

CHAPTER 13

HAZARDS AND HAZARDOUS MATERIALS

This chapter evaluates the potential for the Alpine Sierra Subdivision (proposed project) to result in impacts related to wildland fires and avalanches. Other potential impacts related to hazards and hazardous materials were evaluated in the Initial Study for the project (provided in Appendix A) and found to be less than significant. The analysis considers both Alternative A and Alternative B, as described in Chapter 3, Project Description.

In response to the Notice of Preparation for this Draft Environmental Impact Report (EIR), comments were received from the public raising concerns regarding the potential for the project area to be affected by wildfire, the adequacy of water supply for fire suppression, the adequacy of roadway access in the event of an evacuation due to wildfire, and the ability to provide emergency access to the site given the presence of potential avalanche hazard areas within the site, particularly at the project site access onto Alpine Meadows Road.

13.1 ENVIRONMENTAL SETTING

13.1.1 Hazardous Materials

Disturbance of and use of hazardous materials during construction and use of hazardous materials throughout long-term residential occupation of the project site could affect residents, workers, and visitors within and adjacent to the project site. These conditions can pose a risk of exposure to people or the environment due to accidental releases such as spills, or as a result of soil or groundwater contamination related to past uses. Transportation of hazardous materials through or near the project site could also pose hazards.

As defined in the California Health and Safety Code Section 25501, “hazardous material” means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons, or harmful to the environment if released.

“Hazardous waste” is a subset of hazardous materials. For the purposes of this Draft EIR, the definition of hazardous waste is taken from California Health and Safety Code Section 25117 and Title 22 of the California Code of Regulations, Section 66261.3. Hazardous wastes are wastes that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Existing Land Uses

The project site is currently undeveloped with no existing structures. An existing U.S. Department of Agriculture Forest Service trail traverses the eastern portion of the site. Bear Creek and an unnamed seasonal creek cross the site, and other minor ephemeral drainages are located in the northeast end of the site. White fir forest is the dominant plant community on a majority of the project site, which is characterized as an open forest populated with white fir (*Abies concolor*) and western white pine (*Pinus monticola*) trees.

Single-family residences are north of the project site, and condominiums and the Stanford Alpine Chalet are south of the site. Alpine Meadows Ski Resort is located adjacent to a portion of the southern site boundary; a large parking area associated with the resort is immediately south of the project site. Overhead power lines are present in the area, including along a portion of the southern site boundary.

Sensitive Receptors

Sensitive receptors are populations that could be particularly sensitive to hazardous materials released by activities related to a project. Populations that could be particularly sensitive to hazardous materials include older adults, people who are sick, children, and endangered or threatened species. Thus, sensitive receptors are typically identified as including land uses such as residential areas, nursing homes, hospitals, medical centers, schools, daycare centers, wildlife refuges, wetlands, water bodies, and other important habitat.

General construction activities at the project site have the potential to release hazardous materials. Residential land uses are the primary sensitive receptor in the vicinity. Residential neighborhoods are located adjacent to the north and south of the project site. Other land uses where people may be present in the area include the Alpine Meadows Ski Resort.

As described above, the project site contains two on-site drainage systems, including Bear Creek.

Environmental Data Resources Radius Map Report

As discussed in the Initial Study for Alternative A (provided in Appendix A), Environmental Data Resources (EDR) prepared a Radius Map Report for the project site (EDR 2013). Ten sites and 17 listings (several sites were identified on more than one database) within an approximately 0.25- to 0.5-mile radius of the project site were identified on federal, state, and/or tribal environmental databases (EDR 2013). The project site was not listed on any of the databases searched by EDR. No environmental conditions were identified as present on the site.

According to the report, three sites up-gradient or cross-gradient from the project site contain underground and/or aboveground storage tanks. Of these, two were listed as containing leaking

underground storage tanks; these sites received completion/closure notices. All of the other sites are down-gradient of the project site; of these sites, those that have had a recognized environmental condition have all received completion/closure notices (EDR 2013).

13.1.2 Wildfire

Regional Setting

This section was prepared with reference to the *Alpine Sierra Forest Health and Fire Assessment* (Whole Earth Forestry 2014, provided in Appendix J to this Draft EIR).

Frequent fires, generally every 7 to 15 years, have helped develop the ecosystems of the Sierra Nevada. In addition to naturally caused fires, Native American populations conducted burning regimes within forest terrain in the past. These fires cleared out underbrush, which reduced the likelihood of destructive forest fires. The extensiveness of these burning regimes influenced biodiversity, wildlife behavior, and vegetation development, including plant adaptations to fire. Many of these unique adaptations are exhibited throughout the tree and shrub species within the Alpine Meadows area (Appendix J).

Although Alpine Meadows is characterized by a history of fires and plant adaptation, more recent forest management practices and local development patterns have led to severe fires within the area. The absence of fire, in combination with logging and other land management practices, has led to a buildup of fuels, creating a threat to the natural environment and local residents (Appendix J).

The recent lack of fires is apparent in the forest and meadow ecosystems throughout Alpine Meadows. For example, the large expanses of meadow, combined with robust stands of quaking aspen (*Populus tremuloides*), have been reduced in size by the encroachment of conifer trees. Lodgepole pine (*Pinus contorta*), the primary meadow and aspen encroacher in Alpine Meadows, has thin bark and is often killed by low- to moderate-intensity fire when it is young. The lack of fire has allowed lodgepole pine to take over the highly fire-dependent meadows and quaking aspen stands. In addition, all of the forest surrounding Alpine Meadows is experiencing increased competition for water, nutrients, and light, leading to large amounts of dead and dying trees. This large amount of dead and dying trees has led to a substantial accumulation of fuels on the forest floor, which has greatly increased the fire danger. Finally, the lack of fire has led to a forest species composition shift to shade-tolerant trees such as white fir and red fir (*Abies magnifica*), which creates a thick understory and increases the risk of high-intensity fires (Appendix J).

California Public Resources Code Sections 4202–4204 and California Government Code Sections 51175–51189 require identification of fire hazard severity zones within California. The

California Department of Forestry and Fire Protection (CAL FIRE) has designated and mapped wildland fire risk zones within Placer County. Fire hazard severity zones are measured qualitatively based on vegetation, topography, weather, crown fire potential (tendency to burn upward into trees and tall brush), and ember production and movement. Fire hazard severity zones are defined by CAL FIRE as moderate, high, and very high fire hazard severity. The majority of the Alpine Meadows area is classified as a very high fire hazard severity zone.

The North Tahoe Fire Protection District provides fire and emergency medical services to the area. The Alpine Meadows area is surrounded by U.S. Department of Agriculture Forest Service lands.

