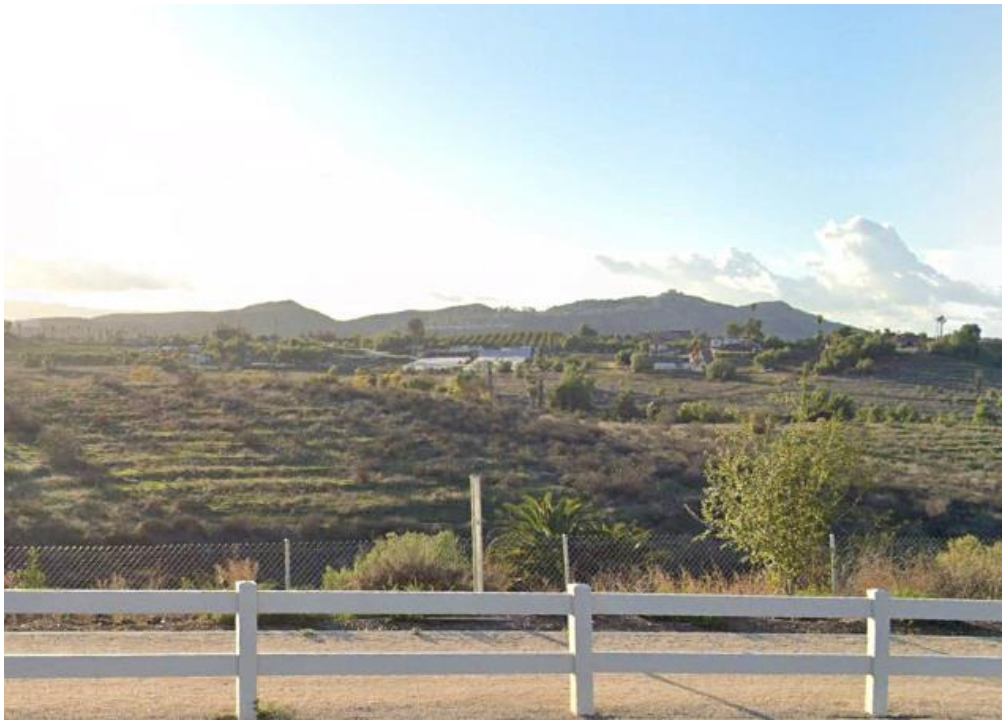
Appendix K:
Wildfire Supporting Information

THIS PAGE INTENTIONALLY LEFT BLANK

K-1: Fire Protection Plan

THIS PAGE INTENTIONALLY LEFT BLANK

HIGHLAND GROVE 2 - TT 38910
PRELIMINARY FIRE PROTECTION PLAN
RIVERSIDE COUNTY, CALIFORNIA



October 4, 2024, Revised June 24, 2025

Owner: **Pulte Homes**
27401 Los Altos, Suite 400
Mission Viejo, CA 92691

Prepared by: **Herbert Spitzer, Senior Wildland Fire Associate**
***Fire*wise2000, LLC**

Certified by:

Mel Johnson, Owner
***Fire*wise2000, LLC**
PO Box 339
Lower Lake, CA 95457
760-745-3947

Highland Grove 2 – TT 38910
Preliminary Fire Protection Plan
Table of Contents

Section	Page
Executive Summary	**i**
1.0 GENERAL DESCRIPTION	**1**
1.1 General Information	**2**
1.2 Relevant Codes and Standards	**2**
1.3 Hazardous Vegetation and Fuels – Laws and Regulations	**2**
1.4 Fire Protection Plans – California	**3**
1.5 Property Sale and Transfer	**3**
2.0 WILDLAND FIRE HAZARD AND RISK ASSESSMENT	**3**
2.1 On and Off-Site Fire Hazard and Risk Assessment	**4**
2.2 Critical Wildfire Concerns	**8**
2.3 Fire History	**10**
2.4 Predicting Wildland Fire Behavior	**10**
2.5 Wildland Fire Behavior Calculations for the Off-site and On-site Vegetative Fuels	**10**
2.6 Analysis of Fire Behavior	**13**
3.0 ASSESSING STRUCTURE IGNITIONS IN THE WILDLAND/URBAN INTERFACE	**13**
3.1 Firebrands	**13**
3.2 Radiant Heat/Direct Flame Impingement	**14**
3.3 Fire Resistant Plant Palette	**15**
4.0 FIRE DEPARTMENT RESPONSE TIMES	**17**
5.0 FUEL MODIFICATION ZONE DESCRIPTIONS AND RECOMMENDED TREATMENTS	**17**
5.1 Ember Resistant Zone 0 - Lot Owner Maintained	**19**
5.2 Fuel Modification Zone 1A - Lot Owner Maintained	**19**
5.3 Fuel Modification Zone 1B – HOA/County Maintained	**21**
5.4 Fuel Modification Zone 2A – HOA Maintained	**23**
5.5 Fuel Modification Zone 2B – HOA Maintained	**23**
5.6 Roadside Fuel Treatment – HOA or County Maintained	**24**
6.0 CONSTRUCTION STANDARDS	**25**
6.1 Pre-Construction Requirements	**25**
6.2 Additonal Construction Requirements	**26**

6.3 Requirement When an Offsite Easement Has Not Been Established East of Lots 1-10 27
6.4 Requirements for Perimeter Lots 117-119 28

7.0 MANDATED INCLUSIONS IN THE CC&R'S 29

8.0 INFRASTRUCTURE 30
8.1 Water Supply 30
8.2 Access Roads/Driveways and Gates 30
8.3 Fuel Modification Access Ways 31
8.4 Hose Pull and Turn Around Requirements 31

9.0 HOMEOWNER/HOA RECOMMENDATIONS AND EDUCATION 31

10.0 CONCLUSIONS 33

11.0 FUEL MODIFICATION PLAN MAP 33

APPENDICES

Prohibited Plant List **APPENDIX 'A'**

Landscape Plan (when completed) **APPENDIX 'B'**

Literature Referenced **APPENDIX 'C'**

Noncombustible & Fire-Resistant Building Materials **APPENDIX 'D'**

Ignition Resistant Construction Requirements **APPENDIX 'E'**

Site Plan **APPENDIX 'F'**

Example of a View Wall **APPENDIX 'G'**

Additional Homeowner/HOA Information **APPENDIX 'H'**

Evacuation Checklist – What to Take **APPENDIX 'I'**

Highland Grove 2 – TT 38910
Preliminary Fire Protection Plan
Riverside County, California
October 4, 2024, Revised June 24, 2025

Executive Summary

This Preliminary Fire Protection Plan (PFPP) evaluated the proposed Highland Grove 2 Residential Development to ensure it does not unnecessarily expose people or structures to wildland fire risks and hazards. The PFPP has identified and prioritized the measures necessary to mitigate those impacts. The PFPP has considered the existing fire environment including property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. It has also considered the built environment including water supply, access, structure ignitability and ignition resistant building materials, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management.

The project was analyzed to identify potential adverse impacts and to identify adequate measures for impacts resulting from wildland fire hazards. The evaluation determined that the Riverside County Fire Department (RCFD) and the California Department of Forestry and Fire Protection (CAL FIRE) along with nearby fire departments will be able to provide adequate emergency services. CAL FIRE (under the State Responsibility Area Agreement) as well as other fire departments and fire protection districts, can be requested under a Mutual Aid agreement to respond in the event of a wildfire event to the area. Response times and the proximity of the development to the Wildland Urban Interface (WUI), in a High or Very High Fire Hazard Zone require that fire sprinklers be installed in all new residences.

In addition, this PFPP lists fuel treatment requirements to mitigate the exposure of people or structures from a significant risk of loss, injury, or death from wildland fires. Zone 0 shall be absent of all combustible materials including plants. Zones 1A and 1B will be irrigated landscaped zones that are either lot owner or HOA maintained. The landscaping within a lot, beginning at the exterior of each structure, shall consist of Zone 0, an ember resistant zone, followed by Zone 1A, fire resistant and irrigated maintained plantings, Zone 1B is a permanently irrigated zone that is maintained by the HOA within common areas that includes all manufactured slopes. Zones 2A and 2B are thinning zones frequently located in common areas that are not irrigated.

Finally, this plan and its requirements will be incorporated by reference into the final project Conditions of Approval to ensure compliance with all current codes/regulations and significance standards.

HIGHLAND GROVE 2 – TT 38910
PRELIMINARY FIRE PROTECTION PLAN
Riverside County, California

1.0 GENERAL DESCRIPTION

The Highland Grove 2 Residential Development, TT 38910, is hereinafter referred to as the Project. It is located 0.4 mile east of the intersection of El Sobrante Road and McAllister Street, in unincorporated western Riverside County, California. Along the northern side of the Project is an irregularly shaped property line that follows an intermittent streambed as can be seen in seen Photo 1. To the west of the Project, Highland Grove Phase 1 is currently under construction. All of the Project is located within either a Moderate, High, or Very High Fire Hazard Severity Zone (VHFHSZ). The entire Project is also identified as being in a State Responsibility Area (SRA) for fire protection. The Riverside County Fire Department (RCFD) contracts with Cal Fire for wildland fire protection and is the fire authority for the Project.

Photo 1 – Aerial photo of the Project area. *The arrow points to the approximate center of the Project. Note the presence of an intermittent streambed along the northeast Project boundary. The south side of the Project abuts El Sobrante Rd. Construction of Highland Grove Phase 1 is occurring to the west.*

A Final Fire Protection Plan (FFPP) must be submitted to and approved by the RCFD that would allow construction. The FFPP shall include structure locations, driveways, and a landscaping plan for the common areas. Due to the fact that landscape plans have yet to be developed, this plan is a Preliminary Fire Protection Plan (PFPP). The PFPP assesses the overall on- and off-site wildland fire hazards and risks that may threaten life and property associated with the proposed Project. In addition, the PFPP establishes both short-term and long-term fuel treatment actions required to minimize any projected wildland fire hazards and assigns annual maintenance responsibilities for each of the required fuel treatment actions. Appendices attached to this PFPP that provide additional information shall be considered part of this plan.

The development of TT 38910 calls for the construction of 128 homes on residential lots plus several open space (OS) lots, a park, and a debris basin. The gross acreage of the Project is 60.68 acres. The homes will be a combination of one- and two-story structures. Single-family home lot sizes range from approximately 10,000 to over 16,900 square feet. The Project site slopes to the northwest and currently contains agricultural land, a poultry farm, and one residence. The site is bordered by existing and new residential properties to the west, vacant agricultural land to the north, vacant land to the east, and vacant land south of El Sobrante Road. An intermittent streambed with protected habitat is located adjacent to the north side of lots 1, and 115-128.

1.1 General Information

Developer/Applicant:	Pulte Homes 27401 Los Altos, Suite 400 Mission Viejo, CA 92691
Approving Departments:	
Fire Authority:	Riverside County Fire Department
Water:	Western Municipal Water District
Parcel Numbers:	270-160-002, -003, -018, -020, -021, -022, -023, and -024.

1.2 Relevant Building Codes and Standards

Requirements of this PFPP are based upon requirements listed in the 2022 California Fire Code, Chapter 49, Public Resources Code, Sections 4201 through 4204, and Government Code, Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. Local Amendments as required; Chapter 7A-California Building Code; 2022 California Residential Code sections R337; National Fire Protection Association Standards (NFPA) 13-D, 2025 Edition, Riverside County Health and Safety Code - Declaration of Nuisance 6.15.020, and supporting guidelines, the California State and Local Responsibility Area Fire Hazard Severity Zone Map; Riverside County Guidelines OFM-01A and Guideline 0FM-01B, and NFPA Standard 1140.

1.3 Hazardous Vegetation and Fuels - Laws and Regulations

The following laws and regulations guide the requirements for fuel modification. These include the following: Public Resources Code, Section 4291. California Code of Regulations,

Title 14, Division 1.5, Chapter 7, Subchapter 3, Section 1299 (see guidance for implementation "General Guideline to Create Defensible Space"). California Government Code, Section 51182. California Code of Regulations, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07, and Riverside County Ordinances; 787.10 and 460.154.

1.4 Fire Protection Plans - California

The 2022 California Fire Code requires a Final Fire Protection Plan to be approved prior to construction. The FFPP shall include a Landscape and Planting Plan for all the common areas that is consistent with this fire protection plan as well as show all building locations, roads, and driveways. As the landscape plans are currently under development, the landscape architect, when developing their plan, shall incorporate the plant material, planting design, and maintenance requirements identified in this PFPP. When the landscape plan is completed, it will be incorporated into the FFPP as Appendix 'B.'

This PFPP includes:

- A wildland fire hazard rating assessment and calculations of the expected fire behavior in the event a wildland fire should occur within the offsite and onsite native and exotic vegetation.

- A short- and long-term vegetative fuel modification treatment and maintenance plan around each structure to minimize any loss to residential structures within the planned development due to wildland fire.

