Greenhouse Gas Emissions

The "No Project" Alternative represents no substantial construction activities or changes to operations at the site and therefore no potential for air quality and greenhouse gas emissions impacts.

Biological Resources

The "No Project" Alternative represents no substantial construction activities or changes to operations at the site and therefore no potential for biological resources impacts.

Cultural and Tribal Cultural Resources

The "No Project" Alternative represents no substantial construction activities and therefore no potential for cultural and tribal cultural resources impacts.

Geology and Soils and Hydrology and Water Quality

The "No Project" Alternative represents no substantial construction activities or changes to operations at the site and therefore no potential for geology and soils and hydrology and water quality impacts.

Hazards and Hazardous Materials

The "No Project" Alternative represents no substantial construction activities or changes to operations at the site and therefore no potential for hazards and hazardous materials impacts.

Land Use and Planning

This alternative would not meet Housing Element objectives for residential units, including affordable housing, to be constructed at this site. However, since that is the existing condition and the "No Project" Alternative would not cause a change, it would not be considered an impact under CEQA.

Noise

The "No Project" Alternative represents no substantial construction activities or changes to operations at the site and therefore no potential for noise impacts.

Population and Housing, Public Services, and Recreation

The "No Project" Alternative represents no substantial construction activities or changes to operations at the site and therefore no potential for population and house, public services, and recreation impacts.

Transportation

The "No Project" Alternative represents no substantial changes to operations at the site and therefore no potential for transportation impacts.

Utilities and Service Systems, and Energy

The "No Project" Alternative represents no substantial construction activities or changes to operations at the site and therefore no potential for utilities, service systems, and energy impacts.

Wildfire

Because the Town does not currently have a mechanism to require comprehensive vegetation management without a project, it is assumed that wildfire risk at the site would not be reduced as it would be under the proposed Project. However, since that is the existing condition and the "No Project" Alternative would not cause a change, it would not be considered an impact under CEQA.

Ability to Accomplish Project Objectives and Feasibility

The "No Project" Alternative would have the following ability to meet Project objectives:

1. The "No Project" Alternative would not meet the objective to maximize single-family housing opportunities in an area the Town has studied and identified for housing. This alternative would not result in the construction of any residential units at the site.
2. The "No Project" Alternative would not meet the objective to reduce wildfire risk at the site, increase access for fighting wildfires, and contribute to a more fire resilient community. This alternative would not result in any additional access or management of wildfire risk.
3. The "No Project" Alternative would not meet the objective to make progress toward the Town's fair share low-income housing needs under the Housing Element of the Town's General Plan, enable a density bonus, and comply with the Town's inclusionary housing ordinance. This alternative would not result in the construction of any residential units at the site.
4. The "No Project" Alternative would not meet the objective to cluster development closest to existing infrastructure on relatively flat land, in a manner that avoids development on unstable soil, preserves substantial open space, minimizes grading, and fosters a sense of community. While the existing use is clustered on the flat area near infrastructure, it does not represent new development.

The "No Project" Alternative would not meet any of the Project Objectives.

This alternative represents the possibility that no project is approved on this site at this time. It would not preclude application for development of the site at a later point.

ALTERNATIVE B: "LARGER SETBACK" FROM NEARBY LOTS ALTERNATIVE

Alternative Description

The "Larger Setback" Alternative assumes the same development would occur but shifted farther to the south to allow for increased setback from nearby lots to the north as requested by some of the nearby neighbors. Construction activities under this alternative would be increased to account for the shifting of development to a less flat area of the lot, which would require more grading. A potential layout for this alternative is included as **Figure 20.1**, showing the relationship to the topographical map of the site. It is assumed that under this Alternative, the fire access road, trails, and VMP would remain the same as under the Project.