Project Site Conditions

The project site is classified as a very high fire hazard severity zone (CAL FIRE 2007, 2008). The site has several ecosystem features such as riparian areas, rock outcrops, open meadows, aspen groves, lodgepole pines, and mixed conifer forest. These attributes are scattered throughout the project site. Like the rest of Alpine Meadows, the project site has experienced extensive fire exclusion. In addition, a lack of forest stewardship such as thinning, pruning, and/or burning to address the negative effects of fire exclusion have occurred. This has resulted in the current very high fire hazard conditions (Appendix J).

Currently, the forest on the project site consists of a thick understory of white and red fir trees with scattered mid-story and overstory pine and fir trees. Mid-canopy trees consist mainly of white and red firs. These trees grow as individuals and in thick clumps throughout the project site. Ponderosa pine (*Pinus ponderosa*), Jeffrey pine (*Pinus jeffreyi*), and western white pine make up a smaller component of the mid-canopy trees. This is the result of being outcompeted by the high percentage of shade-tolerant fir trees that have become established since fire suppression efforts began. Lodgepole pines are scattered throughout the project site, primarily as individuals. However, lodgepole pine forms a dense stand on the southwest portion of the site. The lodgepole pine in the southwest portion of the site is beginning to encroach upon a fairly young quaking aspen stand. The aspen stand extends beyond the encroaching lodgepole pine but is in poor form and beginning to die out of the stand. Ponderosa pine, Jeffrey pine, red fir, and white fir make up the overstory. The overstory consists of well-spaced scattered trees and dense groves of mature trees (Appendix J).

This dense understory of shade-tolerant fir is sometimes impenetrable and creates extensive fuel ladders to the mid- and upper canopy. Most of the mid-canopy trees appear healthy. However, throughout the stand, many of the trees are suffering from extensive competition. The increased competition in the mid-canopy trees is extensive because of the finite amount of growing space, nutrients, and especially water. This has resulted in a large number of dead and dying trees that

are beginning to fall out of the stand. Signs of declining tree health include dead and dying tops, chlorosis (yellowing of needles), increased cone production, and reduced vertical growth. Scattered snags and downed trees are visible throughout the project site, leaving the forest prone to wildfire. As with the mid-canopy trees, many of the overstory trees appear to be in good health. However, declining health, likely the result of encroaching and competing fir trees, is apparent throughout the stand. This is evident from the large numbers of dead and dying trees. The signs of dead and dying trees are similar to those found in the mid-canopy. Large snags and downed logs are scattered throughout the project site (Appendix J).

The closest fire station to the project site is Alpine Meadows Fire Station 56, located approximately 2.5 miles from the project site at 270 Alpine Meadows Road.

13.1.3 Avalanche

Regional Setting

In the 1980s, Placer County commissioned studies of avalanche hazard zones and produced maps delineating avalanche hazard areas. These hazard areas were divided into four categories displaying the anticipated probability of avalanche. The resulting avalanche hazard maps became the basis for Placer County's Potential Avalanche Hazard Area (PAHA) maps, which designate areas that are subject to potential avalanche danger with an occurrence probability of more than 1 in 100 per year. In determining land uses within these areas, the greatest concern is the determination of the maximum size avalanche that individual paths can produce (design avalanche) and the return period (e.g., 1 in 100 per year) of the design avalanche for individual avalanche paths. The PAHA maps were incorporated into the Placer County Avalanche Ordinance, which provides specifications for development within the PAHAs (Heywood 2013 [provided in Appendix J]).

The Alpine Meadows area is located within a maritime snowpack and avalanche climate. This climate is defined by deep, high-density snow packs and relatively warm temperatures. Most avalanches in this climate are directly caused by precipitation or wind (direct-action avalanches), and avalanches tend to occur during or immediately after storms. Mid-winter rains are common and have the potential to cause wet avalanches (Appendix J).

Project Site Conditions

Due to its location within a maritime climate, the primary avalanche risk on the project site is associated with large, direct-action avalanches that would result from intense extended storms with high rates and large amounts of precipitation accompanied by high winds. Additional risk could result from mid-winter rain falling on new snow layers with a deep snowpack.

Three areas within the project site were identified as PAHAs in the Placer County Avalanche Ordinance and Maps. In addition, an Avalanche Hazard Study was conducted for the project site that provides more detailed site-specific mapping and evaluation of these three areas. The map also includes an additional PAHA not previously mapped by the County (Appendix J). Figure 13-1, Avalanche Hazard Areas, shows Placer County's PAHAs and the areas of hazard, including refinements to the County PAHAs mapped by Heywood. The Tentative Subdivision Maps for both Alternative A and Alternative B also identify the avalanche hazard areas (see Appendix B to this Draft EIR).

One of the three Placer County PAHAs, labeled as P1 on Figure 13-1, is located near the site entrance at Alpine Meadows Road. This area of the project site is located below and directly across from the Buttress/Don's Nose avalanche path, a large, east-facing path with a history of producing avalanches that reach the Alpine Meadows Ski Resort parking lot, the Ginzton Road/Alpine Meadows Road intersection, and the site of the proposed project entrance. The path is approximately 1,000 vertical feet. Avalanches would originate near the top of the mountainside and large avalanche events could run to Bear Creek. An avalanche occurred on this path in 1982. The Placer County PAHA map reflects the path of this avalanche, which was determined to be the largest avalanche that this path could likely produce. Avalanche control personnel from the Alpine Meadows Ski Resort perform avalanche mitigation on this path. As shown on Figure 13-1, this PAHA includes the private on-site roadway connection to Alpine Meadows Road and extends off site to the north, south, and west.

The second of the three Placer County PAHAs, shown on Figure 13-1 as P2, is located in the approximate center of the project site, north of the existing Alpine Chalet Subdivision and south of John Scott Trail. As indicated in the Tentative Subdivision Maps included in Appendix B, this PAHA occurs within a small portion of Lot 2 under both Alternative A and Alternative B. This PAHA consists of "a rock outcropping with a short steep northwest facing 140 vertical foot slope. The western half of the slope is forested and the eastern half is an open rocky slope. Because of the slope steepness there is a potential for avalanche formation and release" (Heywood 2013; see Appendix J). Heywood also notes that there is no evidence of avalanche activity below this slope. If an avalanche were to originate on this slope, it would be predicted to terminate within the forest cover that lies below the slope, near John Scott Trail. Heywood provided a slightly altered delineation of this hazard area. As shown on Figure 13-1 and the Tentative Subdivision Maps provided in Appendix B, Heywood's map indicates that the hazard area extends farther to the southwest and is smaller than the Placer County PAHA.