- A short- and long-term interior and perimeter open space fuel modification treatment plan including *"firewise landscaping"* criteria to be deployed in the community.

- Building construction and design criteria to be applied to all the lots.

- A review of existing architectural plans, ignition resistant building features, and community protection systems (e.g., water and access), and specifications to assure these plans, features, and systems adequately protect life and property.

1.5 Property Sale and Transfer

A copy of the final Fire Protection Plan shall be available in the Highland Grove 2 Sales Office for review by any potential homebuyer. The Sales Office shall provide a copy of FFPP to the first buyer during escrow. In all subsequent sales of the property, the new property owner(s) shall be provided with a copy of the FFPP by the current lot owner during escrow or the HOA to insure continued compliance with all Fuel Modification Zone and construction requirements.

2.0 WILDLAND FIRE HAZARD AND RISK ASSESSMENT

The following hazard and risk assessment is based upon historical weather data and existing and forecasted vegetation that would exist in a climax plant community. Wildfire risk is a measure of the chance of a fire starting, as determined by the presence and activity of causative agents. Fire

hazard is the result of a combination of vegetation, topography, weather, and the threat of fire to life and property that create difficult and dangerous conditions. The primary focus of this document is mitigation of the fire hazard and to a lesser extent, the reduction of risk of a fire starting within the tract.

2.1 On- and Off-Site Fire Hazard and Risk Assessment

The Project is in lightly sloping terrain. Short drainages with isolated slopes are located within designated OS and adjacent to an intermittent streambed. In most cases, there will be ample space to establish 100 feet of fuel modification surrounding each structure. When the required 100 feet of fuel treatment cannot be established within the Project, additional building features and/or an off-site fuel treatment easement is required. See Appendix 'F' for a site plan of the Project to aid in the visualization of the developments layout and descriptions that follow.

Riverside County within State Responsibility Areas (SRA) uses the CAL FIRE wildland fire hazard rating map. This map was last updated on April 1, 2024. As shown in Figure 1, all the Project is located within either a Moderate, High, or VHFHSZ designation. The moderate rating is confined to the nearly level areas with lighter vegetation while where heavier vegetation exists are designated as being in a High or VHFHSZ. Regardless of which fire hazard zone the Project is located in, the building construction requirements are identical.

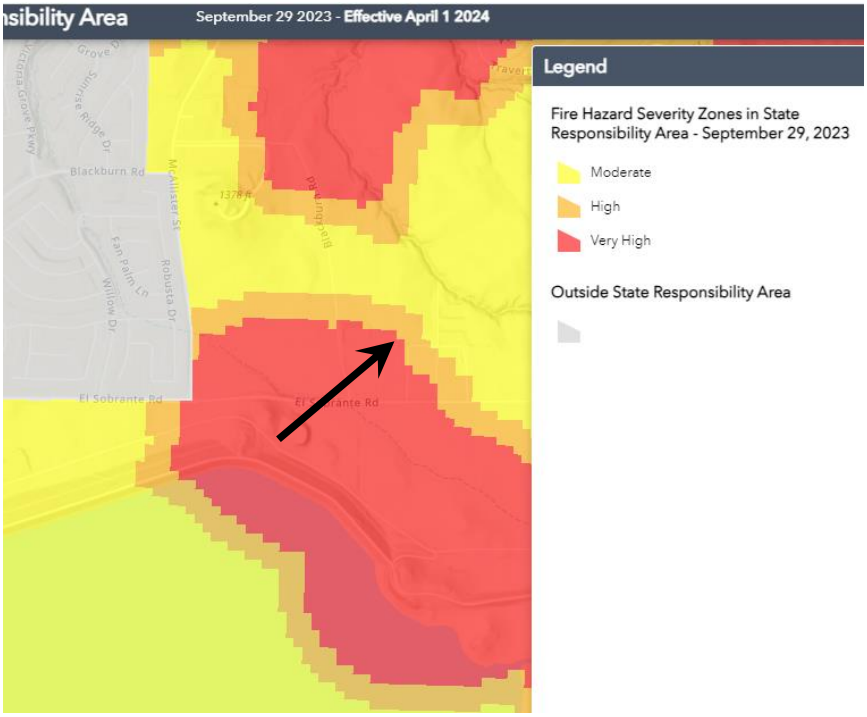


Figure 1 – State Designated Fire Hazard Severity Zones. *The arrow points to the approximate center of the Project. All the site is in SRA land designated as being a Moderate, High or Very High Fire Hazard Severity Zone.*

A significant portion of the Project has been used for agricultural purposes in the past as determined by analysis of historical aerial photos from Google Earth. These areas were generally located on nearly level terrain. As a result, these farmed areas are currently without mature wildland fuels. These areas have been abandoned for several years and are in the process of recovering. Without additional disturbances, these areas will develop a heavier vegetation cover than what is shown in the photos found in this PFPP.

As the surrounding area develops, the threat of a wildland fire impacting the site will be diminished. Development that includes fuel modification zones, noncombustible building materials and features in the structures, roadways, and trails create barriers to wildland fire spread. There will remain within and adjacent to the Project wildland vegetation that when located within 100 feet of a structure shall be permanently treated. If insufficient space is available for 100 feet of fuel modification, additional building features are required.

On-site vegetation will be completely removed during grading except for most of OS lot 142. OS lot 141 is scheduled to be used as a Detention Basin and will thus be graded. Other small OS lots are located along roadways which will be graded.

In assessing the wildland fire hazard to the Project, it is necessary to consider the climax plant communities. This is due to the fact that once a home is built, it is likely to remain for 50-70 years, perhaps more. Plant succession is therefore considered in fire protection planning. The vegetation (fuel) described below for each cardinal direction are the most likely climax plant communities that will exist without human intervention and the ones utilized for fire behavior planning purposes.

Northern Exposure

The Northern exposure is located north of lots 1, 6, 80, and 115-128 (See Photo 2). The area has not been previously used for agricultural operations and therefore the vegetation is deemed to be at its climax state. The northern portion of the Project is adjacent to OS Lot 142 contains an intermittent streambed. Vegetation within the streambed contains protected habitat and cannot be disturbed. Lot 142 is generally sufficiently wide to allow for fuel treatment behind each of the above-named lots. However, to the north of lots 117-119, the streambed bends toward the planned homes as seen in Photo 3. The Project boundary also bends toward these lots. As a result, additional building features will be required as there is not sufficient space to establish 100 feet of fuel modification. The distance available for fuel modification at the rear of Lot 118 is 75 feet. The vegetation within the streambed consists of cottonwood, willow, and scattered palm trees mixed with shrubs, grass, and weeds while undisturbed areas adjacent to the streambed have a combination of sage, buckwheat, and herbaceous species.

Phase 4 of Highland Grove will develop the area north of the streambed which will reduce the wildland fire risk of a fire spreading into the area from the north. The intermittent streambed is not in alignment with a north or northeast strong wind condition. Extreme fire behavior exposure will therefore be restricted as the planned Phase 4 will remove wildland fuels to the north leaving only the intermittent streambed.

Photo 2 – Looking Southeast From the Northern End of the Project Toward the Intermittent Streambed Which Includes Protected Habitat. *As was the case in the Highland Grove 1 Fire Protection Plan, no fuel modification can occur within the intermittent streambed vegetation.*

Photo 3 – Aerial View near Lot 118. *The arrow points to the bend in the intermittent streambed toward the planned homes.*

The typical fuel model for this northern boundary as currently shown in Photo 2 is a combined fuel model of sh5 – High load, dry climate shrub (60%) and Gr4 - Moderate load dry climate grass (40%). Slopes in this area range from nearly level to 10 to 40 percent and are uphill toward the homes which will enhance fire behavior.

Eastern Exposure

All development along the eastern exposure (See Photo 4) will be located adjacent to undeveloped land on adjoining private property. The lots that abut the eastern boundary are numbered 1-10. Within the Project, lot 140 will be a community park absent of all wildland fuels. The vegetation east of the development is currently primarily grass, occasional Russian thistle, mustard and other herbaceous vegetation.

The homes located along the eastern exposure will be located on building pads that are lower in elevation than the land to the east which is beneficial. The first floor of any home would therefore be exposed to less radiant heat as radiant heat travels in a straight line.

The most likely climax vegetation type can best be described as a combined fuel model of gr4 - Moderate load dry climate grass (85%) and sh2 – Moderate Load Dry Climate Shrub (15%). The steepest slopes along the eastern boundary are found on the hillsides and generally range from 5 to 15 percent. These minor slopes are downhill toward the homes. This is beneficial as fire behavior is reduced when a fire burns downhill as opposed to uphill.

Photo 4 – Looking Northwest Along the Eastern Project Boundary. *El Sobrante Rd, is in the foreground. The vegetation is generally light and appears to have been occasionally mowed or disced based on historic aerial images.*

Southern Exposure

The southern boundary will border El Sobrante Rd, currently a two-lane paved roadway, that has a right of way of 93 feet (See Photo 5). This roadway is scheduled to be improved including adding a right turn lane into the Project. Along the south side of the development, a sidewalk and landscaped 2:1 variable width uphill manufactured slope will be located between the homes and roadway. Additionally, each home located adjacent to El Sobrante Rd will be setback from the property line 20 feet or more. As a result, no wildland fuels will be located within 100 feet of any structure; therefore, no fire behavior calculations are presented.

Western Exposure

The western exposure abuts either homes that are under construction in Highland Grove Phase 1 or is existing developed property that will remain as can be seen in Photo 5. No wildland fuels will thus be present; therefore, no fire behavior calculations are presented.

Photo 5 – Looking West Along the Southern Project Boundary. *El Sobrante Rd, currently has two lanes. It is scheduled to be widened to include a right turn lane from the east into the Project.*

.

2.2 Critical Wildfire Concerns

The most critical weather pattern to the Project area is a hot, dry offshore wind, typically called a Santa Ana. Such wind conditions are usually associated with strong (60 MPH), hot, dry winds with very low (<15%) relative humidity. Santa Ana winds originate over the dry desert land and can occur anytime of the year; however, they generally occur in the late fall (September through November). This is also when non-irrigated vegetation is at its lowest moisture content. Perimeter homes located on the northern and eastern boundaries (See Fuel Modification Plan Map, Section 11) are subject to these winds and fire behavior.

The undeveloped areas adjacent to the Project can contribute to a damaging wildland fire event. Any wind or topography driven wildfire burning under a northeastern (*Santa Ana*) wind from the north or east burning toward the development or a wildfire burning under a "rare event" 30 MPH southwestern wind from the west or south of the development can create a wildland fire hazard to the proposed structures due to wind-blown embers. Wildland fires starting north or east of the proposed residences on a typical fire day with a southwest wind will burn away from the proposed structures and will generally not be a significant wildland fire concern. A wildland fire starting to the west of the development on a Santa Ana wind event day will also burn away from the development.

The installation of Chapter 7A construction features combined with Fuel Modification will mitigate against the wind-blown ember threat (see Sections 5.0 and 6.0 for a discussion of these features). The goal of this PFPP is to prevent the loss of lives, buildings, and personal property when wildfires occur with the challenge of developing well planned home sites adjacent to wildland vegetation. This goal is accomplished by requiring all homes to be built with ignition resistant materials per Chapter 7A of the California Building Code and properly designed and maintained fuel treatments that safely mitigate the fire hazard to insignificant levels. When the required fuel treatments cannot be met, additional construction features are required.

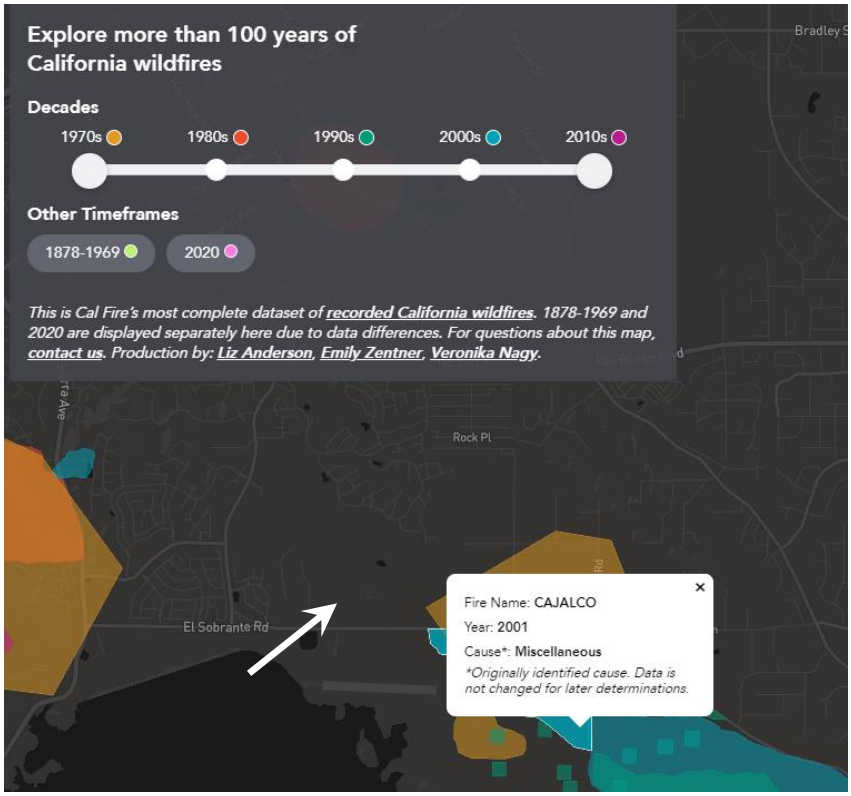


Figure 2 - Fire History on and Surrounding the Project. *The white arrow points to the project site. The data shows the period 1970 to 2023. The most recent large fire to burn near the Project was the 2001 Cajalco Fire.*

2.3 Fire History

There has been a history of large wildland fires burning in the area. A large wildland fire being defined is one that burns over 100 acres. Shown in Figure 2 is the fire history for the Project and surrounding area. The most recent fire shown that burned over a large portion of the project site was the Cajalco Fire of 2001. Fire history data was obtained from Cal Fire. Smaller fires are not mapped and therefore are not shown. There likely have been many small fires that have burned within or adjacent to the Project.