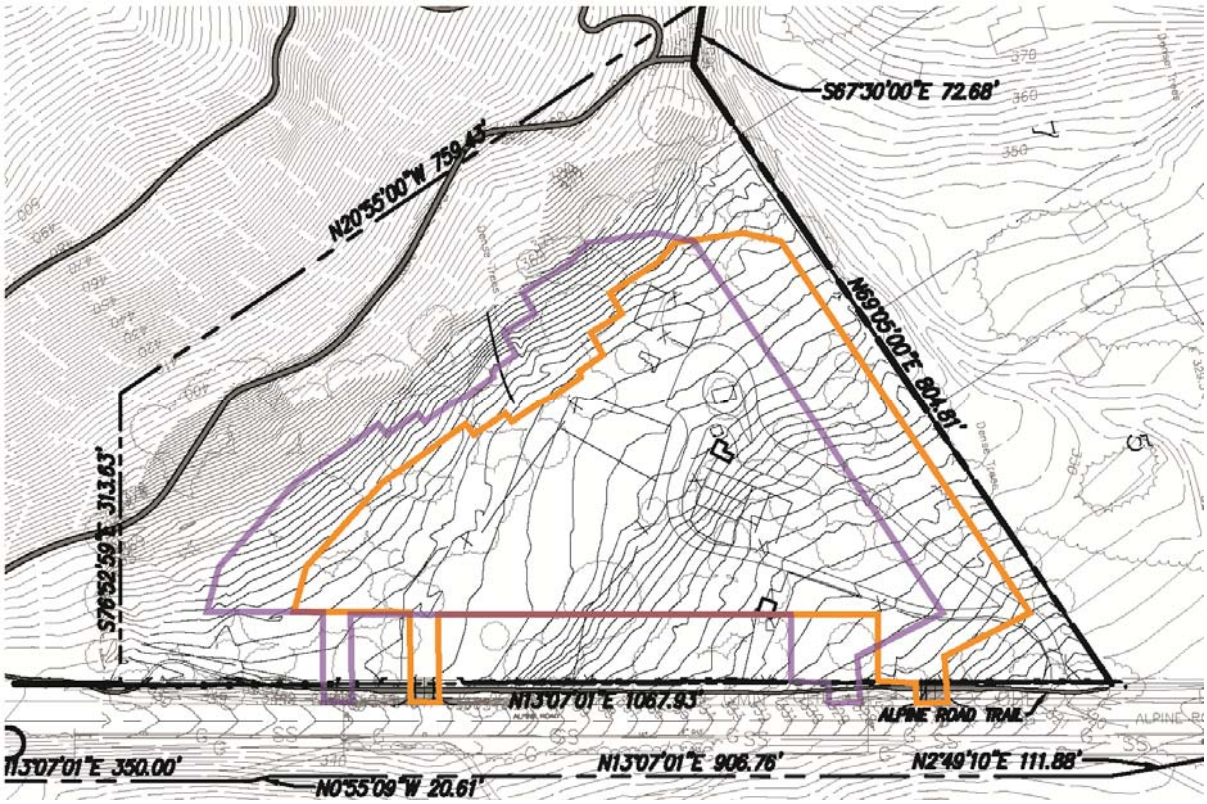

Figure 20.1: "Larger Setback" Alternative Potential Layout
Orange outline represents approximate limits of grading for the Residential Development Area under the proposed Project
Purple outline represents a shift of that footprint to the south such that residential lots are 100 feet from the northern property line.
Source: modified from Project plan set

Impact Summary

Under the "Larger Setback" Alternative, impacts would remain substantially the same as they are under the Project. There would be a marginal increase in construction-related impacts due to the increased grading activities that would be required by shifting the development to a less flat portion of the site, including marginally increased air quality and greenhouse gas emissions, the potential for soil erosion and stormwater pollutions, additional tree removal, use of construction hazardous materials (like fuel and lubricants), and the need to design appropriately for the soil conditions and slope and stormwater.

This alternative was assessed in response to feedback received from neighborhood residents. As discussed by topic below, the proposed Project is marginally preferable to this alternative from an environmental perspective because the "Increased Setback" Alternative would have the same or marginally increased environmental impacts in all respects.

Aesthetics

This alternative would result in more disturbance of the wooded hillside slope area than the proposed Project, but still would represent limited disturbance compared to the size of the undisturbed portion of the overall Project site. There would be no substantial changes in the impacts related to aesthetics

under the "Larger Setback" Alternative, which would remain less than significant as under the proposed Project.

Agricultural, Forestry, and Mineral Resources

There are no agricultural, forestry, or mineral resources or regulations at the Project site and therefore no potential for impact. The proposed Project and all alternatives would have no impact with respect to these topics.

Air Quality and Greenhouse Gas Emissions

Construction-period emissions (criteria air pollutants, toxic air contaminants, and greenhouse gasses) under the "Larger Setback" Alternative would be marginally more than those associated with the proposed Project during the construction period due to the need for more grading activities and require the same general mitigation measures to reduce to less than significant levels. Because this alternative proposes the same amount and size of units as the proposed Project, there would be no change in operational emissions or related impacts.

Biological Resources

Impacts to biological resources at the Project site and in the vicinity under this alternative would be identical to those associated with the proposed Project. Disturbance of the site could result in the direct loss or injury to burrowing owls if they are on site, which would be mitigated to a less than significant level through pre-construction evaluation and implementation of appropriate avoidance measures, as identified in Chapter 6: Biology.