To the east of PAHA P2, but still in the approximate center of the project site, Heywood mapped an additional potential avalanche hazard area that is not a designated Placer County PAHA. This PAHA is labeled as H1 on Figure 13-1. This area is smaller than PAHA P2 and consists of a 50-foot vertical rock outcropping. It is located in the approximate center of Lot 3 of Alternative A and is split between Lot 2

and Lot 3 of Alternative B, as shown in the Tentative Subdivision Maps in Appendix B. This area is characterized by Heywood as an area susceptible to snow failure and avalanche under certain conditions, and does not otherwise meet the County criteria for designation as a County PAHA. Heywood further determined that with construction of the onsite subdivision road above this area that the potential for avalanche would be decreased or eliminated, and that prohibition of construction in this area or incorporation of the rock outcrop into residential design would eliminate any potential hazard, as discussed further under Impact 13.2.

The third of the three Placer County PAHAs, labeled as P3 on Figure 13-1, is located in the southeast corner of the project site on a short, steep, north-facing slope located generally east of the existing Alpine Chalet Subdivision. At the top of this slope (generally on its eastern side) is a steep area with rock outcroppings and two well-defined chutes. Damage to vegetation and forest cover indicates that this slope produces avalanches with the potential to run down the slope (generally westward) for approximately 300 vertical feet, which equates to an elevation of approximately 6,900 feet. Heywood's mapping of this hazard area consists of a smaller hazard zone with borders closer to the southeast project boundary (Appendix J). Neither alternative would result in construction of homes or other improvements susceptible to damage by avalanche in this area.

13.2 REGULATORY SETTING

13.2.1 Federal Regulations

International Fire Code

The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The IFC and the International Building Code use a hazards classification system to determine what protective measures are required to protect life and safety in relation to fire. These measures may include construction standards, separation from property lines, and specialized equipment. To ensure that these safety measures are met, the IFC employs a permit system based on hazard classification. The IFC is updated every 3 years.

13.2.2 State Regulations

California Fire Code

The California Fire Code is Chapter 9 of Title 24 of the California Code of Regulations. It was created by the California Building Standards Commission and is based on the IFC created by the

International Code Council. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The California Fire Code regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The California Fire Code and the California Building Code use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separation from property lines, and specialized equipment. To ensure that these safety measures are met, the California Fire Code employs a permit system based on hazard classifications. The code is updated every 3 years.

California Board of Forestry and Fire Protection – SRA Fire Safe Regulations

The State Responsibility Area (SRA) Fire Safe Regulations constitute the basic wildland fire protection standards of the California Board of Forestry. These regulations have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction and development in SRAs. They are found in California Code of Regulations Title 14, Division 1.5, Chapter 7, Subchapter 2. They require that the design and construction of structures, subdivisions and developments in an SRA provide for basic emergency access and perimeter wildfire protection measures. These measures shall provide for emergency access; signing and building numbering; private water supply reserves for emergency fire use; and vegetation modification. With respect to ingress and egress, The SRA Fire Safe Regulations require that road and street networks must “provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency.” Specific requirements include a minimum road width of two 10-foot travel lanes, surfacing that can support fire fighting equipment, a maximum grade of 16%, restrictions on horizontal and vertical curves, requirements for turnarounds on dead-end streets, and requirements for design of roadway turnouts. The requirements also establish the maximum allowable lengths of dead-end streets, regardless of the number of parcels served by a road as follows:

- A maximum length of 800 feet where zoning allows parcel sizes less than one acre;
- A maximum length of 1,320 feet where zoning allows parcel sizes between one acre and 4.99 acres;
- A maximum length of 2,640 feet where zoning allows parcel sizes between 5 and 19.99 acres; or
- A maximum length of 5,280 feet where zoning allows parcel sizes at least 20 acres or larger.

CAL FIRE Wildland–Urban Interface

CAL FIRE regulates fire safety throughout the state through a variety of fire protection laws, including the designation of fire hazard areas (CAL FIRE 2012). California Public Resources Code 4251–4299 provides for permitted activities and procedures for development within fire hazard areas, including the establishment and management of defensible space (buffers managed to ensure fuel reduction around structures). CAL FIRE regulates SRAs, which are areas where the state has primary responsibility for fire prevention and protection services (as opposed to local and/or federal agencies). Within SRAs, developers must provide for emergency access, signs and building numbering, private water supply reserves for emergency fire use, and vegetation modifications.

Public Resources Code 4290 required CAL FIRE to adopt regulations regarding minimum requirements for road access to land uses within SRAs and high fire hazard areas. These regulations are now contained within the SRA Fire Safe Regulations as discussed previously.

Public Resources Code 4291 establishes requirements for individual property owners to maintain 100 feet of defensible space around their structures, or maintain defensible space up to their property boundary where it is less than 100 feet from a structure. The code states that the vegetation management efforts to maintain defensible space will be most intensive within 30 feet of all structures and less intensive between 30 and 100 feet.

Senate Bill 1241

Senate Bill 1241 requires cities and counties to make certain findings regarding available fire protection and suppression services prior to approving a tentative map or parcel map. The design and location of the subdivision must be consistent with the regulations of the State Board of Forestry and Fire Protection, pursuant to Sections 4290 and 4291 of the California Public Resources Code (as discussed previously). It must be demonstrated that fire protection and suppression services will be available for the project. Additionally, the ingress and egress for the subdivision must meet the standards for fire equipment access; signage identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts pursuant to Section 4290 of the California Public Resources Code and any applicable local ordinance (California Government Code 66474.02). Further, this section of the California Government Code requires that the County make the following three findings before approving a tentative map for an area located in an SRA or a very high fire hazard severity zone:

1. A finding supported by substantial evidence in the record that the design and location of each lot in the subdivision, and the subdivision as a whole, is consistent with any applicable regulations adopted by the State Board of Forestry and Fire Protection pursuant to Sections 4290 and 4291 of the Public Resources Code.

2. A finding supported by substantial evidence in the record that structural fire protection and suppression services will be available for the subdivision through any of the following entities:
 - a. A county, city, special district, political subdivision of the state, or another entity organized solely to provide fire protection services that is monitored and funded by a county or other public entity; or
 - b. The Department of Forestry and Fire Protection by contract entered into pursuant to Section 4133, 4142, or 4144 of the Public Resources Code.
3. A finding that ingress and egress for the subdivision meets the regulations regarding road standards for fire equipment access adopted pursuant to Section 4290 of the Public Resources Code.

13.2.3 Local Regulations

Placer County General Plan

The Placer County General Plan contains a range of goals and policies on safety considerations related to hazards and hazardous materials (Placer County 2013). This chapter focuses on the potential safety hazards associated with hazardous material use at the project site, as well as hazardous conditions such as wildfires and avalanches. The goals listed below are applicable to the analysis of the proposed project's impacts associated with hazards and hazardous materials. An analysis of the project's consistency with general plan policies that support the goals listed below and other goals related to resource protection is provided in Appendix C to this Draft EIR.