2.4 Predicting Wildland Fire Behavior

The BehavePlus 6.0.0 Fire Modeling System is a computer program developed by USDA–Forest Service research scientists Patricia L. Andrews and Collin D. Bevins at the Intermountain Forest Fire Laboratory, Missoula, Montana. It is one of the best systematic methods for predicting wildland fire behavior in surface fuels located within 6 feet of the ground. The BehavePlus fire behavior computer modeling system is utilized by wildland fire experts nationwide.

Wildland fire managers use the BehavePlus Fire Modeling System to project the expected fire intensity, rate-of-spread and flame lengths with a reasonable degree of certainty for use in Fuel Modification Planning purposes. ***Fire*wise2000, LLC** used the BehavePlus 6.0.0 Fire Modeling System to make the fire behavior assessments for the Highland Grove 2 development which are presented below.

***Fire*wise2000, LLC** recognizes that certain extreme fire behavior, such as that produced by prolific crowning/spotting, presence of fire whirls, and strong convection columns, are not addressed in this PFPP. When heavy fuels and steep topography are present, generally in vegetation that is taller than 20 feet, fire behavior can become erratic and lead to a "blow up" or "fire storm." When high concentrations of firebrands fall on receptive fuels, several ignitions may occur simultaneously resulting in what has been termed "area ignition." Predictability is difficult because such fires often create their own fire environment and therefore behave erratically. These fuel types and conditions are <u>not</u> present within or adjacent to the Project. The BehavePlus Fire Computer Modeling Program fire behavior calculations are therefore a reliable means of determining appropriate wildfire mitigation measures.

2.5 Wildland Fire Behavior Calculations for the On- Site and Off-Site Hazardous Vegetative Fuels

Wildland fire behavior calculations have been projected for the hazardous vegetative fuels located in undeveloped areas that are in proximity to the proposed perimeter structures. These structures have the highest exposure to radiant and convective heat and therefore exposed to the highest hazard (see the Fuel Modification Plan Map, Section 11.0). These projections are based on scenarios that are "worst case" Riverside County fire weather assumptions in the vicinity of the Project. Weather data was obtained from the RAWS (Remote Automatic Weather Station) network. The closest station to the Project is the from the Lake Mathews RAWS. RAWS are installed for the purpose of hourly monitoring of wildland fire weather.

Over the past decade, California and much of the Western United States has been experiencing increased fire behavior from what was typically seen in the past as documented by firefighters from multiple agencies. It is due in part to our warming climate, which frequently results in lower relative humidity over prolonged periods of time in turn resulting in lower moisture content in both living and dead wildland fuels. When fuels are drier, they burn hotter and are easier to ignite, especially on hot dry days as the fuel temperature is closer to its ignition temperature. The fire behavior calculation inputs for anticipated fuel moistures have been adjusted to account for climate change and thus, better represent "worst case" weather. When multiple fire behavior factors occur at the same time, this is sometimes referred to as being in alignment. This happens when humidity is low, both and live and dead fuels moistures are low, and winds are high. When alignment occurs, fire behavior is dramatically enhanced. These factors can be further be enhanced by the a fire burning into heavier vegetation and on steeper uphill topography.

Flame length, a term utilized throughout this report, is easily visualized in Figure 3. With no wind, flames generally go straight up. Wind, topography, and fuels will effect fire behavior as the flames generally will bend with the wind and be modified by topography and also by a fire burning in heavy fuels. Wildland fire, when burning under extreme conditions, can create its own weather.

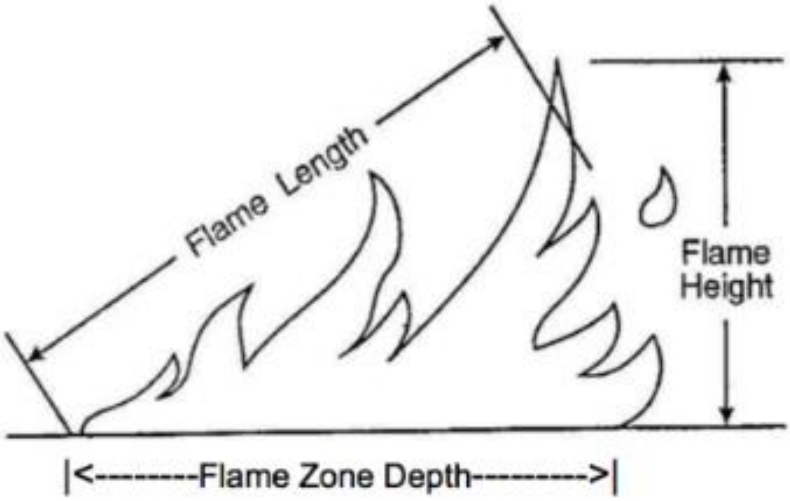


Figure 3 – Flame Length. *Flame lengths described in this plan are measured in feet. Flame length is the most critical factor as it used to determine how close to a structure the flames extend. Flame lengths can be tilted due to the effects of wind and or slope.*

The scenarios which follow include the projected fire behavior in a surface fire burning in the projected climax vegetation under "worst case" wildland fuel and weather conditions for the Project site followed by the expected fire behavior in treated fuel which are described in detail in Section 5.4 and 5.5.

Fire Scenario #1, Northern Exposure – North of Lot 118 ***Fire Approaching from the North or Northeast*** ***(Late Fire Season With 60 MPH North or Northeast Wind Conditions)***	
Fire Behavior Calculation Input Data • 35 percent slope • 60 mph 20-foot wind speed • 225° slope aspect from north • 45° wind direction from north	**Anticipated Fuel Moistures** * 1-Hour Fine Fuel Moisture of..……. 2% * 10-Hour Fuel Moisture of.…… 2% * 100-Hour Fuel Moisture of.....…….. 3% * Live Herbaceous Fuel Moisture of..… 30% * Live Woody Fuel Moisture of……..... 45%
Expected Fire Behavior in Wildland Fuels **Combined Fuel Model [sh5 – Moderate load, dry climate grass-shrub (60%) and Gr4 – Moderate load, dry climate grass (40%)]**	
Rate of Spread - 1,497 ft/min	
Fireline Intensity - 43,054 BTU/ft/s	
Flame Length - 60.9 feet	
Expected Fire Behavior in Treated Fuels **Combined Fuel Model - [gr1 – Short sparse dry climate grass (50%) and tl2 – Low load broadleaf litter (50%)]**	
Rate of Spread - 24 ft/min	
Fireline Intensity - 67 BTU/ft/s	
Flame Length - 3.1 feet	

Fire Scenario #2, Eastern Exposure Adjacent to Lots 6-8 ***Fire Approaching from the Northeast or Northeast*** ***(Late Fire Season With 60 MPH North or Northeast Wind Conditions)***	
Fire Behavior Calculation Input Data • 5 percent slope • 60 mph 20-foot wind speed • 285° slope aspect from north • 45° wind direction from north	**Anticipated Fuel Moistures** * 1-Hour Fine Fuel Moisture of ..…….. 2% * 10-Hour Fuel Moisture of ……..... 2% * 100-Hour Fuel Moisture of.....……..…. 3% * Live Herbaceous Fuel Moisture of..…... 30% * Live Woody Fuel Moisture of……..... 45%
Expected Fire Behavior in Wildland Fuels **Combined Fuel Model [gr4 – Moderate load dry climate grass (85%) and sh2 – Moderate load, dry climate shrub (15%)]**	
Rate of Spread - 1,592ft/min	
Fireline Intensity - 16,053 BTU/ft/s	
Flame Length - 38.7 feet	
Expected Fire Behavior in Treated Fuels **Combined Fuel Model - [gr1 – Short sparse dry climate grass (50%) and tl2 – Low load broadleaf litter (50%)]**	
Rate of Spread - 24 ft/min	
Fireline Intensity - 67 BTU/ft/s	
Flame Length - 3.1 feet	

2.6 Analysis of Fire Behavior

A fire burning along the northern or eastern exposures during worst case weather, in climax vegetation, and extremely low fuel moisture conditions would produce extreme fire behavior with flames in excess of 60 feet as shown in **red** on each of the previous fire scenarios. Within the treated fuels, described in Section 5.4 and 5.5, the fire behavior is shown in **green.** Within treated fuels, all the fire behavior flame lengths are reduced signficantly. This reduced fire intensity is much less likely to result in damage to a structure due to radiant or convective heat.

3.0 ASSESSING STRUCTURE IGNITIONS IN THE WILDLAND/URBAN INTERFACE

Structure ignitions from wildland wildfires basically come from three sources of heat: convective firebrands (flying embers), direct flame impingement, and radiant heat. The BehavePlus Fire Behavior Modeling Program does not address windblown embers or firebrands from a structure ignition perspective. However, ignition resistant and noncombustible exterior building materials will be used in the construction of the Project homes (see APPENDIX 'E' for the description of Ignition Resistant Construction). Wind driven embers, radiant, and convective heat issues are addressed in this PFPP.

3.1 Firebrands

Firebrands or embers, as they are often referred to, are pieces of burning materials that detach from burning fuels due to the strong convection drafts in the flaming zone. Fuels may be from vegetation as well as a burning structure. Firebrands can be carried a long distance (one mile or more) by fire drafts and strong winds. Severe wildland/urban interface fires can produce heavy showers of firebrands. For the fuel types listed in Scenario 2, embers can travel over 2 miles during worst case winds and fire weather. The chance of these firebrands igniting a structure will depend on the number and size of the firebrands, how long they burn after contact, and the type of building materials, building design, and construction features of the structure. Firebrands landing on combustible roofing and decks and adjacent flammable vegetation are common sources for structure ignition. They can also enter a structure through unscreened vents, decks and chimneys, unprotected skylights, and overhangs.

Even with noncombustible roofing, firebrands landing on leaves, needles, and other combustibles located on a roof (due to lack of maintenance) or adjacent to a structure can cause structure ignition. Any open windows, doors or other types of unscreened openings are sources for embers to enter a structure during a wildland fire. If landscape guidelines are followed and the above-mentioned maintenance issues are addressed on a regular basis through HOA inspections and enforcement as outlined in the CCR's (see Section 7), firebrands should not be a concern for the Project residences, as the buildings will be constructed with ignition resistant and noncombustible building materials and the landscaping around each structure will be designed, installed, and maintained for fire safety.

3.2 Radiant Heat/Direct Flame Impingement

Radiation and convection involve the transfer of heat directly from a flame. Unlike radiation heat transfer, convection requires that the flames or heat column contact the structure. An ignition from radiation (given an exposed flammable surface) heat transfer depends on two aspects of the flame: 1) the radiant heat flux to a combustible surface and, 2) the duration (length of time) of the radiant flux. The radiant heat flux depends on the flame zone size, flame-structure distance, and how much of the combustible material of the structure is exposed to the flame. While the flame from a wildfire may approach 1,800 degrees Fahrenheit, it is the duration of heat that is more critical. For example, a blow torch flame typically approaches 2,100 degrees Fahrenheit, yet a person can easily pass their hand through the flame. Heat duration only becomes critical to a home with a wood exterior surface if the heat is allowed to remain for 30-90 seconds.

Research scientist Doctor Jack Cohen of the USDA-Forest Service has found that a home's characteristics (its exterior materials and design in relation to the immediate area around a home (within 100 feet) principally determine the home's ignition potential. He calls the home and its immediate surroundings the 'home ignition zone'. In a study of ignition of wood wallboard, tests by a USDA Forest Service research team described in the Proceedings, 1st International Fire and Materials Conference showed that flame impingement for sufficient length of time (approximately 1 min.) ignites a typical hardboard siding material. The ignition temperature of wood is generally between 450°-500°F.