Potential impacts to sensitive species that could be on the site occur due to development of residential lots and also vegetation management activities to address wildfire risks. The movement of the development footprint a little farther up the wooded hillside would marginally increase the currently natural area that would be permanently changed to a developed state and would result in the removal of additional trees. It is assumed the vegetation management plan would address the entire undeveloped portion of the site under the proposed Project of this alternative. Therefore, because the disturbance is site-wide to some degree under either the alternative or the proposed Project, the potential impacts to sensitive species at the site and need for identified mitigation would remain about the same despite the disturbance from the development footprint being marginally more impactful.

Cultural and Tribal Cultural Resources

As under the proposed Project, this alternative would have residential development appropriately distanced from the known prehistoric resource at the site (a stone circle lithic hearth site including surface/subsurface elements). While there are no other known cultural or tribal cultural resources at the site, due to known sites in the vicinity and the physical characteristics of the site, there is the potential to discover resources during construction activities. This alternative would disturb approximately the same size footprint as the Project (while shifted), and the impacts related to potential disturbance of unknown cultural and tribal cultural resources would be approximately the same as under the proposed Project and would be reduced through the identified mitigation.

Geology and Soils and Hydrology and Water Quality

While a similar footprint area, with the development shifted such that additional hillside grading would be required, this alternative could result in a marginally greater potential for erosion and stormwater pollution during construction, which would be mitigated through implementation of

appropriate erosion and stormwater control as under the Project and would marginally increase potential complications related to site soils, slope stability, and stormwater system design, which would be addressed through implementation of appropriate design-level geotechnical recommendations and stormwater planning as under the Project.

Hazards and Hazardous Materials

The site does not contain known contamination and construction and operation of residential units would use only relatively small quantities of common construction or household hazardous materials including construction equipment fuel and lubricants, and household cleaners, which are required to be handled according to applicable regulations. This applies to the proposed Project as well as all alternatives and there would be no substantial change in hazardous materials impacts.

Land Use and Planning

This alternative is largely the same as the proposed Project from a land use and planning perspective as the setback from neighboring uses already meets code requirements under the Project. Therefore, there would be no change in the environmental impacts related to land use and planning between this alternative and the proposed Project.

Noise

As under the proposed Project, residential operations would have noise levels consistent with surrounding uses. Because of the increased construction activities required to grade for development farther into the hillside area, the total amount of construction noise would be marginally increased in duration, however, it would be farther from the closest receptors due to the increased setback. As under the proposed Project, construction activities would comply with applicable regulations requiring construction noise control measures. Therefore, while construction noise would be somewhat different in details under this alternative, the impact to receptors would be generally the same as under the proposed Project.

Population and Housing, Public Services, and Recreation

As a site indicated for residential development in the Town's Housing Element and helping to meet the Town's Regional Housing Needs, the residential development under the proposed Project of any of the alternatives would not be considered "unplanned" and there are currently no housing units or people living at the site so no potential to cause displacement. While additional residents would create additional marginal demand for public services and recreation under the proposed Project or any of the alternatives, the site is within or adjacent to existing service areas and would not require construction of additional or expanded off-site facilities. The impacts with respect to population and house, public services, and recreation would be generally the same with this alternative as under the proposed Project.

Transportation

This alternative proposes the same number and size of residential units just shifted slightly on the site. There would be no differences between the transportation impacts of the proposed Project and this alternative.

Utilities and Service Systems and Energy

This alternative proposes the same number and size of residential units just shifted slightly on the site. There would be no differences between the utilities and services systems and energy impacts of the proposed Project and this alternative except for a marginal increase in energy use during construction to account for the greater grading effort.

Wildfire

This alternative proposes the same number and size of residential units just shifted slightly on the site and it is assumed a comprehensive vegetation management plan and fire access road would be implemented the same as under the proposed Project. There would be no differences between the wildfire impacts of the proposed Project and this alternative.

Ability to Accomplish Project Objectives and Feasibility

The "Increased Setback" Alternative would have the following ability to meet Project objectives:

1. The "Increased Setback" Alternative would meet to the same degree the objective to maximize single-family housing opportunities in an area the Town has studied and approved for housing. This alternative would result in the same total 39 residential units, including 27 single-family homes.
2. The "Increased Setback" Alternative would meet to the same degree the objective to reduce wildfire risk at the site, increase access for fighting wildfires, and contribute to a more fire resilient community. This alternative would result in the same reduced wildfire risk and slowed wildfire spread due to vegetation management, increased access, defensible space and fire hardened homes.
3. The "Increased Setback" Alternative would meet to the same degree the objective to make progress toward the Town's fair share low-income housing needs under the Housing Element of the Town's General Plan, enable a density bonus, and comply with the Town's inclusionary housing ordinance. This alternative would result in the same total 12 affordable residential units.
4. The "Increased Setback" Alternative would meet to a marginally lesser degree the objective to cluster development closest to existing infrastructure on relatively flat land, in a manner that avoids development on unstable soil, preserves substantial open space and avoids significant grading, and fosters a sense of community. This alternative would have clustered development near existing infrastructure but would be located on less flat land.