Goal 8.A: To minimize the loss of life, injury, and property damage due to seismic and geological hazards.

Policy 8.A.8: County shall continue to support scientific geologic investigations which refine, enlarge, and improve the body of knowledge on active fault zones, unstable areas, severe ground shaking, avalanche potential, and other hazardous conditions in Placer County.

Goal 8.C: To minimize the risk of loss of life, injury, and damage to property and watershed resources resulting from unwanted fires.

Policy 8.C.1: The County shall ensure that development in high-fire-hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards and meets all applicable state and County fire standards.

Policy 8.C.2: The County shall require that discretionary permits for new development in fire hazard areas be conditioned to include requirements for fire-resistant vegetation, cleared fire breaks, or a long-term comprehensive fuel management program. Fire hazard reduction measures shall be incorporated into the design of development projects in fire hazard areas.

Policy 8.C.3: The County shall require that new development meets state, County, and local fire district standards for fire protection.

Policy 8.C.4: The County shall refer development proposals in the unincorporated County to the appropriate local fire agencies for review for compliance with fire safety standards. If dual responsibility exists, then both agencies shall review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall be applied.

Policy 8.C.5: The County shall ensure that existing and new buildings of public assembly incorporate adequate fire protection measures to reduce the potential loss of life and property in accordance with state and local codes and ordinances.

Goal 8.G: To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment and disposal of hazardous materials and hazardous materials wastes.

Goal 8.H: To minimize the risk of loss of life, injury, and damage to property due to avalanche.

Policy 8.H.1: The County shall maintain maps of potential avalanche hazard areas.

Policy 8.H.2: The County shall require new development in areas of avalanche hazard to be sited, designed, and constructed to minimize avalanche hazards.

Policy 8.H.3: The County shall not issue permits for new development in potential avalanche hazard areas (PAHA) as designated in the Placer County *Avalanche Management Ordinance* unless project proponents can demonstrate that such development will be safe under anticipated snow loads and conditions of an avalanche.

Placer County Code

Article 9.32 of the Placer County Code, Fire Prevention, establishes fire hazard regulations within Placer County. Article 9.32 requires the maintenance of fire breaks and defensible space within developed areas and on unimproved parcels, regulates storage of explosives and hydrocarbon liquids, and establishes requirement for overall fire protection. Property

owners have the responsibility to maintain their property under the enforcement of Placer County's Fire Warden.

Article 12.40 of the Placer County Code, Avalanche Management Areas, defines and establishes policies for development and mitigation within PAHAs. Article 12.40 is not intended to preclude the development of any parcel, but rather to promote awareness of avalanche-related issues and proper design and construction specifications for high-risk areas. Article 12.40 requires that a California licensed architect or engineer experienced in snow design coordinate with a recognized avalanche expert to certify that any proposed structures will be safe under the anticipated loads and conditions of an avalanche. A site-specific avalanche study is also required under Article 12.40.

Placer County Office of Emergency Services

Placer County's Office of Emergency Services provides emergency management services in cooperation with local cities and special districts, including fire agencies. During an active incident, such as fire or flood, the Office of Emergency Services helps initiate first responses. The functions of the Office of Emergency Services include preparedness, including emergency planning, response, recovery, and mitigation, including preparation of a Local Hazard Mitigation Plan. The Placer County Local Hazard Mitigation Plan, which was last updated in April 2010, is a joint effort between Placer County and 15 other jurisdictions, including the North Tahoe Fire Protection District, and is intended to guide hazard mitigation planning to reduce the effects of hazard events, including wildfires.

Alpine Meadows General Plan

The Alpine Meadows General Plan (Placer County 1968) does not provide goals, policies, or objectives relevant to the analysis of impacts related to hazards and hazardous materials.

Alpine Meadows Community Wildfire Protection Plan

Geoarch Sciences and C.G. Celio & Sons prepared a Community Wildfire Protection Plan for the Alpine Meadows area in October 2005. This plan is reviewed and enforced by the Alpine Springs County Water District and the North Tahoe Fire Protection District. The plan identifies wildfire risks within Alpine Meadows and specifies fire protection needs and mitigation programs to reduce risk. The plan prioritizes the establishment of defensible space, the use of flame-resistant building materials and landscaping, and vegetation management as wildfire mitigation strategies within Alpine Meadows.

13.3 IMPACTS

13.3.1 Significance Criteria

The analysis in the Initial Study (Appendix A) found that the proposed project would have no impact related to the following criteria:

- Would the project create a significant hazard to the public or environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials?
- 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?
- Would the project emit hazardous emissions, substances, or waste within one-quarter mile of an existing or proposed school?
- Would the project be located on a site which is include on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would the project create a significant hazard to the public or the environment?
- For such a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing in the project area?
- Would the project create any health hazard or potential health hazard?
- Would the project expose people to existing sources of potential health hazards?

Therefore, these topics are not discussed further in this Draft EIR.

The analysis below evaluates the potential for the proposed project to result in significant hazards and hazardous-materials-related impacts according to the following criteria:

- Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?
- Would the project expose people or structures to significant risk of loss, injury, or death involving avalanches?

13.3.2 Impacts

Impact 13.1

Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Significance and Mitigation	Alternative A	Alternative B
Significance before mitigation:	Potentially significant	Potentially significant
Mitigation measures:	Mitigation Measures 13.1a and 13.1b	Mitigation Measures 13.1a and 13.1b
Significance after mitigation:	Less than significant	Less than significant

Alternative A Impacts

Existing residential development interspersed with fir and pine forests are located north and south of the proposed project site. Although Alternative A would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan, the introduction of additional residential structures to the area under Alternative A could present an increased potential for wildland fires associated with human error, utilities, and automobiles, and the impact would be **potentially significant**.

Fuels Reduction

As discussed in Section 13.1, Environmental Setting, the tree canopy on the project site is characterized by a thick fir understory and a number of dead and dying trees. These features increase the risk of high-intensity fires on site. The addition of residents to the project site would increase both the likelihood of accidental fires and the damage such fires could cause to structures and human life. Mitigation Measure 13.1a requires the assessment of all trees that pose a risk to life and property by qualified personnel both prior to and after the completion of development. Implementation of Mitigation Measure 13.1a would ensure that individual trees posing a hazard to people within the project site would be maintained and/or removed to minimize the risk of wildfire.