Photo 6. High Winds Bending Flames*. If a building is in close proximity, there could be direct contact with the flames which could easily ignite the adjoining structure. Flame/structure contact is also likely to break windows thereby allowing embers, radiant, and convective heat to enter a structure.*

Fire agencies consider fuel treatment as a principal approach to wildland fire hazard reduction. Whenever the flame length is equal to or more than the separation of combustible vegetation from a combustible structure for 1-2 minutes in duration or more, there is a high probability of structure ignition. The combination of strong winds and flames can cause flames to bend with the wind as seen in Photo 6. Residential single-family homes are typically not designed to withstand direct flame impingement. Contact with a fire's convection heat column also may cause ignition but the temperature of the column's gases generally are not hot enough or long enough in duration to sustain the ignition of the structure.

Comparing the expected wildland fire behavior projections in each of the scenarios in Section 2.5 against the required fuel treatment zones outlined in Section 5.0, demonstrates substantial reductions in the expected flame length. By requiring the structures exposed to the threat of wildfire to incorporate the following guidelines, those structures will be provided with the most effective treatment for minimizing losses from flame impingement and associated radiant heat intensities.

- Each structure is constructed of ignition resistant and noncombustible building materials as required by Chapter 7A of the California Building Code.
- The area surrounding each structure contains an Irrigated Zone (defensible space).

Each eventual homeowner shall be required to maintain their lot to fuel treatment standards Zones 0 and 1A. Residents shall keep their home's roof and any rain gutters free of leaves, needles, and other combustible debris. All firewood and other combustible materials must be safely stored away from structures so that burning embers falling on or near structures have no suitable host. The Project lot owners are responsible for maintaining their homes and for keeping all doors and windows tightly closed whenever a wildland fire is reported in the vicinity. Under its authority in the CC&R's, the HOA shall conduct regular inspections to ensure that these requirements are met (see Section 7.0).

3.3 Fire Resistant Plant Palette

Wildland fire research has shown that some types of plants, including many natives, are more fire resistant than others. These low fuel volume, non-oily, non-resinous plants are commonly referred to as "fire resistant". This term comes with the proviso that each year these plants are pruned, all dead wood is removed, and all grasses or other plant material are removed from beneath the circumference of each tree and shrub canopy. Some native species are not considered "undesirable" from a wildfire risk management perspective provided they are properly maintained year-round. Refer to APPENDIX 'A' for a list of prohibited plant species.

The trees, shrubs, vines, succulents, annuals, biennials, perennials, and ground covers, including native vegetation, proposed for use as landscaping in the Project are required to be in accordance with the following:

i. Appropriate for Climate Zones 18 and 19 as determined by *Western Garden* published by Sunset Books.

ii. Appropriate for California Irrigation Management Information System (CIMIS) Evapotranspiration Zone 9.
iii. Have a Region 4 Water Use Classification of Landscape Species (WUCOLS) classification of Low or Very Low based on WUCOLS IV, 2014. See https://ccuh.ucdavis.edu/wucols for additional information.
iv. Not determined by any standard or classification to be invasive.

Applying the above requirements lessens the chance that a plant will die due to either freezing or heat stress and not spread beyond the landscape where it is planted.

Photo 7 – Succulent Plants. *Succulents are a group of plants known for their high moisture content and therefore more likely to be cooked than burn when exposed to wildfire.*

Riverside County does not currently have a list of approved fire-resistant plants for fuel modification zones. The trees, shrubs, vines, succulents (See Photo 7), and ground covers proposed for use as landscaping in fuel modification zones 1A and 1B is to be in accordance with two or more of the following publications:

- https://www.firefree.org/wp-content/uploads/2016/02/Fire-Resistant-Plants.pdf
- https://firesafesdcounty.org/wp-content/uploads/2017/05/Comprehensive-Fire-Resistant-Plant-List.pdf
- https://fire.lacounty.gov/wp-content/uploads/2020/05/Plant-Selection-Guidelines.pdf
- https://vcfd.org/wp-content/uploads/2020/02/PlantReferenceGuide.pdf
- https://www.firesafemonterey.org/plant-lists.html#table1
- https://sbcfire.com/wp-content/uploads/2022/08/2015_Beneficial_plant_list-1.pdf

Landscape architects, designers including homeowners, and the HOA should consult with the RCFD for recommendations involving appropriate plants for Zone 1A or 1B if there is a concern about its fire resistance. Avoid the use of all plants found in Appendix "A."

4.0 FIRE DEPARTMENT RESPONSE TIMES

Fire protection to the Project is provided by the Riverside County Fire Department. RCFD Fire Station #82 is located at 17452 Lakepoint Dr. It is approximately 2.4 miles, and six (6) minutes get away and driving time to the furthest point in the development. RCFD Fire Station #12, located at 10692 Indiana Avenue is approximately 5.2 miles and (11) minutes get away and driving time to the furthest point in the development. Fire Station #82 would typically be the first engine to respond to the proposed development. Additional agencies such as nearby cities would also respond equipment under mutual aid agreements but would likely arrive after RCFD engines were on-scene.

There is no assurance that either of the nearby RCFD engines will be in their stations when a wildfire threatens the Project from an ignition in the adjacent wildlands. RCFD engines may respond from other stations located further away or from other incidents. Additional agencies such as other nearby fire departments would likely respond equipment under mutual aid agreements but may arrive after the RCFD engines were on-scene. On high/extreme fire danger days there often may be multiple fire starts and engine companies may be already deployed on other incidents. This is why projects in the wildland urban interface use *"defensible space"*, ignition resistant building features, and key fuel treatment strategies that enable residents to substantially increase their ability to survive a wildfire on their own without the loss of their structure until firefighting equipment arrives. The goal of this PFPP, therefore, is to make the Highland Grove 2 development and its occupants as safe as possible and able to survive on their own until firefighting equipment arrives and/or residents can be safely evacuated.

5.0 FUEL MODIFICATION ZONE DESCRIPTIONS & REQUIRED TREATMENTS

Described below are the required treatments for the Fuel Modification Zones. All distances in this report are measured horizontally. The required 100 feet of fuel modification can be achieved on most of the perimeter lots facing wildland vegetation by establishing the fuel treatments within a lot or within adjoining open space. Zones 0, 1A, and 1B together provide 50 feet or more of fuel modification irrigated treated area depending on location. When less than 100 feet of total fuel treatment is provided, additional construction features described in Section 6.0 are required. The effect of fuel treatments and when required, additional construction features, mitigate any radiant heat or direct flame impingement issues from the maximum projected **60.9-foot** flame lengths under worst-case weather and fuel moisture scenarios (see Fuel Modification Plan Map – Section 11.0).

The area of greatest concern from a wildland fire perspective is located within OS lot 142 adjacent to lots 117-119 where the most extreme fire behavior has been calculated (See Fire Scenario 1, Section 2.5). ***Fire*wise2000, LLC** prefers that the fuel treatment from a residence be at least 1.5 times the flame length which allows for unforeseen fire behavior. The maximum flame length before additional fuel treatment is recommended is therefore 91.4 feet (1.5 X 60.9 feet). Based on this analysis, 100 feet of fuel treatment will be required.

Each homeowner shall be responsible for maintaining Fuel Modification Zones within their lot. The HOA or the County shall be responsible for maintaining fuel treatments outside the property owners' lot boundaries. The HOA shall enforce the requirements of Zone 0 and 1A within a lot. In the event a lot is repossessed, the person(s)/agency holding title to the lot will be responsible for the maintenance.

Per the CFC, Section 4903.2.1, the landscape plan developed for all the common areas shall include the following for each proposed species:

1. The plant life-form
2. The scientific and common name
3. The expected height and width for mature growth

The landscape plan shall include the species, irrigation, and maintenance requirements for the vegetation management zones adjacent to structures and roadways that will provide significant fire hazard reduction benefits for public and firefighting safety. Per CFC Section 4906.3.1, the landscape plans shall contain the following information:

1. *Delineation of the fuel management zones from all structures.*

2. *Identification of existing vegetation to remain and proposed new vegetation.*

3. *Identification of irrigated areas.*

4. *A plant legend with both botanical and common names, and identification of all plant material symbols.*

5. *Identification of ground coverings.*

The fuel modification zones which follow are numbered. When a number is followed by a letter, the letter indicates the person or entity that is responsible for maintenance of that fuel modification zone. As the locations of the driveways and structures have not been established for the single-family homes, the start location for the fuel modification in this PFPP is based on the minimum building setbacks from the lot boundary.

5.1 Ember Resistant Zone 0 - Lot Owner Maintained. (NOT SHOWN on the Fuel Modifiction Plan Map).

Defined

Zone 0, aka an ember resistant zone, is part of what is commonly called the defensible space zone and shall be an area free of all combustible materials including plants. It is located within 5 feet of all buildings, structures, stairways, and decks. The intent of this zone is to significantly reduce the probability of fire coming in contact with a structure, especially from accumulating wind blow embers and combustibles located around the base of each home. The lot owner is responsible for its maintenance. Within this zone the goal is to establish and maintain the area per the requirements described below.

Zone 0 Requirements

a. Shall not contain combustible natural fiber, wood, or rubber mulch.
b. Absent of artificial turf.
c. Not contain combustible fences or gates.
d. Not contain combustible decorative items and outdoor furniture.
e. Shall not contain firewood piles regardless of the diameter or dimension of the wood stored.
f. Clear of yard maintenance equipment with flammable components.
g. Absent vehicles of any kind.
h. Absent of exercise or fitness equipment with combustible components.
i. Absent of any item that in whole or in part has an ignition temperature less than 900 degrees F or 500 degrees C.
j. Contain noncombustible materials such as bare ground, decorative rock, gravel, decomposed granite, concrete, pavers, statuary, or water features.

Required Maintenance

- Remove any combustible material monthly within Zone 0 including all dead vegetative matter.
- Remove any combustible material quarterly in rain gutters located above Zone O.
- Remove vehicles of any kind, exercise equipment, yard maintenance equipment that are stored within Zone 0.
  Exception: Does not apply to vehicles parked in a driveway.
- Remove any item that in whole or in part has an ignition temperature less than 900 degrees F or 500 degrees C including holiday decorations.

5.2 Fuel Modification Zone 1A - Maintained by the Lot Owner *(Shown as NO COLOR on the Fuel Modification Plan Map)*

Defined

Fuel Modification Zone 1A is an irrigated landscaped zone, beginning at the outer edge of Zone 0 and extending to the lot boundary. During construction, the zone will be clear of all vegetation. Once a homeowner takes possession of a home/lot, each homeowner shall maintain the zone. It is also part of the defensible space zone, and it shall be free of all combustible construction and materials. It provides the best protection against the high radiant heat produced by wildfire. It also provides a generally open area in which fire suppression forces

can operate during wildfire events. This zone includes a level or nearly level-graded area around the structure. Due to its high moisture content, the vegetation within Zone 1A must be dried out or dehydrated and its temperature raised to its ignition temperature before it burns. It therefore serves as a living passive heat sink, as heat is required to remove water. The intent of this zone is to significantly reduce the probability of flames coming in contact with a structure.

Required Landscaping

- Plants in this zone need to be fire resistant and shall not include any pyrophytes that are high in oils and resins such as pines, eucalyptus, cedar, cypress, or juniper species. Plants used in fuel treatment zones should exhibit the following qualities to be the most "fire resistant": thick, succulent, or leathery leaf species with high moisture content; tendency to produce limited litter; the presence of high salt levels or similar compounds which may contribute to fire resistance; ability to withstand drought and frost; and the ability to withstand severe pruning.
- As a way to reduce water use, artificial turf may be installed in place of water consuming grass as long as the turf material is installed on a sand or noncombustible material and has a Class A fire rating of between zero and 25 as measured by the ASTM E84 standard testing method for assessing the surface burning characteristics of building products. Class A fire rated artificial turf melts when exposed to extreme heat but does not burn and contribute to fire spread.
- Zone 1A shall be cleared of all fire prone and undesirable plant species (see APPENDIX 'A').
- Landscape designs using hardscape features such as driveways, swimming pools, concrete, rock, pavers, and similar noncombustible features to break up fuel continuity within Zone A1 are strongly encouraged.
- Landscaping shall be permanently irrigated and consist of fire-resistant, maintained native or ornamental plantings, such as turf, fire resistant groundcovers, etc.
- Vegetation is prohibited underneath any deck.
- The mature height of shrubs shall not exceed 18 inches beneath trees.
- Larger shrubs may be established if limited to plant groupings of not more than 3 plants that are not more than 6 feet in height and separated from other groupings and trees by not less than 10 feet.
- Shrubs groupings that are less than 12 inches in height shall be limited to 200 square feet to the next plant grouping, sidewalk, or similar noncombustible surface to break up fuel continuity.
- Horizontally, groups of plants or landscape beds should be well-spaced and interrupted by nonflammable areas, such as decorative gravel, rock or steppingstone pathways to breakup fuel continuity.
- Plants selected for Zone 1A shall be per Section 3.3 - Fire Resistant Plant Palette.
- Trees shall be single specimens or groupings of not more than three trees selected from the lists described in Section 3.3. Trees are to be planted such that the mature canopies will be at least 10 feet from the exterior walls of the structure or from the most distal

point of a combustible projection, an attached accessory structure, or an accessory structure located within 10 feet of a habitable building.