The "Increased Setback" Alternative would meet all of the Project Objectives to the same or only marginally lesser degree than would the proposed Project. It is anticipated that the increased grading necessary for this alternative would not result in a financially infeasible project; however a financial feasibility assessment could be submitted to verify financial feasibility if this alternative was pursued.

ALTERNATIVE C: "NO CLUSTERING" ALTERNATIVE

Alternative Description

The "No Clustering" Alternative assumes the site would be developed with standard single family homes each on their own lots rather than a clustered development including some multi-family homes and duet units. This would eliminate the need for a Planned Unit Development approval and more closely follow the adjacent lotting pattern. Without a Planned Unit Development, each lot would be at least 3.5 acres in size, which would total 21 lots that could be developed on the site. Per the Town's

Inclusionary requirements codified at PVMC Section 17.20.215, 3 of the units would be deed restricted for affordable households. Further, given the larger lot sizes and new State laws promoting accessory dwelling unit (ADU) and junior accessory unit (JADU) construction, 21 detached ADUs are also assumed for this alternative, bringing the total number of units to 42.[5] Construction activities would be increased to account for a greater development footprint into a less flat portion of the site and the need for longer driveways to reach the larger, separate lots.

Due to the large size of the lots, this analysis assumes that much of the site would remain in a generally natural state despite being divided into private lots. No trails or fire access road would be developed and no comprehensive vegetation management plan would be implemented.

Impact Summary

Under the "No Clustering" Alternative, impacts would remain similar to those under the Project. There would be a marginal increase in construction-related impacts due to the increased grading activities for scattered development sites and longer driveways, including marginally increased air quality and greenhouse gas emissions, the potential for soil erosion and stormwater pollutions, additional tree removal, use of construction hazardous materials (like fuel and lubricants), and the need to design appropriately for the soil conditions and slope and stormwater. Additionally, while the proposed Project would avoid disturbance to a known cultural resource on the non-development portion of the site, because this alternative would divide the whole site into private lots, there would be a significant potential to impact the resource and the need to formally protect it as well as marginally increased potential to discover other unknown resources due to development of a larger area of the site.

Because a larger lot development would support addition of ADUs and JADUs, up to 42 units are assumed under this alternative, which would be three more units than under the proposed Project and would result in marginal increases in use of utilities, energy, and an increase in transportation impacts (vehicle miles traveled per capita).

The division of the site into private lots would likely preclude the implementation of a comprehensive vegetation management plan to address wildfire risk. Individual lot owners would be motivated to address wildfire risks on their own lots, but the beneficial effects may not be as successful without a coordinated and comprehensive plan. Therefore, wildfire impacts under this alternative would likely be marginally increased compared to the proposed Project.

This alternative was included to explore the difference in environmental impacts if the Project were held to all development standards for single family detached homes under the existing zoning. While the need for a Conditional Use Permit for a Planned Unit Development would not be required under this alternative, such an approval process is specifically allowed and clustering was specifically encouraged at this site in the General Plan to minimize the development of the wooded hillside, there is no associated environmental impact related to the need for a Planned Unit Development.

As discussed by topic below, the proposed Project is preferable to this alternative from an environmental perspective because the "No Clustering" Alternative would have the same or marginally increased environmental impacts in all respects and potentially substantially increased impacts with respect to cultural resources.

[5] This would average to one additional ADU or JADU per lot. While more than that would be allowed, the exact number is speculative and this is a reasonable average for consideration of this alternative.

Aesthetics

This alternative would result in disturbance across more of the site and the need for more tree removal for longer driveways and grading of home footprints throughout the site in an area considered part of the Alpine Road Scenic Corridor. However, the rural-residential nature of the large lot development under this alternative may allow for greater screening of homes and is likely to be found consistent with the objectives of the scenic corridor and residential development identified for such development would not be considered a negative change in visual character. It can be assumed that any development of the site would meet Town requirements and guidelines regarding low-impact lighting. Aesthetics impacts for this alternative would therefore remain less than significant as under the proposed Project.