In addition, Alternative A includes vegetation management activities, as described in the Alpine Sierra Forest Management and Fuel Reduction Plan provided in Appendix J. These activities are intended to ensure that fuel reduction activities implemented on site would reduce the risk that a high-intensity fire could occur on site and would contribute to restoration of a healthy forest ecosystem within the project site. As described in the Alpine Sierra Forest Management and Fuel Reduction Plan, fuels reduction activities on site would be focused on the following goals:

- Improving tree stand health.

- Reducing wildfire threat.
- Maintaining and/or increasing wildlife habitat.
- Improving the health of the trees most suited to the site.
- Emulating a plant regime similar to what would occur with natural fire.
- Making fire-suppression efforts safer and more effective.

These goals would be met by implementing a variety of vegetation management activities, including pruning and thinning. Alternative A would require implementation of these forest management activities prior to approval of any Final Map. Following the recordation of a Final Map for the project, Covenants, Conditions, and Restrictions (CC&Rs) would transfer this responsibility to the homeowners' association to carry out ongoing forest management and fuel management activities. The on-site property manager would implement the fuel management practices during the summer.

The Alpine Sierra Forest Management and Fuel Reduction Plan establishes four fuel management zones throughout the project site: Fire Free Zone, Structural Protection Zone, Defensible Space Zone, and Wildland Fuel Reduction Zone. "Each zone represents a different set of fuel reduction goals. These goals range from eliminating the spread of all fire, to increasing forest health and fire resiliency surrounding a community" (Appendix J).

The Fire Free Zone is defined as the area including a residence and all areas within 5 feet of the residence. In this zone, all flammable material must be removed. Well-irrigated plants may be placed in this zone as long as they do not touch the residence.

The Structural Protection Zone is defined as all areas within 30 feet of the Fire Free Zone. This zone combined with the Fire Free Zone would compose 24 acres of the project site. "This zone provides a sufficient safety area for fire suppression personnel and resources during a wildfire" (Appendix J). Fuels reduction practices within this zone include the following:

- Vegetative material should be well spaced (crowns should not be touching) and in a healthy condition.
- Remove limbs that overhang structures.
- Reduce vertical and horizontal continuity of trees and shrubs.
- Vegetative fuels should be pruned and kept free of accumulations of dead material.
- Reduce surface and ladder fuels (prune trees approximately 6–10 feet high, or 50% of the live crown for shorter trees [12-foot to 20-foot tall trees]).
- Select leave trees as described below.

- Shrubs should be low growing and free of dead materials.
- Thin shrubs so that spacing is approximately 3 times the height of residual shrubs.

The Defensible Space Zone extends 100 feet from the Structural Protection Zone or to the property line, whichever is greater. This zone will make up approximately 12 acres of the project site. Areas within this zone would be subject to fuels reduction practices including the following:

- Reducing surface and ladder fuels up to 90%.
- Removing logs and stumps, unless embedded in the forest floor (remove vegetation and timber litter from around logs and stumps that remain on site).
- Pruning lower branches of leave trees.
- Thinning to enhance the growth of leave trees and to increase species diversity.
- Select leave trees as described below.

The fuels reduction, thinning, and pruning activities would be carried out in accordance with the forest management actions described for the Wildland Fuel Reduction Zone below.

The Wildland Fuel Reduction Zone extends an additional 100 to 200 feet or more from the Defensible Space Zone, covering an additional 9 acres of the project site. Forest management and fuel reduction actions in this zone would include the following:

- Thin trees and shrubs utilizing variable-density thinning throughout the stand. This approach includes leaving small areas of dense vegetation while creating and or maintaining openings where increased sunlight can reach the ground. Thinning activities focus on removing small diameter (generally 10 inch DBH [diameter at breast height] or less) suppressed and/or dead trees, shrubs, and limbs while maintaining wildlife structures. It is also important to retain trees that provide a wide variety of ages, sizes, and decay status.
- Selection criteria would be used to identify trees to be retained during forest thinning. Trees to be retained would meet the following criteria:
 - Conifers that are free from disease and damage.
 - Trees that have a 30%+ live vigorous crown.
 - Trees that will provide for the desired species mixture composition provided retained trees are at least 2/3 the height of codominant trees.
 - Trees that have good form; however, at least 10% of existing deformed trees, e.g., two-way sweep, spiral grain, forked trees, shall be retained).

- Healthy and vigorous trees as determined by a Registered Professional Forester or certified arborist.
- Trees meeting the following species prioritization list, where the trees selected for retention meet all other requirements such as those for tree health and vigor:
 - Quaking aspen.
 - Willow and other hardwoods.
 - Western white pine.
 - Jeffrey pine.
 - Ponderosa pine.
 - Lodgepole pine.
 - Red fir.
 - White fir
- Release quaking aspen stands by removing competing vegetation. Remove most of the encroaching fir and lodgepole pine trees where aspen is being shaded out.
- Thin residual trees to spacing of approximately 15 feet between tree crowns.
- Drip line thin around leave trees (clearing of ladder fuels under the drip-line circumference of a leave tree.).
- Reduce ladder fuels by thinning (pruning) lower branches of leave trees. This practice can be completed on up to 90% of the retained trees.
- Retain meadow and rock outcrop openings by cutting encroaching conifers and shrubs from openings and edges. Thin trees and shrubs more heavily along meadow edges to minimize wildfire risk.
- Reduce ladder fuels by thinning (pruning) lower branches of leave trees. This practice can be completed on up to 90% of the leave trees.
- Retain a wide variety of age, size, and decay classes, including dead and dying vegetation and snags, consistent with fire hazard reduction goals.
- Retain some deformed trees (e.g., pistol butts, forked tops, dead tops) for genetic diversity and wildlife.
- Reduce by 40% to 60% the fuels on the forest floor while leaving several large logs per acre to retain moisture and provide wildlife habitat.

Project Site Access

Road A would provide the singular point of access to Alternative A. Placer County's Zoning Code, Section 17.54.100.C.1.d, for residential development projects requires that at least two vehicle entry/exit points be provided or planned for adequate circulation and emergency purposes, unless otherwise determined by the Planning Commission. Additionally, the SRA Fire Safe Regulations found in California Code of Regulations Title 14 establish a maximum allowable length for dead-end roads where parcel sizes are less than one acre of 800 feet. Due to the surrounding terrain and ownership, no practical alternative has been identified that would provide two access points to the project site or limit the dead-end road to a maximum length of 800 feet. (The infeasibility of access alternatives is discussed in greater detail in Chapter 7, Transportation and Circulation).