- Landscape plans that incorporate trees shall provide for a minimum of six feet of vertical separation from low growing, irrigated vegetation beneath the canopy of each tree.
- Firewood shall be located outside Zone 1A unless it is covered in a secure, fire-resistant enclosure.
- No combustible mulch shall be used in Zone 1A. Consider the use of decomposed granite, bricks, pavers, sand, gravel, crushed shells, or decorative rock.
- Plants located on roofs or decks shall meet the requirements 1A.

Required Maintenance

- Lots shall be maintained year-round by the individual property owners within their property boundary (lot lines) as required by this PFPP and the RCFD.
- Remove and replace any dead or dying plant material monthly.
- Shrub and tree separation distances described under required landscaping shall be maintained.
- Trees must be maintained to have a minimum of six (6) feet of vertical separation between low growing, irrigated vegetation beneath the canopy of each tree.
- Irrigation systems shall be tested for proper coverage and flow rates bimonthly. Drip irrigation may be utilized to reduce water use, prevent disease by minimizing plant water contact thus allowing for the space between plants to remain dry reducing weed growth.
- Irrigation systems shall not be turned off other than for required maintenance and or during periods of extended rainfall. Restart the system when the soil dries out.
- All trees and shrubs must be maintained to the current ANSI A300 standards [*Tree, Shrub, and Other Woody Plant Maintenance —Standard Practices (Pruning)] see: https://www.tcia.org/TCIA/Build_Your_Business/A300_Standards/A300_Standards.aspx*.

5.3 Fuel Modification Zone 1B - HOA Maintained *(Shown as Green on the Fuel Modification Plan Map)*

Defined

Zone 1B is an irrigated zone beginning at the outer edge of Zone 0 or 1A and extends up to 50 feet from each structure that is permanently irrigated and maintained. It is located in common areas and includes all manufactured slopes. The HOA or County are to maintain the landscaping to the criteria outlined in Section 5.2. See Photo 7 for an example of a landscaped manufactured slope.

Photo 7 – *An example of an irrigated manufactured slope (Zone 1B) that is planted with fire resistant vegetation.*

Required Landscaping

Same as Zone 1A

Exceptions:

a Composted wood chips or Tahoe chips, applied as a single layer mulch of not more than 2 inches, may be placed in Zone 1B if all the following conditions are met:

- There is a 6-foot or greater in height solid noncombustible wall located between the area where the mulch is to be spread and a home/building.
- The area is located over 50 feet from any structure.
- The area is provided with overhead irrigation that would daily wet the chips to increase their moisture levels and therefore their resistance to ignition.

Composed wood chips or Tahoe chips have been found to be the least hazardous of all organic mulch materials as measured by a Combustibility of Landscape Mulches study performed by the University of Nevada Cooperative Extension.

b. Jute netting, nylon, or polyethylene mesh erosion control products may be installed in Zone 1B to reduce erosion and moisture loss when located over 20 feet from any structure. Excelsior netting, straw blankets, and similar highly combustible erosion control products are prohibited within 100 feet of any structure as they tend to ignite readily and produce embers while burning.

Required Maintenance

Same as Zone 1A

5.4 Fuel Modification Zone 2A – HOA Maintained *(Shown as Yellow on the Fuel Modification Plan Map)*

Defined

Fuel Modification Zone 2A, often called a thinning zone, is a non-irrigated area located within a common area that typically is covered in wildland fuels but also includes portions of debris basins. Zone 2A is 50 feet in width and begins at the outer edge of Zone 1A and 1B. This zone is designed to reduce the fuel load in native vegetation or vegetation growing in debris basins to reduce the radiant and convective heat of a wildland fire by reducing flame length and slowing the rate of a fires spread.

Portions of Zone 2A that exist within large OS may contain native American artifacts: none have not been found as of the date of this report. Hand thinning operations, mowing, or weed whacking, typically do not disturb the soil, and thus would preserve any artifacts that may be present. Due to the presence of rock outcropping and steep slopes along the intermittent streambed, hand mowing or weed whacking is preferred to riding maintenance equipment.

Required Treatment

- Removal all dead woody vegetation and flammable debris, including the species listed in APPENDIX 'A.'
- Reduce the plant material by 50 percent of the adjacent untreated wildland vegetation.

Required Maintenance

- As grasses and weeds begin to cure (dry out) each year, they shall be cut to 4 inches or less in height. Maintenance using string trimmers is more fire safe than using a steel blade. Consider the use of a battery-operated trimmer as they are less likely to catch fire as they contain no flammable liquids such as gasoline.
- Annually remove all dead and dying vegetation, highly flammable exotic species, and flammable debris (see APPENDIX 'A').
- Special consideration will be given to rare and endangered species, geologic hazards, archeological sites, and tree ordinances or other conflicting restrictions.
- Individual shrubs and trees shall be thinned and pruned to reduce their foliage mass or fuel loading. Thinning increases light penetration and air movement while removing material that can function as ladder fuels.
- Shrub and trees, especially those located in debris basins, shall be limited to 3 specimens per group. Each group's canopy shall be separated from an adjacent grouping by a minimum of 30 feet.
- Efforts shall be made to retain root systems that provide for erosion control.
- Debris and trimmings produced by thinning and pruning shall be removed from the site.

5.5 Fuel Modification Zone 2B – HOA Maintained *(Shown as Red on the Fuel Modification Plan Map)*

Where there is not sufficient space within the Project to establish 100 feet of fuel modification, an off-site permanent fuel treatment easement will be required. This easement shall be established east of lots 1-10 and north of lot 6 on the adjoining parcel that has not been

developed. The permanent offsite Zone 2B easement shall be 50 feet in width and maintained per Zone 2A criteria.

Should an easement not be achievable with the adjoining landowner, See Section 6.0 regarding additional building features.

Required Landscaping
Same as Zone 2A

Required Maintenance
Same as Zone 2A

5.6 Roadside Fuel Treatment - HOA or County Maintained *(Shown as Purple on the Fuel Modification Plan Map)*

The area located 20 feet on either side of any public fire access roadway that is located in a common area and maintained to Irrigated Zone 1A criteria described in Section 5.2 or it shall be free of all vegetation. Irrigation shall maintain plant health and keep fuel moisture levels high. This zone is designed to make ingress and egress safer during a wildland fire event for both residents during an evacuation and emergency responders.

Required Landscaping
Same as Irrigated Zone 1A – Section 5.2 with the following additional requirement:

- The Project Landscape Architect shall design the irrigation system for roadside fuel treatment to be on its own independant irrigation zone. This will allow for other zones to be shut down independently from the Roadside Fuel Treatment should water availability for landscape plants become an issue.

Required Maintenance
Same as Irrigated Zone 1A – Section 5.2 including the following additional requirement:

- Irrigation shall not be shut down except for necessary system repairs and maintenance.

If available, landscaping should be irrigated with reclaimed water. In the future, should water for irrigation from potable water sources become restricted, reclaimed water may be a more dependable source.

5.7 No Build Zone *(Shown as Pink on the Fuel Modification Plan Map)*

Defined
A No Build Zone shall be located on the east and north sides of Tract 38910 as shown on the Fuel Modification Plan Map, see Section 11. The zone is 25 feet in width, beginning at the rear lot line and extends toward the home. It is found on lots 1-10 and 117-122. In the No Build Zone, no combustible construction can occur, including the home. The lot owner shall perform and maintain the required Zone 1A fuel modification as described in Sections 5.1 and 5.2 as well as not allow any combustible construction within this zone. This zone, when combined

with the additional required construction features outlined Sections 6.2 and 6.3 will mitigate for the lack of 100 feet of fuel treatment for each home**.**

All non-habitable accessory structures such as decks, balconies, patio covers, gazebos, and fences shall be built from noncombustible materials. The owners are not restricted from having concrete/brick patios, walkways, metal fencing or a swimming pool within the Fuel Treatment Zones in compliance with other codes. Homeowners shall check with the Riverside County Building Department to determine if construction permits are required. Refer to APPENDIX 'D' for photos and examples of noncombustible decks, patio covers, and railings for these non-habitable accessory structures.

6.0 CONSTRUCTION STANDARDS & REQUIREMENTS

All homes within the Project shall meet Chapter 7A of the 2022 California Building Code or the current codes in force at the time of permit application as all homes are located within a designated fire zone. These wildland/interface requirements shall be to the satisfaction of the RCFD and be designed and constructed with ignition resistant and noncombustible construction requirements. Several homes on single-family lots where 100 feet of fuel modification cannot be established within the Project shall be located a minimum of 20 feet from the rear property line where no combustible construction will be allowed including the home. For a description of the current construction requirements as of the date of this report, see APPENDIX 'E.' The fire protection features described herein shall be maintained to equivalent or greater ignition resistance.

Any damaged or replacement window, siding, vent, roof covering, or non-combustible wall shall meet or exceed the original intent of the fire protection discussed in this plan.

6.1 Pre-Construction Requirements

Per Riverside County Guideline OFM-01A, the following shall be provided prior to construction:

- Water and power utilities shall be installed by the developer and approved by the appropriate inspecting department or agency.

- An inspection shall be scheduled with the Riverside County Fire Department, Office of the Fire Marshall to verify that access roads and other access features have been provided for buildings under construction.

- For projects with fuel modification, a vegetation clearance inspection is required.

- All gates in construction fencing shall be equipped with either a Knox or breakaway padlock.

- The Project address shall be clearly posted and visible from the public road during construction.

6.2 Construction Requirements

All of the lots could be showered with embers during a wildland fire event. Also, for the homes located along the northern and eastern perimeters, several of them cannot be provided with 100 feet of fuel treatment due to the presence of protected habitat or that fuel treatments would need to extend onto adjacent undeveloped property. To address these issues, the following the following construction features shall be implemented:

Required for All Lots:

- All operable windows shall be provided with metal mesh bug screens or similar noncombustible screens over the operable opening to replace traditional vinyl bug screens to prevent embers from entering the structure during high wind conditions when windows may be inadvertently left open.

- Decks that are less than 4 inches above the ground shall be enclosed with 1/8 inch or finer noncombustible and corrosion resistant mesh.

Required for Lots 1-10 & 117 -122

A six (6) foot tall solid non-combustible radiant heat and fire deflection wall shall be installed at the locations shown on the Fuel Modification Map as a ■ ■ ■ ■ . The wall will aid in radiant and convective heat deflection from a wildfire and when located between residences, reduce radiant heat should an adjacent structure catch fire. Noncombustible walls can be built of stucco, concrete block or metal as long as the wall is solid and noncombustible. The upper half of said wall may be a view wall where tempered fire-rated glass of not less than ¼ inch thickness is utilized as long as the wall remains solid and noncombustible (See Appendix 'G' for an example). Post and glass frame assemblies for view walls shall be composed of metal such as steel, and 6063T5 aluminum alloys or equivalent, respectively, which will not melt and allow the glass to fall out.

Any gate placed within a solid noncombustible wall shall also be constructed of noncombustible materials. The opening around the gate including its base shall not exceed ½ inch.

A solid noncombustible wall located at the top of slopes/edge of the building pad or on flat land on the property line away from a home will have a tremendous impact on radiant and convective heat, ember collection, and reduction in wind speeds that reduces fire behavior. These impacts are demonstrated in Figure 4.

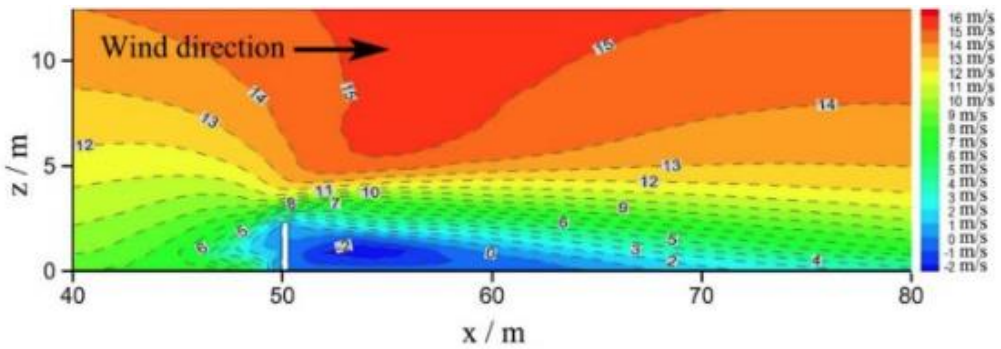


Figure 4 – Impacts on Wind Speed and Ember Deposition Resulting From a 2 meter (6+ - foot Wall. *The above diagram is based on a wind speed of 14 m/s (31 MPH). Note that the wind, both on the windward and leeward sides of the wall, is reduced. These areas will thus trap firebrands and blowing debris (area shown in blue and light green). The wind speed on the windward side of the wall is significantly reduced for a distance equal to several times the height of the wall. The above diagram was created for the purpose of demonstrating the impact of a wall on snow deposition and wind speeds but is also applicable to ember deposition and wind speeds. Ref: Dong et al., 2007.*

Solid fences or walls as described in a publication by Purdue University Cooperative Extension Service entitled: Wind and Snow Control Around the Farm states that snow will drop, or embers in the case of wildfire, in two places: (1) on the *upwind* side of the fence/wall at a 45-degree angle for a distance of about one-fence-height, and (2) on the *downwind* side for a distance equal to about five times the fence/wall height. Their findings are consistent with Figure 4. During a strong wind, the high-velocity air that strikes the obstacle increases the air pressure on the upwind side and creates a slight vacuum on the downwind side. The increased air pressure on the upwind side of the wall reduces the wind speed which results in the flame length and associated fire behavior being reduced, a critical factor in fire protection planning and mitigation.