Agricultural, Forestry, and Mineral Resources

There are no agricultural, forestry, or mineral resources or regulations at the Project site and therefore no potential for impact. The proposed Project and all alternatives would have no impact with respect to these topics.

Air Quality and Greenhouse Gas Emissions

Construction-period emissions (criteria air pollutants, toxic air contaminants, and greenhouse gasses) under the "No Clustering" Alternative would be marginally more than those associated with the proposed Project during the construction period due to the need for more grading and driveway paving and require the same general mitigation measures to reduce to less than significant levels.

While this alternative would include fewer homes on separate lots (21), because of the large lots under this alternative, each lot could include ADUs/JADUs, with an assumed total unit count up to 42. Since 42 is three more units than proposed under the Project, this alternative has the potential to result in slightly higher operational emissions, though the operational emissions would still be below applicable screening levels and less than significant without mitigation required.

Biological Resources

Potential impacts to sensitive species that could be on the site occur due to development of residential lots and also vegetation management activities to address wildfire risks. While dividing the site into private lots under this alternative would preclude a comprehensive vegetation management plan, individual lot owners would be motivated to address wildfire risks on their own lots while still being constrained to avoid disturbance to riparian habitats. The potentially reduced disturbance from vegetation management would be somewhat offset by greater disturbance from potentially more grading and longer driveways to allow for the non-clustered development throughout the site. Therefore, because the disturbance is site-wide to some degree under either the alternative or the proposed Project, the potential impacts to sensitive species at the site and need for identified mitigation would remain about the same despite the character of that disturbance being different.

Cultural and Tribal Cultural Resources

There is a known prehistoric resource at the site (a stone circle lithic hearth site including surface/subsurface elements). The proposed Project avoids disturbance by distancing residential development and public trails away from the resource. However, with division of the site into private lots under this alternative, the potential to impact this prehistoric site would be greater and likely require formal protections to be put into place assuming removal (which would be a significant and unavoidable impact) can be avoided.

While there are no other known cultural or tribal cultural resources at the site, due to known sites in the vicinity and the physical characteristics of the site, there is the potential to discover resources during construction activities. With the more of the site area to be disturbed under this alternative, the potential to disturb unknown resources would be marginally greater than under the proposed Project and would be reduced through the identified mitigation.

Geology and Soils and Hydrology and Water Quality

This alternative could result in disturbance of more of the site than under the Project related to grading for more spread out development sites and driveways. This would result in a marginally greater potential for erosion and stormwater pollution during construction, which would be mitigated through implementation of appropriate erosion and stormwater control as under the Project. While development throughout the hilly portion of the site could result in increased complications related to site soils, slope stability, and stormwater system design, these would be addressed through implementation of appropriate design-level geotechnical recommendations and stormwater planning as under the Project.

Land Use and Planning

The "No Clustering" Alternative would be fully consistent with development standards in the underlying zoning and a Conditional Use Permit for a Planned Unit Development would not be required. However, because such an approval process is specifically allowed and clustering was specifically encouraged at this site in the General Plan to minimize the development of the wooded hillside, there is no associated environmental impact related to the need for a Planned Unit Development and therefore no change in the environmental impacts related to land use and planning between this alternative and the proposed Project. This alternative would not meet all principals of the General Plan related to minimizing development on slopes (2105.3 through 2105.9).

Noise

As under the proposed Project, residential operations would have noise levels consistent with surrounding uses. Because of the increased construction activities for scattered development site grading and driveways, total construction noise would increase but would be not be clustered near any one group of receptors. Additionally, as under the proposed Project, construction activities would comply with applicable regulations requiring construction noise control measures. Therefore, while construction noise would be somewhat different in details under this alternative, the impact to receptors would be generally the same as under the proposed Project.

Population and Housing, Public Services, and Recreation

As a site indicated for residential development in the Town's Housing Element and helping to meet the Town's Regional Housing Needs, the residential development under the proposed Project of any of the alternatives would not be considered "unplanned" and there are currently no housing units or people living at the site so no potential to cause displacement. While additional residents would create additional marginal demand for public services and recreation under the proposed Project or any of the alternatives, the site is within or adjacent to existing service areas and would not require construction of additional or expanded off-site facilities. The impacts with respect to population and housing, public services, and recreation would be generally the same with this alternative as under the proposed Project.

Transportation

The proposed Project would generate a less than significant impact with respect to vehicle miles traveled due largely to the short commute trips for Stanford faculty (required at least one in each single-family home). Even assuming that each lot would also contain an ADU not restricted to Stanford faculty, the VMT would remain below significance threshold levels under this alternative. (This alternative would have a daily VMT per capita of 21.78 compared to a threshold of 21.83 and a proposed Project VMT of 20.57.) As under the proposed Project, this alternative would be required to design circulation meeting applicable safety and emergency access requirements and would not otherwise conflict with transportation plans or otherwise cause impacts above those identified for the proposed Project.