Senate Bill 1241 requires cities and counties to make certain findings regarding available fire protection and suppression services prior to approving a tentative map or parcel map. The design and location of the subdivision must be consistent with the regulations of the State Board of Forestry and Fire Protection, pursuant to Sections 4290 and 4291 of the California Public Resources Code (as discussed previously). This includes the requirements promulgated under Section 4290 for the maximum length of dead-end roads. It must be demonstrated that fire protection and suppression services will be available for the project. Additionally, the ingress and egress for the subdivision must meet the standards for fire equipment access, pursuant to Section 4290 of the California Public Resources Code and Section 4.08 of the Placer County Land Development Manual, which limits the maximum length of a dead-end roadway to 800 feet for parcels less than 1 acre unless otherwise approved by the County and the serving fire agency. While neither Alternative A or Alternative B would have a secondary egress, Placer County and the applicant have coordinated extensively with the serving fire agency to develop mitigation measures that are incorporated into both project alternatives to provide a high level of emergency preparedness.

Implementation of Mitigation Measure 13.1a as well as ongoing forest management and fuel reduction measures would reduce the risk of wildfire initiation and spread on site. The project would be required to comply with the provisions of the project-specific Development Standards, the California Building Code (including Chapter 7 of the California Building Code, Fire and Smoke Protection Features), and the California Fire Code related to installation of building sprinklers, installation of on-site fire hydrants, and the use of noncombustible exterior building materials. Placement of hydrants and fire flow would be determined during final site design in consultation with the North Tahoe Fire Protection District.

Provision of fire protection services to the project is discussed in Chapter 14, Public Services and Utilities. Emergency access to and from the project site is discussed in Chapter 7, Transportation and Circulation. Mitigation Measure 13.1b requires the project applicant to obtain a will-serve

letter from the North Tahoe Fire Protection District and to purchase and donate to the North Tahoe Fire Protection District a standard four-wheel-drive Type 1 pumper truck with a 1,500-gallon-per-minute pump and a 750-gallon water tank. Mitigation Measure 13.1b also requires the project applicant to obtain a will-serve letter from the Alpine Springs County Water District to ensure that adequate water supplies are available to the site for fire suppression. Mitigation Measure 13.1c requires the project applicant to prepare an Emergency Preparedness and Evacuation Plan (EPEP) specific to Alternative A and to obtain County approval a phase-specific EPEP with each phase of the project. Additionally, Mitigation Measure 13.1d requires the Homeowners' Association to implement and administer the EPEP throughout all project phases.

With implementation of Mitigation Measures 13.1a through 13.1d, the project design would meet the intent of the ingress and egress requirements of the SRA Fire Safe Regulations to provide "safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency" and the impact would be reduced to **less than significant**.

Alternative B Impacts

As under Alternative A, the introduction of additional residential structures to the area under Alternative B could present an increased potential for wildland fires associated with human error, utilities, and automobiles. Further, the design of Alternative B includes a dead-end road that is greater than 800 feet in length. Impacts associated with increasing risks of exposing people to wildfires would be **potentially significant**.

Because a secondary access road is not feasible, other components of the project are proposed to be enhanced to ensure that residents and guests would be safe if they remained within the project site during a fire, avalanche or other emergency, as described in the EPEP (Appendix J). The EPEP is designed to coordinate emergency preparedness for the Alpine Sierra Subdivision and plan for response to emergency events, such as fire and avalanche, and includes the following measures:

- Internal roads will be maintained by the HOA,
- Homes will be constructed with fire-resistant building materials and fire sprinklers,
- The entire project site will be treated and managed as defensible space,
- HOA buildings will be designed, constructed, and operated to serve as Shelter-in-Place facilities for project occupants,
- Easements will be recorded for emergency vehicle access through the project site to United States Forest Service (USFS) property boundaries in two locations to allow for a connection through USFS lands in the future should the USFS determine that looped access throughout Bear Creek Valley could be provided,

- Evacuation protocols and shelter in place procedures will be developed for each project phase in conjunction with the County Planning Division and North Tahoe Fire Protection District. Information pertaining to emergency evacuations and shelter in place procedures will be disseminated to all homeowners and guests and the HOA caretaker will maintain a website with emergency response information and capabilities such as email and text notification in the event of an emergency,
- Signage will be placed along all subdivision roadways to indicate evacuation route direction and to direct persons to the shelter in place location(s), and
- A changeable copy sign will be installed along the subdivision roadway and will be activated during emergencies to display critical information.

Implementation of the forest management policies detailed under “Alternative A Impacts” and Mitigation Measures 13.1a through 13.1d would reduce the impact to **less than significant** by ensuring that the project design provides for safe access for emergency wildland fire equipment and unobstructed traffic circulation during a wildfire emergency and provides for the local population to shelter-in-place when evacuation is not feasible.

Mitigation Measures

MM 13.1a: Prior to Improvement Plan approval, all trees that pose a risk to life and property shall be assessed by qualified personnel such as a certified arborist or Registered Professional Forester to the satisfaction of the Planning Services Division and a Fuel Modification Plan shall be approved by the North Tahoe Fire Protection District. The Fuel Modification Plan shall identify all hazard trees that pose a significant risk to life and/or property and shall include maps indicating the location of trees proposed for removal and the proposed procedures for removal. Locations of hazard trees shall also be indicated on Improvement Plans. All hazard trees within common areas (outside of individual lots) shall be removed with the onsite subdivision improvements. Where hazard trees occur within individual lots, removal of those trees must be included on Improvement Plans for the individual lot.

MM 13.1b: The project applicant shall implement Mitigation Measures 14.1a and 14.1b requiring the applicant to submit will-serve letters from the North Tahoe Fire Protection District and Alpine Springs County Water District to Placer County prior to recordation of the Final Map, to purchase and donate a pumper truck to the North Tahoe Fire Protection District, and to make a fair-share contribution to the Alpine Springs County Water District toward the cost of upgrading three system-wide pump stations.

MM 13.1c Under Alternative A, the project shall prepare and implement an Emergency Preparedness and Evacuation Plan (EPEP). The EPEP shall establish requirements for the following:

- Maintenance of internal roads by the Homeowners Association (HOA),
- On-site storage of snow removal equipment,
- Use of fire-resistant building materials for home construction,
- Minimum standards to be met such that homes can be used as Shelter-in-Place facilities for project occupants,
- Fuel reduction treatment and management of the entire project site, and
- Recordation of easements for emergency vehicle access through the project site to United States Forest Service (USFS) property boundaries in two locations to allow for a connection through USFS lands in the future should the USFS determine that looped access throughout Bear Creek Valley could be provided.

Under Alternative B, the project shall implement the proposed EPEP, which addresses maintenance of internal roads, on-site storage of snow removal equipment, use of fire-resistant building materials for home construction, minimum standards that will allow for the HOA facility to be used as a Shelter-in-Place facility, fuel reduction, and recordation of easements for emergency vehicle access through the project site.