6.3 Requirements When an Off-site Fuel Treatment Easement Cannot be Established Adjacent to Lots 1-10 (Identified in Gray).

Should an easement not be established adjacent to the east side of lots 1-10 or north side of lot 6, all the requirements listed above in Section 6.2, plus the following features shall be required in the homes built on these lots:

- All structures shall have automatic door closers on all vehicle garage doors (standard on most new automatic garage door openers as a security feature) that can be set to close after a certain period of time with no activity.

- No vents or openings such as pet doors shall be located on an exterior wall that faces wildland vegetation.

- Fire sprinklers (per NFPA 13D) shall be installed in all garages and all attic spaces where there are screened openings (vents) to the exterior of the structure.

- All swing exterior doors on the rear or sides of the structure shall be self-closing and self-latching and have a 45-minute fire rating.

- Fire sprinklers (per NFPA 13D) shall be installed beneath all projections that are located in a rear or side yard that is within 50 feet of wildland fuels. Projections include roof eaves, balconies, bay windows, porches, covered patios, or similar building features that are likely to trap heat.

Note: Pursuant to Riverside County Ordinance No. 695, the Riverside County Fire Department, in the event that the Developer is unable to secure an easement for fuel treatment on the adjoinng property, will annually enforce its Hazard Reduction Program. This would result in the adjoining landowner being notified, ordered, and required to abate the hazardous vegetation within 30 days at their cost. The Developer has worked to establish an easement whereby the HOA would be performing the abatement work at no cost to the adjacent property owner.

Should an easement be established, the homes numbered 1-10 shall not be required to have the building features that are shown within this Section 6.3.

6.4 Requirements for Perimeter Lots Designated in Gray (Lots 117-122) on the Fuel Modification Plan Map.

Lots 117-122 are perimeter lots adjacent to vegetation within a steep intermittent streambed that contains protected habitat. This habitat is an extension of the habitat found to the northwest in the adjacent Highland Grove 1 development. These lots shall be provided with the requirements listed above in Sections 6.2, and 6.3, plus the following features:

1. Openings within a wall facing wildland vegetation (doors & windows) shall be limited to 20 percent of the walls surface area.

2. All fences shall be built of noncombustible or self-extinguishing materials.

3. Homes built on lots 117-122 shall be one-story in height to increase the effectiveness of the 6-foot solid noncombustible wall.

7.0 MANDATED INCLUSION IN THE CC&R'S AND HOA REQUIREMENTS

The HOA Covenants, Conditions & Restrictions (CC&R's) shall be recorded on each parcel and include the following statements:

1) The HOA shall be responsible for all required fuel treatment and fire protection measures mentioned in the Fire Protection Plan and shall have authority for enforcing required fuel treatment measures around all structures and restrictions on placing combustible structures within the fuel treatment zones.

2) Homeowners shall be responsible for all required fuel treatment and fire protection measures on their respective lots.

3) Each lot owner shall annually financially contribute their fair share of HOA required fuel treatment costs.

4) The Riverside County Fire Department will hold the HOA of the Tract 38910 accountable for enforcement of all wildland fire protection issues discussed in this plan.

5) The HOA shall have the authority to enforce a ban on trash dumping or disposal of green waste in the fuel treatment zones or open space areas.

6) All landscaping plans, including additional structures, must be approved by the HOA.

7) The HOA is responsible to the Riverside County Fire Department for the completion of all required fuel treatments in the common areas. Required on-going maintenance will be accomplished on an as needed basis. Should maintenance not be performed in a manner consistent with the Fire Protection Plan, the Riverside County Fire Department shall have the right to abate any treatment zone they deem a threat to the Tract 38910 development or adjoining properties. In doing so, all costs incurred will be billed to the owner(s). At the discretion of the Riverside County Fire Department Fire Marshal, yearly inspection of treatment areas may be required.

8) The irrigation system for all Fuel Modification Zones shall always be kept in good condition and proper working order. The irrigation system shall not be turned off except for necessary repairs, maintenance or during extended rainfall.

9) Any disputes related to individual lot landscaping or fuel treatment, with respect to interpretation of the Fuel Modification Plan, shall be decided by the Riverside County Fire Department or its designated representative and whose decision shall be final and binding on the lot owner.

10) The HOA shall provide a copy of the Fire Protection Plan to all homebuyers as part of escrow papers at the time of future resales.

8.0 INFRASTRUCTURE

Infrastructure includes the basic systems needed to develop a property and support its use by its residents and or businesses. For Fuel Modification planning purposes, these typically consist of the water supply for fire hydrants and fire sprinkler systems and accessways to and from the property.

8.1 Water Supply

The Eastern Municipal Water District (EMWD), which purchases a portion of its water from the Metropolitan Water District of Southern California as well as pumps water from local

groundwater basins will provide potable water to the Project. This combination of water sources creates a high degree of reliability as the EMWD has been able to maintain groundwater levels through banking of groundwater during wet years.

Hydrants, mains, and water pressures shall be designed to comply with County of Riverside Code requirements described in CFC Section 507. An approved permanent water supply, including fire hydrants, capable of supplying the required fire flow for fire protection shall be provided by the developer prior to any combustible material placed on the site or the commencement of construction. The water supply system shall be a looped system served from two points.

Water supplies for fire protection and hydrants shall be in accordance with APPENDIX 'B' and APPENDIX 'C' of the 2022 California Fire Code, Riverside County Ordinance 787.10 and RCFD Guideline OFM-01A & Guideline OFM-0-1B, and Riverside County Ordinance 460 Commercial & Residential Developments.

8.2 Access Roads/Driveways and Gates

Access to the Project site will be provided via an ingress/egress road off El Sobrante Road with interconnecting roads (Streets A-K). The main access point will be from proposed Street "A". Street "A" is planned to have a 78 foot right of way which will be extended northward in a future phase of the Highland Grove Development. This would provide a second means of access to the north and thus two ways in and out of the Project.

All driveways and access roads within the development shall be termed "Fire Access Roads". All fire access roads shall meet the requirements of the RCFD and shall be all weather surface capable of supporting loads of 80,000 lbs. gross vehicle weight. Roadways shall be a minimum of 24 feet in width. Along this roadway, "no parking" signage shall be installed to the satisfaction of the RCFD. Each access roadway shall have not less than 13 feet 6 inches of unobstructed vertical clearance.

Any gates to be installed shall meet RCFD Standards and shall be approved by the RCFD prior to fabrication and installation. Gate entrances shall be at least two feet wider than the width of the traffic lanes serving that gate. A Driveway serving a single-family home shall be a minimum of 14 feet in width.

Should gates be installed, they shall be automatic and shall be equipped with a rapid entry system. Gates activated by the rapid entry system shall remain open until closed by the rapid entry system. A Knox override key switch or similar device acceptable to the RCFD must be installed outside the gate in an approved, readily visible, and unobstructed location at or near the gate to provide emergency access. Gates accessing more than four residences or residential lots, shall also be equipped with approved emergency traffic control-activating strobe light sensor(s), or other devices approved by the Fire Chief, which will activate the gate on the approach of emergency apparatus with a battery back-up or manual mechanical disconnect in case of power failure.

8.3 Fuel Modification Access Ways

Fuel modification access ways are used not only for fuel modification zone maintenance but also for wildland fire suppression. In most cases, access is readily available from roadways or detention basins. For fuel modification zone maintenance north of lots 115-128, there are two areas where access is available. The northern end of Street 'A' will provide access to the northwest and from OS Lot 141 which is planned as a detention basin, maintenance can be accessed by going southeast. The most critical area is north of lots 117-122 where protected habitat exists. This area can be most easily maintained from OS lot 141, which is located approximately 325 feet northwest of lot 117.

8.4 Hose Pull and Turn Around Requirements

The California Fire Code, Section 503.1.1 requires that an approved fire access road be located within 150 feet of all portions of the exterior wall of the first story of any building as measured by an approved route around the exterior of each building. This requirement is sometimes referred to as the hose pull distance. An approved route means that there can be no obstructions such as walls, planters, hedges, and other features that would impede firefighter access.

9.0 HOMEOWNER/HOA EDUCATION

This portion of the PFPP provides both methods for residents and the HOA to a fire starting within or adjacent to the Project, evacuation information should evacuation be needed, and related information.

Should a Wildfire Occur

Each homeowner in the Highland Grove 2 development should ensure that all fireplace dampers, doors and windows (including the garage) are closed to prevent embers from entering their structure in the event of a wildland fire. Doors should be left unlocked to allow emergency personnel unimpeded access. Both inside and outside lights should be placed on to allow emergency personnel to know that a home is present when smoke or darkness may otherwise obscure visibility. In addition, no combustible materials shall be located within 30-feet of any structure. Move combustible materials such as furniture indoors or if there is a pool, they may be placed in the pool to prevent their ignition. Additional information concerning relocation/evacuation and preparation for wildfire can be acquired from the RCFD. See Appendix 'H' for additional information.

Evacuation

Residents should always follow evacuation orders issued by law enforcement as they will be aware of the most effective and safest route. Communication between law enforcement and fire control agencies is constant during a wildfire event and designed to address both current and future evacuation needs.

Ready, Set, Go is the evacuation strategy proposed for this Project is described on the CAL FIRE website (https://www.readyforwildfire.org/prepare-for-wildfire/ready-set-go/) and widely utilized by fire agencies and departments throughout California as well as the nation. Should a wildfire

exist that threatens the property or safety of people at the site, the following actions shall be implemented:

1. ***Ready – Preparing for the Fire Threat:*** *Take personal responsibility and prepare long before the threat of a wildfire so the home is ready in case of a fire. Maintain a defensible space by clearing brush away from all structures. Use fire-resistant landscaping and harden structures with fire-safe construction measures. Assemble emergency supplies and belongings in a safe spot. Make sure all individuals within the area are 'on the same page' in commitment to advance preparation. Plan escape routes.*

2. ***Set – Situational Awareness When a Fire Starts:*** *Pack vehicle(s) with emergency items. Stay aware of the latest news from local media and the local fire department for updated information on the fire and perform the following:*

   - ✓ *Close all windows and doors that lead outside to prevent sparks from entering the house.*
   - ✓ *Close all doors within the house in case the house does catch on fire; this will slow down the spread of the fire from room to room.*
   - ✓ *Move all combustible materials in the home away from windows to prevent the possibility of heat from a fire radiating through windows and glass doors and catching flammable materials inside the home on fire. This includes drapes, curtains, and furniture.*
   - ✓ *Close windows and all Venetian blinds or noncombustible window coverings.*
   - ✓ *Turn on the lights in each room, porch, and yard. This aids in visibility when the smoke gets thick and darkens the sky.*
   - ✓ *Fill all sinks, bathtubs, and buckets with water in case the power goes out.*
   - ✓ *Shut off any gas valves within the house or outside.*
   - ✓ *Open the damper on fireplaces to stabilize inside/outside pressure, but close fireplace screens to keep sparks from igniting the house.*

3. ***Go – Leave early!*** *Following an Action Plan makes one prepared and firefighters are now able to best maneuver the wildfire and ensuring everyone's safety. Follow instructions given by the Fire Department official on site.*

For assistance regarding evacuation, how to prepare and what to take, see Appendix 'I' – Evacuation Checklist

10.0 CONCLUSIONS

This PFPP evaluated the adverse environmental effects that a residential development may have from wildland fire and properly mitigate those impacts to ensure that this development does not unnecessarily expose people or structures to a significant risk of loss, injury, or death.

The requirements of this PFPP provide the fuel treatment standards required to mitigate the exposure of people or structures to a significant risk of loss, injury, or death. Fuel treatment zones provide 100 feet of fuel treatment that includes a defensible space zone for fire suppression forces and will protect structures from radiant and convective heat. These zones shall be a combination of an ember resistant zone followed by landscaped zones that are permanently irrigated and that consist of fire resistant and maintained plantings. This is then followed by thinning zones where existing vegetation is reduced and maintained. The maintenance requirements include the removal of all prohibited highly combustible native vegetation but permits planting with very specific criteria. When 100 feet of fuel modification could not be established, additional building features are required.