Utilities and Service Systems and Energy

Residential development at the site would increase demand for utilities and use of service systems and energy. Because this alternative would require additional construction activities and with the ADU would result in more residential units than under the proposed Project, this alternative would result in marginally greater demand for and use of utilities and energy. However, due to the relatively small size of the project and availability of existing utilities and service providers, while marginally increased as compared to the proposed Project, the impacts of this alternative with respect to these topics would remain less than significant.

Wildfire

The proposed Project would result in a reduction of wildfire risks at the site largely due to implementation of a comprehensive vegetation management plan throughout the undeveloped portion of the site and addition of a fire access road. Additional and longer driveways would likely provide additional fire access to the site similar to the formal fire access road of the proposed Project. While dividing the site into private lots under this alternative would likely preclude a comprehensive vegetation management plan, individual lot owners would be motivated to address wildfire risks on their own lots, but the beneficial effects may not be as successful without a coordinated and comprehensive plan. Therefore, wildfire impacts under this alternative would likely be marginally increased compared to the proposed Project.

Ability to Accomplish Project Objectives and Feasibility

The "No Clustering" Alternative would have the following ability to meet the Project objectives:

1. The "No Clustering" Alternative would meet to a lesser degree the objective to maximize single-family housing opportunities in an area the Town has studied and approved for housing. This alternative would result in 21 single-family homes compared to 27 single-family homes under the proposed Project.
2. The "No Clustering" Alternative would meet to a lesser degree the objective to reduce wildfire risk at the site, increase access for fighting wildfires, and contribute to a more fire resilient community. With no comprehensive vegetation management plan across a site divided into private lots, the beneficial effects of vegetation management would likely not be as successful and wildfire risk and speed of spread would be as reduced as under the proposed Project.
3. The "No Clustering" Alternative would meet to a lesser degree the objective to make progress toward the Town's fair share low-income housing needs under the Housing Element of the Town's General Plan, enable a density bonus, and comply with the Town's inclusionary housing ordinance. This alternative would be required by the inclusionary housing ordinance to provide at least 3 of the single-family homes at an affordable level, compared to 12 affordable units under

the proposed Project. Meeting Town requirements would not trigger a density bonus. While new State laws and the large lot size would allow for an additional ADU on each lot, there would not necessarily be restrictions on affordability for these additional ADUs.

4. The "No Clustering" Alternative would not meet the objective to cluster development closest to existing infrastructure on relatively flat land, in a manner that preserves substantial open space and steep slopes, and fosters a sense of community. The proposed Project clusters development such that 90% of the site – about 68 acres - would be preserved as open space. This alternative would not include clustering at all but would instead divide the entire site into large private lots without preserving any substantial land as open space outside of private lots.

The "No Clustering" Alternative would not meet the Project Objective to cluster development and preserve open space and would only meet the other three objectives to a lesser degree than would the proposed Project. It is anticipated that access and grading challenges could be overcome in a financially feasible way; however a financial feasibility assessment could be submitted to verify financial feasibility if this alternative was pursued.

SUMMARY OF EVALUATION OF ALTERNATIVES

In addition to the discussion and comparison of impacts of the proposed Project and the alternatives, Section 15126.6 of the CEQA Guidelines requires that an "environmentally superior" alternative be selected and the reasons for such a selection disclosed. In general, the environmentally superior alternative is the alternative that would be expected to generate the least amount of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative selected may not be the alternative that best meets the goals or needs of the Town.

Table 20.1, on the following pages, provides a summary comparison of the environmental impacts of the alternatives compared to the proposed Project. The table lists the level of significance of the impacts of the proposed Project to each of the environmental topics areas analyzed in the EIR and shows whether the impacts anticipated under each proposed alternative would be similar to ("s"), greater ("+"), marginally greater ("s+"), lesser ("+"), or marginally lesser ("s-") than the proposed Project.

No significant and unavoidable impacts were identified under the proposed Project. All Project impacts are either less than significant or can be reduced to those levels through implementation of the mitigation contained in this Draft EIR. Because of the low impact of the proposed Project, differences between it and the Alternatives are confined to marginal increases or reductions in already less than significant impacts except in the case of the "No Project" Alternative, which avoids all impacts entirely, and the potential for construction-period impacts to cultural resources, which could be significantly increased under the "No Clustering" Alternative.