Under either alternative, prior to approval of Improvement Plans for each project phase, the applicant shall receive final approval from the Planning Services Division of an Emergency Preparedness and Evacuation Plan (EPEP) to detail the specific emergency preparedness measures incorporated into the project phase. Physical improvements of the EPEP, such as directional signage, shall be shown on the Improvement Plans. Additionally, under either alternative, the first phase EPEP must specify that if an avalanche occurs that affects Alpine Meadows Road and Road A, the HOA must hire a private contractor to clear the avalanche from the onsite private roadway.

MM 13.1d Prior to recordation of each Final Subdivision Map, Conditions, Covenants, and Restrictions (CC&Rs) shall be prepared and submitted for review and approval by the Engineering and Surveying Department, County Counsel, and other appropriate County Departments. CC&Rs shall be recorded concurrently with the filing of the Final Subdivision Map and shall contain notifications for the provision of an Emergency Preparedness and Evacuation Plan (EPEP). The

provision shall specify, at a minimum, that the EPEP shall be provided to each property owner upon the sale of any lot or improved lot in this subdivision and that ongoing implementation of the EPEP shall be the responsibility of the Homeowners’ Association.

Impact 13.2

Would the project expose people or structures to significant risk of loss, injury, or death involving avalanches?

Significance and Mitigation	Alternative A	Alternative B
Significance before mitigation:	Potentially significant	Potentially significant
Mitigation measures:	Mitigation Measures 13.2a and 13.2b	Mitigation Measures 13.2a and 13.2b
Significance after mitigation:	Less than significant	Less than significant

To determine the maximum runout distance and return period for avalanche paths in the project area, the Avalanche Hazard Study (Appendix J) incorporated long-term observations of avalanche deposits; observations of damage to vegetation, ground, and structures; and searches of the historical record. As documented in the Avalanche Hazard Study and discussed in section 13.1, Environmental Setting, Placer County has designated three PAHAs within the project site. One of Placer County’s PAHAs, labeled as P3 on Figure 13-1, is mapped in the far southeastern corner of the project site. This area is proposed to be zoned as open space under both project alternatives. Another Placer County PAHA, shown as P1 on Figure 13-1, is mapped in the far southwestern corner of the project site. Development proposed for this area under both project alternatives would consist of Road A, which would serve as the project site entrance from Alpine Meadows Road. A third Placer County PAHA, shown as P2 on Figure 13-1, is mapped in the central portion of the project site, north of the Alpine Chalet Subdivision. Development within this PAHA would consist of Road A. To the east of the centrally located Placer County PAHA, the Avalanche Hazard Study mapped a small area, labeled on Figure 13-1 as H1. This area includes a rock outcropping that is indicated as having the potential to produce an avalanche.

Alternative A and Alternative B Impacts

Avalanche Path P1

Road A is proposed for construction within PAHAs P1 and P2. Road A constitutes the single point of ingress/egress for Alternative A and Alternative B. Although the probability of avalanche is low, interruption of the private road easement due to snowpack is considered a **potentially significant** impact. The slide path of PAHA P1, known as the Buttress/Don’s Nose avalanche path, is located west of the project site on an east facing slope of the Alpine Meadows Ski Resort property. It

begins several hundred feet above Alpine Meadows Road and the slide run out path crosses Alpine Meadows Road eastward onto the project site potentially reaching as far as 600 feet into the location of the onsite roadway, but stopping short of reaching any proposed residential lots. The last known avalanche to affect this portion of the project site was in 1982.

In the event of an avalanche from PAHA P1, a slide that reached proposed Road A would also impact Alpine Meadows Road and emergency road maintenance crews would be deployed to clear the avalanche to restore access to Alpine Meadows Road. Emergency crews could potentially assist with removal of avalanche deposits from onsite Road A if the avalanche reached far enough to inundate the onsite private roadway and an emergency event within the project mandated this emergency snow removal. However, snow removal from an avalanche under all other circumstances would be the responsibility of the HOA.

Phase B of both project alternatives would include construction of an HOA maintenance facility which would house snow removal equipment. Once Phase B is constructed snow removal equipment would be located on the project site and HOA staff would work to restore site access in the event of a large avalanche covering Alpine Meadows Road and the onsite roadway in the location of PAHA P1. Prior to construction of Phase B, if an avalanche occurred in PAHA P1 that extended across Alpine Meadows Road project residents and guests would have to wait for County road maintenance crews to clear the avalanche to restore access to Alpine Meadows Road. If the avalanche also affected the onsite roadway, the HOA would be required to hire a private contractor to clear the avalanche from the onsite private roadway, as stated in Mitigation Measure 13.1c. Under Phase A, it is expected the HOA would retain a snow removal contractor for general snow removal and snow maintenance, and could rely upon their existing contractor for snow removal that may be needed following an avalanche. Depending upon the size of the avalanche, roadway access could be unavailable for several hours to several days, a situation that already exists as there are several locations along Alpine Meadows Road that are susceptible to avalanche with one or more avalanches closing the road for hours to days during a typical winter. If Phase A of either alternative were to develop prior to Phase B, roadway service impacts to the onsite roadway could be intermittently disrupted. However, an avalanche from PAHA P1 affecting the onsite roadway would result in closure of Alpine Meadows Road and access to the project site would be temporarily limited until the avalanche is cleared and access restored. Accordingly, the potential for temporary impacts to site access from PAHA P1 during operation of Phase A under either alternative would be **less than significant**.

Avalanche Path P2

The Avalanche Hazard Study concluded that construction of Road A across PAHA P2 would significantly decrease the runout distance of avalanches from PAHA P2's slope and may decrease or eliminate avalanche activity (Appendix J). Construction of the roadway, which

requires creation of a roadway cut of approximately 9 feet, would cut through the head of the avalanche starting zone, effectively disrupting and partially eliminating the portion of the PAHA where dangerous slab avalanches would develop. In addition, roadway snow removal would result in vertical and horizontal mixing of snow on the downslope side of the road into uneven-aged snowpack (discontinuity), which counteracts formation of slab avalanche conditions. While construction of Road A could decrease the likelihood of avalanches occurrences in PAHA P2, MM 13.2a would require Alternative A to own and operate its own snow removal equipment, such as a front loader, in order to ensure that Road A remains accessible to the eastern development pod in the event of an avalanche in PAHA P2. MM 13.2a would also require the project to include an on-site employee unit to house personnel who would be responsible for snow management. Implementation of MM 13.2a would reduce impacts to project ingress and egress due to snow pack to **less-than-significant** levels.

Avalanche Path P3

As stated in Section 13.1, Environmental Setting, neither alternative would result in construction of homes or other improvements susceptible to damage by avalanche in this area.