The Project will have adequate emergency access in terms of road access and construction standards for roadways and streets. The RCFD, Cal Fire, and nearby fire departments will provide fire protection through mutual aid. Response times and the proximity of the development to the WUI, and a subdivision in a High or Very High Fire Hazard Zone require fire sprinklers to be installed in all residences.

11.0 FUEL MODIFICATION PLAN MAP EXHIBIT

Attached to this PFPP is the Tract 38910 Fuel Modification Plan Map Exhibit depicting the locations of all proposed fuel treatments, as well as fire access roads, lot lines, building footprints, and development boundaries. This map also depicts the adjacent developed lots as a reference for interlinking fuel treatments. The Fuel Modification Plan Map also shows the boundary of the protected habitat in OS Lot 142. Fuel modification has been avoided in this area. Where there is less than 100 feet of separation between the protected habitat and the homes, the additional building features found in Section 6.4 are required. Once the landscape plan is finalized, a FFPP can be developed.

APPENDIX 'A'

Prohibited (& Fire Prone) Plant Species List
For Fuel Modification Zones in Moderate, High & Very High Hazard Areas

	Botanical Name	Common Name	Plant Form
1.	Acacia species •	Acacia	Shrub/Tree
2.	Adenostema fasciculatum	Chamise	Shrub
3.	Adenostema sparsifolium	Red Shank	Shrub/Tree
4.	Artemisia californica	California Sagebrush	Shrub
5.	Anthemis cotula	Mayweed	Weed
6.	Arundo donax	Giant reed	Grass/weed
7.	Brassica nigra	Black Mustard	Weed
8.	Brassica ropa	Yellow Mustard	Weed
9.	Cedrus species	Cedar	Tree
10.	Cirsim vugare	Wild Artichoke	Weed
11.	Conyza canadensis	Horseweed	Weed
12.	Cortaderia selloana	Pampas Grass	Tall Grass
13.	Cupressus species	Cypress	Tree
14.	Cytisus species	Broom	Shrub
15.	Eriogonum fasciculatum	Common Buckwheat	Shrub
16.	Eucalyptus species	Eucalyptus	Shrub/Tree
17.	Heterotheca grandiflora	Telegraph plant	Weed/shrub
18.	Juniperus species	Junipers	Succulent
19.	Lactuca serriola	Prickly lettuce	Weed
20.	Nicotiana bigelevil	Indian tobacco	Shrub
21.	Nicotiana glauca	Tree tobacco	Shrub
22.	Pennisetum species	Fountain Grass	Ground cover
23.	Pinus species	Pines	Tree
24.	Rosmarinus species	Rosemary	Shrub
25.	Retama monosperma	Broom	Shrub
26.	Salvia species • •	Sage	Shrub
27.	Silybum marianum	Milk thistle	Weed
28.	Spartium junceum	Spanish Broom	Shrub
29.	Urtica urens	Burning nettle	Weed
30.	Washingtonia species	Palms	Tree

• Except:
Acacia redolens desert carpet (Desert Carpet ground cover)

•• Except:
Salvia columbariae (chia)
Salvia sonomensis (Creeping Sage)

APPENDIX ‘B’

Landscape Plan

Placeholder for the Landscape Plan that is consistent with the Fire Protection Plan. This plan is currently under development and is required for all Final Fire Protection Plans.

APPENDIX 'C'

Literature References

1. *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model,* General Technical Report RMRS-GTR-153. June 2005. Joe H. Scott, Robert E. Burgan, United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.

2. *BehavePlus: Fire Modeling System, version 5.0: Variables.* General Technical Report RMRS-GTR213WWW Revised. September 2009. Patricia L. Andrews, United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.

3. *Behave Plus Fire Modeling System, Version 5.0.4,* General Technical Report RMRS-GRT-106WWW Revised. July 2008. Patricia L. Andrews, Collin D. Bevins, Robert Seli. United States Department of Agriculture - Forest Service, Rocky Mountain Research Station, Missoula, Montana.

4. Behave Plus Fire Model System, Version 6.0.0, Windows based computer software. USDA Forest Service, Rocky Mountain Research Station, Missoula Fire Sciences Laboratory, Missoula, MT. https://www.frames.gov/behave/home.

5. Butler KM and Johnsson EL, Maranghides A, Nazare S, Fernandez M, Zarzecki M, Tang W, Auth E, McIntyre R, Pryor M, Saar W, and McLaughlin C (2022) Wind-Driven Fire Spread to a Structure from Fences and Mulch. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Technical Note (TN) NIST TN 2228. https://doi.org/10.6028/NIST.TN.2228-upd1.

6. California Code of Regulations Title 14 section 1280 and Title 24 Part 9

7. California Public Resources Code Sections 4201 through 4204

8. California Government Code, sections 51175 through 51189

9. 2022 California Fire Code portion of the CBSC, including appendices to Chapters 1 & 4 and Appendices B, F & H and Local Amendments

10. California Building Code- Chapter 7A - *Materials and Construction Methods for Exterior Fire Exposure.*

11. 2022 California Residential Code (CRC) R337

12. *The California State and Local Responsibility Area Fire Hazard Severity Zone Map – Fire and Resource Assessment Program of CAL FIRE.*

13. County of Riverside Ordinance No. 787 (as amended through 787.10) Adopted December 13, 2022. *An Ordinance of the County of Riverside Adopting the 2022 California Fire Code as Amended.*

14. Dong et al., 2007, Z. Dong, W. Luo, G. Qian, H. Wang. **A wind tunnel simulation of the mean velocity fields behind upright porous fences.** Agric. For. Meteorology., 146 (1-2) (2007), pp. 82-93.

15. National Fire Protection Association - NFPA 13 Standard for the Installation of Sprinkler Systems in One and Two-Family Dwellings and Manufactured Homes, 13-R &13-D, 2022 Edition

16. National Fire Protection Association – NFPA 1140 Standard for Wildland Fire Protection. 2022 Edition.

17. Quarles, S. and E. Smith. 2011. The Combustibility of Landscape Mulches, SP-11-04, University of Nevada Cooperative Extension, Reno, NV.

18. Riverside County Fire Department Standards #06-05, revised 6/1/11, #06-06 revised 6-30-11, #06-11 revised 2/2/17, and #16-001 revised 10/23/17.

19. Western Region Climate Center. *Historic Climate Data from Remote Automated Weather Stations.* RAWS USA Climate Archive. Reno, NV. Data for all Remote Automated Weather Stations is available at: http://www.raws.dri.edu/index.html

APPENDIX 'D'

Non-Combustible & Fire-Resistant Building Materials For Balconies, Carports, Decks, Patio Covers and Floors

Note: The Office of the State Fire Marshal (SFM) Fire Engineering Division administers licensing programs and performs engineering functions affecting consumer services and product evaluation, approval and listing. The following link is to the State Fire Marshal's office for more information on the Building Material List for noncombustible and fire resistant building materials: https://osfm.fire.ca.gov/divisions/fire-engineeringand-investigations/building-materials-listing/bml-search-building-materials-listing.

Examples of non-combustible & fire-resistant building materials for balconies, carports, decks, patio covers, and floors are as follows (these are only examples and materials listed here must meet local fire and building codes:

I. NON-COMBUSTIBLE HEAVY GAGE ALUMINUM MATERIALS - *Metals USA Building Products Group - Ultra-Lattice*

Ultra-Lattice Stand Alone Patio Cover

Ultra-Lattice Attached Patio Cover

Ultra-Lattice Solid Patio Cover

Ultra-Lattice Vs. Wood

II. FRX Exterior Fire-Retardant Treated Wood

Exterior Fire Retardant Treated (FRT) Wood

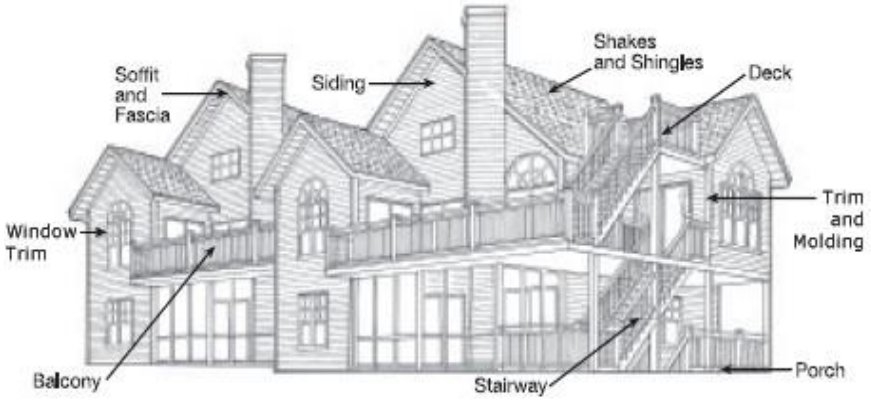
FRX® fire retardant treated wood may be used in exterior applications permitted by the codes where: public safety is critical, other materials would transfer heat or allow fires to spread, sprinkler systems cannot easily be installed, corrosive atmospheres necessitate excessive maintenance of other materials, or fire protection is inadequate or not readily available. Local Building, Residential and Urban-Wildland Interface Codes and regulations, permit the use of fire-retardant treated wood in specific instances. See below for typical exterior uses and typical residential uses.

Typical Exterior Uses

- Wall coverings
- Balconies
- Decks
- Stairways
- Fences
- Sheds
- Gazebos
- Roof coverings
- Open-air roof systems
- Canopies and awnings
- Storefronts and facades
- Eaves, soffits and fascia
- Agricultural buildings and horse stalls
- Scaffolding and scaffold planks
- Construction staging
- Various other residential and commercial uses

Typical Residential Uses

Property owners and Architects: See this 2-minute video and the illustration below.



Rising concerns over fire damage and the adoption of urban-wildland interface codes have increased the use of FRT wood in residential structures.

For information on fire retardant treated wood for exterior uses, visit www.frxwood.com.

III. TREX COMPANY, INC. – "Trex Transcend®, Trex Select® and Trex Enhance® wood and polyethylene composite deck board, nominal ranging in size from 1" x 5-1/2" to 13/8" x 5-1/2" installed per manufacturer maximum edge-to-edge gap of 3/16". All Trex decking products meet or exceed the SFM 12-7A-4A testing protocol.

Trex combines both beauty and fire defense. A few examples of installations are shown below:

IV. SOLID "WOOD" DECKING

Company Name: Various Manufacturers
Product Description: Solid "Wood" decking, when installed over minimum 2" x 6" solid "Douglas Fire" or better joists, space 24" or less on center, and decking and joints comply with American Softwood Lumber Standard PS2o as follows:

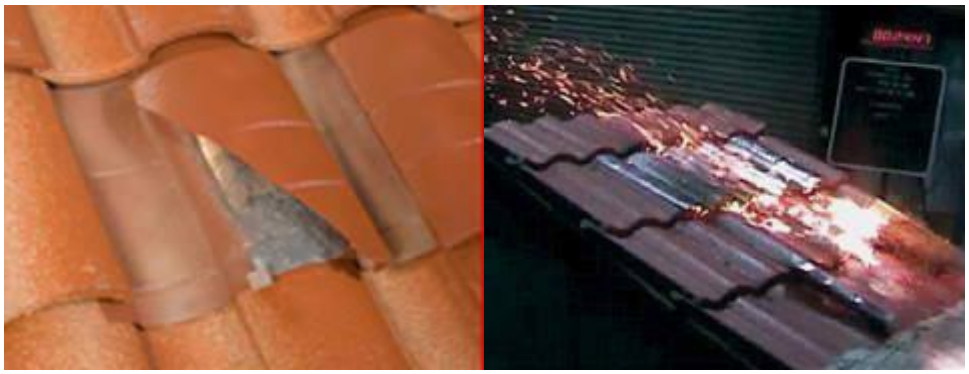
Minimum nominal 5/4"thick and nominal 6" wide decking boards with a maximum 3/8" radius edges made of solid wood species "Redwood", "Western Red Cedar", "Incense Cedar", "Port Orford Cedar", or "Alaska Yellow Cedar" having a Class B Flame Spread rating when tested in accordance with ASTM E84. Lumber grades; construction common, commercial or better grade for Redwood; 3 common, commercial or better grades for Cedars.

V. Vents

Examples of Approved Vents

Brandguard

O'Hagin Fire & Ice® Line – Flame and Ember Resistant
An available option for all O'Hagin attic ventilation products, this attic vent not only features all the same design, construction elements and color choices as the O'Hagin Standard Line, but also features an interior stainless-steel matrix that resists the intrusion of flames and embers. This patent-pending attic vent is accepted for use by many local fire officials for installation in Wildland Urban Interface (WUI) zones.