The "No Project' Alternative would not result in any substantial changes to the site or use and therefore, has the lowest possible impacts in every parameter. The "No Project" Alternative would be the environmentally superior alternative. However, the "No Project' Alternative does not meet any of the Project objectives.

The CEQA Guidelines also require that "if the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (CEQA Guidelines Section 15126.6(e)(2)). In general, the environmentally superior alternative minimizes adverse impacts to the environment, while still achieving the basic project objectives.

Because the "No Clustering" Alternative would require additional construction activities to prepare spread out development sites and longer driveways, it would result in a marginally greater construction impacts including the potential to significantly impact a known cultural resource at the site and is therefore not environmentally superior to the Project.

The "Larger Setback" Alternative and the Project would have similar impacts. The "Larger Setback" alternative would result in marginally greater impacts related to grading, including construction emissions and tree removals. Therefore, the Project is the next most environmentally superior alternative.

TABLE 20.1. SUMMARY COMPARISON OF IMPACTS, PROPOSED PROJECT AND ALTERNATIVES

ENVIRONMENTAL ISSUE AREA	Proposed Project	"No Project" Alternative	"Larger Setback" Alternative	"No Clustering" Alternative
AESTHETICS				
Would the project have a substantial adverse effect on a scenic vista?	**LTS**	-	s	s
Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	**LTS**	-	s	s
Would the project substantially degrade of 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?	**LTS**	-	s	s
Would the project create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	**LTS**	-	s	s
AGRICULTURAL, FOREST, AND MINERAL RESOURCES				
Would the project result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use; a conflict with existing zoning for agricultural use, or a Williamson Act contract; a 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)); the loss of forest land or conversion of forest land to no-forest land; or changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.?	**No Impact**	s	s	s
Would the project result in loss of availability of a known mineral resource that would be of future value to the region and the residents of the state; or loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	**No Impact**	s	s	s
AIR QUALITY				
Would the project conflict with or obstruct implementation of the applicable air quality plan?	**No Impact**	s	s	s

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ENVIRONMENTAL ISSUE AREA	Proposed Project	"No Project" Alternative	"Larger Setback" Alternative	"No Clustering" Alternative
Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	**LTS (w/MM)**	-	s+	s+
Would the project expose sensitive receptors to substantial pollutants?	**LTS**	-	s+	s+
Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	**No Impact**	s	s	s
BIOLOGICAL RESOURCES				
Would the project have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Services?	**LTS (w/MM)**	-	s	s
Would the project 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 Game, or the US Fish and Wildlife Service?	**LTS (w/MM)**	-	s	s
Would the project 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?	**LTS**	-	s	s
Would the project interfere substantially with the movement of any native resident of migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites?	**LTS**	-	s	s
Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	**LTS**	-	s	s
Would the project conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	**No Impact**	s	s	s
CULTURAL AND TRIBAL CULTURAL RESOURCES				
Would the project cause a substantial adverse change in the significance of a historical or archaeological resource pursuant to CEQA Guidelines Section 15064.5; or disturb any human remains, including those interred outside of formal cemeteries.	**LTS (w/MM)**	-	s	+
Would the project cause a substantial adverse change in the significance of a tribal	**LTS (w/MM)**	-	s	+

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ENVIRONMENTAL ISSUE AREA	Proposed Project	"No Project" Alternative	"Larger Setback" Alternative	"No Clustering" Alternative
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?				
GEOLOGY AND SOILS				
Would the project directly or indirectly cause substantial adverse effects, including the risk of loss, injury or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure including liquefaction, or landslides?	**LTS (w/MM)**	-	s	s
Would the project result in soil erosion or the loss of topsoil?	**LTS (w/MM)**	-	s+	s+
Would the project be located on a geologic unit or soil that is unstable (or would become unstable as a result of the project) and could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	**LTS (w/MM)**	-	s+	s+
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	**LTS (w/MM)**	-	s	s
Would the project have soils incapable of adequately supporting the use of septic tanks or alternate waste water disposal systems where sewers are not available for the disposal of waste water?	**No Impact**	s	s	s
GREENHOUSE GAS EMISSIONS				
Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	**LTS**	-	s+	s+
Would the project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	**No Impact**	s	s	s
HAZARDS AND HAZARDOUS MATERIALS				
Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	**LTS**	-	s+	s+
Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	**LTS**	-	s+	s+
Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school?	**No Impact**	s	s	s