Avalanche Path H1

As indicated in the Avalanche Hazard Study, it is possible that Road A would eliminate or decrease the size of the small avalanche path, H1, mapped in the center of the project site. While it is probable that grading for driveways and foundations and construction of residences on these lots could reduce or eliminate the small avalanche hazard area, H1, impacts to proposed structures associated with the H1 avalanche hazard area is considered **potentially significant**.

The potential avalanche path identified as H1 is located in the eastern portion of Lot 2 and the western and central portion of Lot 3 of Alternative A. Under Alternative A this area would be graded and the rock outcropping removed thereby eliminating the potential for avalanche.

Mitigation Measure 13.2b requires the design of Lot 3 to comply with the recommendations found in the Avalanche Hazard Study, including that the structure on Lot 3 either be built to avoid this small avalanche path or be built to incorporate the rock outcropping as part of the structure design, thereby hindering snow buildup on the rock (Appendix J). Implementation of Mitigation Measure 13.2b would ensure that risks associated with this path would be reduced to **less-than-significant** levels.

Additionally, under Alternative A, the project would be required to prepare and implement an EPEP, as discussed in Impact 13.1 and required under Mitigation Measure 13.1c. The EPEP must provide for enhancements to other components of the project to ensure that residents and guests would be safe if they remained within the project site during a fire, avalanche or other emergency.

Under Alternative B, Lots 2 and 3 are proposed to be configured such that the H1 potential avalanche path is split between the lots, with a portion of the rock outcropping occurring on each lot and the H1 path would not encroach on proposed building envelopes for either lot. Even though the building envelopes would avoid the PAHA, the potential impacts of developing a residential lot within this avalanche hazard area would remain **potentially significant**. Mitigation Measure 13.2b requires that the building design recommendations contained in the Avalanche Hazard Study be applied to Lot 2 and Lot 3 to ensure that impacts associated with avalanches would be reduced to **less than significant**.

Additionally, Alternative B includes an EPEP (Appendix J), as described in Impact 13.1 above, which enhances other components of the project to ensure that residents and guests would be safe if they remained within the project site during a fire, avalanche or other emergency.

Potential Effects Outside of the Mapped Avalanche Hazard Areas

With respect to the remainder of the project site, the Avalanche Hazard Study determined that the proposed forest fuels management, including forest thinning, for the project would have no effect on the avalanche zones and would not result in new avalanche hazard areas. The Avalanche Hazard Study also determined that snow removal and snow storage from the proposed roadways and residential structures would not exacerbate existing avalanche hazard zones or result in the creation of new avalanche hazard zones because snow removal activities result in vertical and horizontal mixing of snow into uneven-aged snowpack (discontinuity), which counteracts formation of slab avalanche conditions. Therefore, impacts associated with avalanche hazards would be **less than significant**.

Mitigation Measures

MM 13.2a Prior to recordation of the first small lot Final Map that includes any residential lot in the eastern development pod, the project applicant shall purchase snow removal equipment, which at a minimum shall include a rubber tired, 4-wheel drive, front-end loader with a minimum 1.5-yard bucket capacity. The snow removal equipment shall be housed within the homeowners' association (HOA) caretaker unit on site. The HOA shall submit evidence annually to the Placer County Planning Division verifying that a full-time HOA caretaker qualified to conduct snow removal activities has been retained and is residing on site.

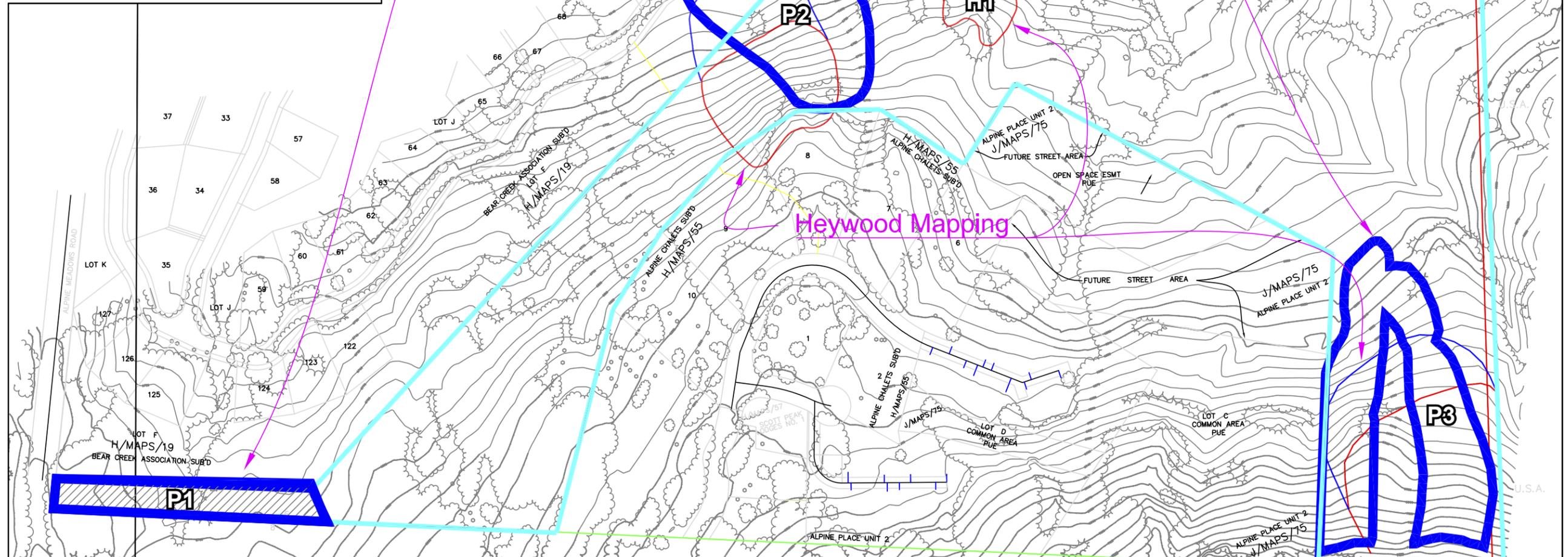
MM 13.2b Prior to the issuance of grading/building permits on Lots 2 and 3, the project engineer shall revise the site plans to ensure that the design of Lots 2 and 3 comply with the recommendations found in the Avalanche Hazard Study. These recommendations include avoidance of the small avalanche path on site or the incorporation of the rock outcropping into the structural design of these lots to

hinder snow buildup on the rock. The design of Lots 2 and 3 shall comply with Section 12.40.060 of the Placer County Code.

**Alpine Sierra Subdivision
Avalanche Hazard Assessment
Exhibit
Placer County, California**

See report for explanation of mapped zones

Heywood 2012



**FIGURE 13-1
Avalanche Hazard Areas**

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