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ENVIRONMENTAL ISSUE AREA	Proposed Project	"No Project" Alternative	"Larger Setback" Alternative	"No Clustering" Alternative
Would the project 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?	**No Impact**	s	s	s
For a project located within an airport land use plan area, would it result in a safety hazard or excessive noise for people residing or working in the project area?	**No Impact**	s	s	s
Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	**No Impact**	s	s	s
HYDROLOGY AND WATER QUALITY				
Would the project violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	**LTS (w/MM)**	-	s+	s+
Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	**No Impact**	s	s	s
Would the project alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner, which would result in substantial erosion or siltation on- or off-site?	**LTS (w/MM)**	-	s+	s+
Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would impede or redirect flood flows, result in flooding on- or off-site or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	**LTS (w/MM)**	-	s+	s+
In a flood hazard, tsunami or seiche zone, risk release of pollutants due to project inundation?	**No Impact**	s	s	s
Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	**No Impact**	s	s	s
LAND USE				
Would the project result in the physical division of an established community?	**No Impact**	s	s	s
Would the project cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or	**LTS**	-	s	s

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ENVIRONMENTAL ISSUE AREA	Proposed Project	"No Project" Alternative	"Larger Setback" Alternative	"No Clustering" Alternative
mitigating an environmental effect?				
NOISE				
Would the project result in 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?	**LTS**	-	s	s
Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	**LTS**	-	s	s
For a project 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 use airport, would the project expose people residing or working in the project area to excessive noise levels?	**LTS**	-	s	s
POPULATION AND HOUSING, PUBLIC SERVICES, AND RECREATION				
Would the project induce substantial unplanned population growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	**LTS**	-	s	s
Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	**No Impact**	s	s	s
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, fire protection, police protection, schools, parks, other public facilities?	**LTS**	-	s	s
Would the project result in increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or 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?	**LTS**	-	s	s
TRANSPORTATION AND CIRCULATION				
Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	**LTS**	-	s	s+

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ENVIRONMENTAL ISSUE AREA	Proposed Project	"No Project" Alternative	"Larger Setback" Alternative	"No Clustering" Alternative
Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3 [specifying criteria for analyzing transportation impacts]?	**LTS**	-	s	s+
Would the project substantially increase hazards due to a geometric design feature or incompatible uses?	**LTS**	-	s	s
Result in inadequate emergency access?	**LTS**	-	s	s
UTILITIES AND SERVICE SYSTEMS AND ENERGY				
Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	**LTS**	-	s	s+
Would the project have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	**LTS**	-	s	s+
Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	**LTS**	-	s	s+
Would the project generate solid waste in excess of State or local standards, or in excess of capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	**LTS**	-	s	s+
Would the project conflict with federal, state, and local management and reduction statutes and regulations related to solid waste?	**LTS**	-	s	s+
Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation or conflict with or obstruct state or local plan for renewable energy or energy efficiency?	**LTS**	-	s	s+
WILDFIRE				
Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	**LTS**	-	s	s+
Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	**LTS (wMM)**	-	s	s+

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ENVIRONMENTAL ISSUE AREA	Proposed Project	"No Project" Alternative	"Larger Setback" Alternative	"No Clustering" Alternative
Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	**LTS (w/MM)**	-	s	s
Would the project 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?	**LTS**	-	s	s

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REPORT PREPARERS AND REFERENCES

REPORT PREPARERS

This Draft EIR was prepared for the Town of Portola Valley as Lead Agency by Lamphier-Gregory in affiliation with the technical specialists listed below.

Town of Portola Valley
This document was prepared through coordination with Town of Portola Valley Planning & Building Director Laura Russell and other Town staff.

Lamphier-Gregory - Primary Report Preparers
4100 Redwood Rd., Suite 20A - #601
Oakland, CA 94619
510-535-6690
Rebecca Auld, Senior Planner
Jenna Sunderlin, Environmental Planner

Environmental Vision – Visual Modeling
Chuck Cornwall, Principal

Illingworth and Rodkin – Air Quality and Greenhouse Gas Emissions
Jay Witt, P.E., Senior Consultant
James A. Reyff, Principal

PaleoWest - Cultural and Tribal Cultural Resources
Christina Alonso, M.A., RPA
Ashley Schmutzler M.A., RPA
Angela Perri, Ph.D., RPA
John Eddy, M.A., RPA
Rachel Irwin, B.A.

Questa Engineering Corporation - Geology and Soils, Hydrology and Water Quality
Sydney Temple, PE., Senior Hydrologist
Willard Hopkins, PG, CEG, Certified Engineering Geologist

Illingworth and Rodkin - Noise
Micah Black, Staff Consultant
Michael S. Thill, Principal

Hexagon - Transportation
Kai-Ling Kuo, P. E., Senior Associate
Jocelyn Lee, EIT, Engineer

Wildland Res Mgt - Wildfire
Carol Rice, Natural Resource Manager and Fire Ecologist

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