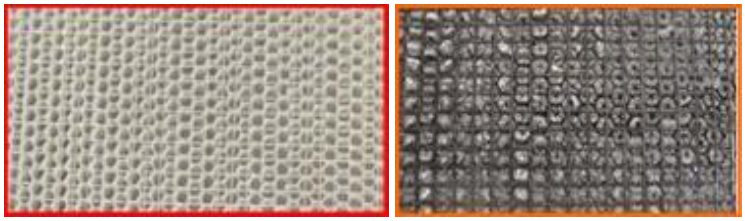
Vulcan Vents

The founders of Gunter Manufacturing have been working closely over the last two years, with the scientists and inventors of Vulcan Technologies to bring to market this incredible product.

Combining our quality vent products with the fire-stopping honeycomb matrix core designed by Vulcan has produced unique and remarkable results.

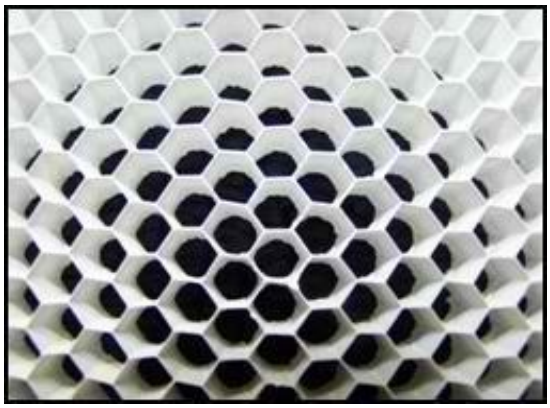
At Gunter manufacturing has over 50 years of combined sheet metal manufacturing experience. Special orders are not a problem. Their vent frames are industry standard frames so there is little or no learning curve for installers and contractors. Their stated goal is to provide people with the vents they need to secure their homes with additional safety against wildfires and give them piece of mind from knowing that their home or structure is protected by a product that works!

The core of their fire and ember safe vents are manufactured out of hi-grade aluminum honeycomb and coated with an intumescent coating made by FireFree Coatings. The intumescent coating is designed to quickly swell up and close off when exposed to high heat. The expanded material acts as an insulator to heat, fire, and embers

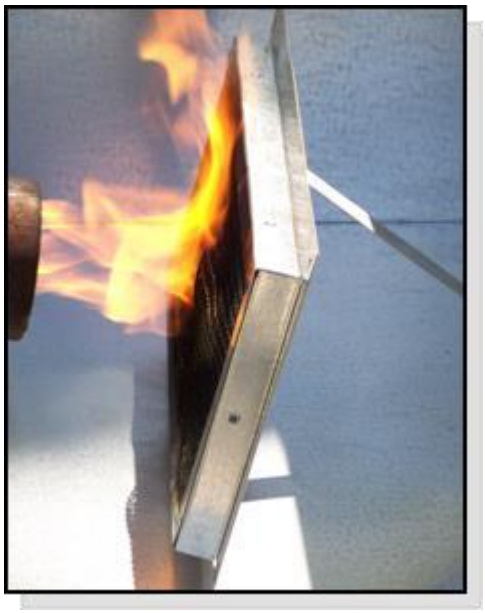


Before **After**

After the cells close off, they are extremely well insulated, and fire or embers cannot penetrate.
Even before the cells close off, the vent is designed to protect against flying embers. In many cases embers will attack a structure before fire ever comes near, so this feature is very important.



Close-up of the coated honeycomb matrix.



Fire easily passes through a standard vent, on the left, but stops cold when it comes up against a Vulcan Vent shown on right.

APPENDIX 'E'
Ignition Resistant Construction Requirements

The following is a summary of the current requirements for ignition resistant construction for high fire hazard areas under Chapter 7A of the California Building Code (CBC) 2022 edition and the current California Residential Code. However, the requirements listed below are not all inclusive and all exterior building construction including roofs, eaves, exterior walls, doors, windows, decks, and other attachments must meet the current CBC Chapter 7A ignition resistance requirements, the California Fire Code, and any additional County and/or City codes in effect at the time of building permit application. See the current applicable codes for a detailed description of these requirements and any exceptions.

1. All structures will be built with a Class A Roof Assembly and shall comply with the requirements of Chapter 7A and Chapter 15 of the California Fire Code. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.

2. Roof valley flashings shall be not less than 0.019-inch (0.48 mm) No. 26 gage galvanized sheet corrosion-resistant metal installed over not less than one layer of minimum 72-pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909, at least 36-inch-wide (914 mm) running the full length of the valley.

3. Attic or foundation ventilation louvers or ventilation openings in vertical walls shall be covered with a minimum of 1/16-inch and shall not exceed 1/8-inch mesh corrosion-resistant metal screening or other approved material that offers equivalent protection.

4. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to resist the intrusion of flames and embers, be fire stopped with approved materials or have one layer of a minimum 72-pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D3909 installed over the combustible decking.

5. Enclosed roof eaves and roof eave soffits with a horizontal underside, sloping rafter tails with an exterior covering applied to the under-side of the rafter tails, shall be protected by one of the following:
    - noncombustible material
    - Ignition-resistant material
    - One layer of $^{5}/_{8}$-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the rafter tails or soffit
    - The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the rafter tails or soffit including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual
    - Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in Section 707A.10 when tested in accordance with the test procedures set forth in ASTM E2957.

- Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.
  Exceptions: The following materials do not require protection:
  1. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails. 2. Fascia and other architectural trim boards.

6. The exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following:
   - Noncombustible material, or
   - Ignition-resistant material, or
   - One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside exterior of the roof deck, or
   - The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the roof deck designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association fire Resistance Design Manual.
     Exceptions: The following materials do not require protection:
     1. Solid wood rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm).
     2. Solid wood blocking installed between rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm).
     3. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails. 4. Fascia and other architectural trim boards.

7. Vents - ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation openings shall be fully covered with metal wire mesh, vents, other materials or other devices that meet one of the following requirements:
   A. Vents listed to ASTM E2886 and complying with all the following:
      i. There shall be no flaming ignition of the cotton material during the Ember Intrusion Test. ii. There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test. iii. The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).
   B. Vents shall comply with all the following:
      i. The dimensions of the openings therein shall be a minimum of $^{1}/_{16}$-inch (1.6 mm) and shall not exceed $^{1}/_{8}$-inch (3.2 mm).
      ii. The materials used shall be noncombustible.
      Exception: Vents located under the roof covering, along the ridge of roofs, with the exposed surface of the vent covered by noncombustible wire mesh, may be of combustible materials.
      iii. The materials used shall be corrosion resistant.

8. Vents shall not be installed on the underside of eaves and cornices.

   Exceptions:
   1. Vents listed to ASTM E2886 and complying with all the following:
      - There shall be no flaming ignition of the cotton material during the Ember Intrusion Test.
      - There shall be no flaming ignition during the Integrity Test portion of the Flame Intrusion Test.
      - The maximum temperature of the unexposed side of the vent shall not exceed 662°F (350°C).
   2. The enforcing agency shall be permitted to accept or approve special eave and cornice vents that resist the intrusion of flame and burning embers.
   3. Vents complying with the requirements of Section 706A.2 shall be permitted to be installed on the underside of eaves and cornices in accordance with either one of the following conditions:
      3.1. The attic space being ventilated is fully protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or,
      3.2. The exterior wall covering, and exposed underside of the eave are of noncombustible materials, or ignition-resistant materials, as determined in accordance with SFM Standard 12-7A-5 Ignition-Resistant Material and the requirements.

9. All chimney, flue or stovepipe openings that will burn solid wood will have an approved spark arrester. An approved spark arrester is defined as a device constructed of nonflammable materials, having a heat and corrosion resistance equivalent to 12-gauge wire, 19-game galvanized steel or 24-gage stainless steel. or other material found satisfactory by the Fire Protection District, having ½-inch perforations for arresting burning carbon or sparks nor block spheres having a diameter less than 3/8 inch (9.55 mm). It shall be installed to be visible for the purposes of inspection and maintenance and removeable to allow for cleaning of the chimney flue.

10. All multi-family structures will have automatic interior fire sprinklers installed according to the National Fire Protection Association (NFPA) 13R 2025 edition - *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*.

11. All single-family structures will have automatic interior fire sprinklers installed according to the National Fire Protection Association (NFPA) 13D 2025 edition – Standard for the Installation of Sprinkler System in One- and Two-Family Dwellings and Manufactured Homes.7

12. The exterior wall covering, or wall assembly shall comply with one of the following requirements:
    - Noncombustible material, or
    - Ignition resistant material, or
    - Heavy timber exterior wall assembly, or
    - Log wall construction assembly, or
    - Wall assemblies that have been tested in accordance with the test procedures for a 10-minute direct flame contact expose test set forth in ASTM E2707 with the conditions of acceptance shown in Section 707A.3.1 of the California Building Code, or

- Wall assemblies that meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in SFM Standard 12-7A-1.

  Exception: Any of the following shall be deemed to meet the assembly performance criteria and intent of this section including;
  - One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing, or
  - The exterior portion of a 1-hour fire resistive exterior wall assembly designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Associate Fire Resistance Design Manual.

13. Exterior walls shall extend from the top of the foundation to the roof and terminate at 2-inch nominal solid blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.

14. Gutters shall be provided with the means to prevent the accumulation of leaf litter and debris within the gutter that contribute to roof edge ignition.

15. All rain gutters, down spouts and gutter hardware shall be constructed from metal or other noncombustible material to prevent wildfire ignition along eave assemblies.

16. No attic ventilation openings or ventilation louvers shall be permitted in soffits, in eave overhangs, between rafters at eaves, or in other overhanging areas.

17. All projections (exterior balconies, decks, patio covers, unenclosed roofs and floors, and similar architectural appendages and projections) or structures less than five feet from a building shall be of non-combustible material, one-hour fire resistive construction on the underside, heavy timber construction or pressure-treated exterior fire-retardant wood. When such appendages and projections are attached to exterior fire-resistive walls, they shall be constructed to maintain same fire-resistant standards as the exterior walls of the structure.

18. Deck Surfaces shall be constructed with one of the following materials:
    - Material that complies with the performance requirements of Section 709A.4 when tested in accordance with both ASTM E2632 and ASTM E2726, or
    - Ignition-resistant material that complies with the performance requirements of 704A.3 when tested in accordance with ASTM E84 or UL 723, or
    - Material that complies with the performance requirements of both SFM Standard 12-7A-4 and SFM Standard 12-7A-5, or
    - Exterior fire-retardant treated wood, or
    - Noncombustible material, or
    - Any material that complies with the performance requirements of SFM Standard 12-7A-4A when the attached exterior wall covering is also composed of noncombustible or ignition resistant material.

19. Accessory structures attached to buildings with habitable spaces and projections shall be in accordance with the Building Code. When the attached structure is located and constructed so that the structure or any portion thereof projects over a descending slope surface greater than 10

percent, the area below the structure shall have all underfloor areas and exterior wall construction in accordance with Chapter 7A of the Building Code.

20. Exterior windows, skylights and exterior glazed door assemblies shall comply with one of the following requirements:
    - Be constructed of multiplane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing, or
    - Be constructed of glass block units, or
    - Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or
    - Be tested to meet the performance requirements of SFM Standard 12-7A-2.

21. All eaves, fascia and soffits will be enclosed (boxed) with non-combustible materials. This shall apply to the entire perimeter of each structure. Eaves of heavy timber construction are not required to be enclosed as long as attic venting is not installed in the eaves. For the purposes of this section, heavy timber construction shall consist of a minimum of 4x6 rafter ties and 2x decking.

22. Detached accessory buildings that are less than 120 square feet in floor area and are located more than 30 feet but less than 50 feet from an applicable building shall be constructed of noncombustible materials or of ignition-resistant materials as described in Section 704A.2 of the California Building Code.
    Exception: Accessory structures less than 120 square feet in floor area located at least 30 feet from a building containing a habitable space.

23. All side yard fence and gate assemblies (fences, gate and gate posts) when attached to the home shall be of non-combustible material. The first five feet of fences and other items attached to a structure shall be of non-combustible material.

24. Exterior garage doors shall resist the intrusion of embers from entering by preventing gaps between doors and door openings, at the bottom, sides and tops of doors, from exceeding 1/8 inch. Gaps between doors and door openings shall be controlled by one of the methods listed in this section.
    - Weather-stripping products made of materials that:
      (a) have been tested for tensile strength in accordance with ASTM D638 (Standard Test Method for Tensile Properties of Plastics) after exposure to ASTM G155 (Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials) for a period of 2,000 hours, where the maximum allowable difference in tensile strength values between exposed and non-exposed samples does not exceed 10%; and (b) exhibit a V-2 or better flammability rating when tested to UL 94, Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
    - Door overlaps onto jambs and headers.
    - Garage door jambs and headers covered with metal flashing.

25. Exterior doors shall comply with one of the following:
    1. The exterior surface or cladding shall be of noncombustible material or,
    2. The exterior surface or cladding shall be of ignition-resistant material or,

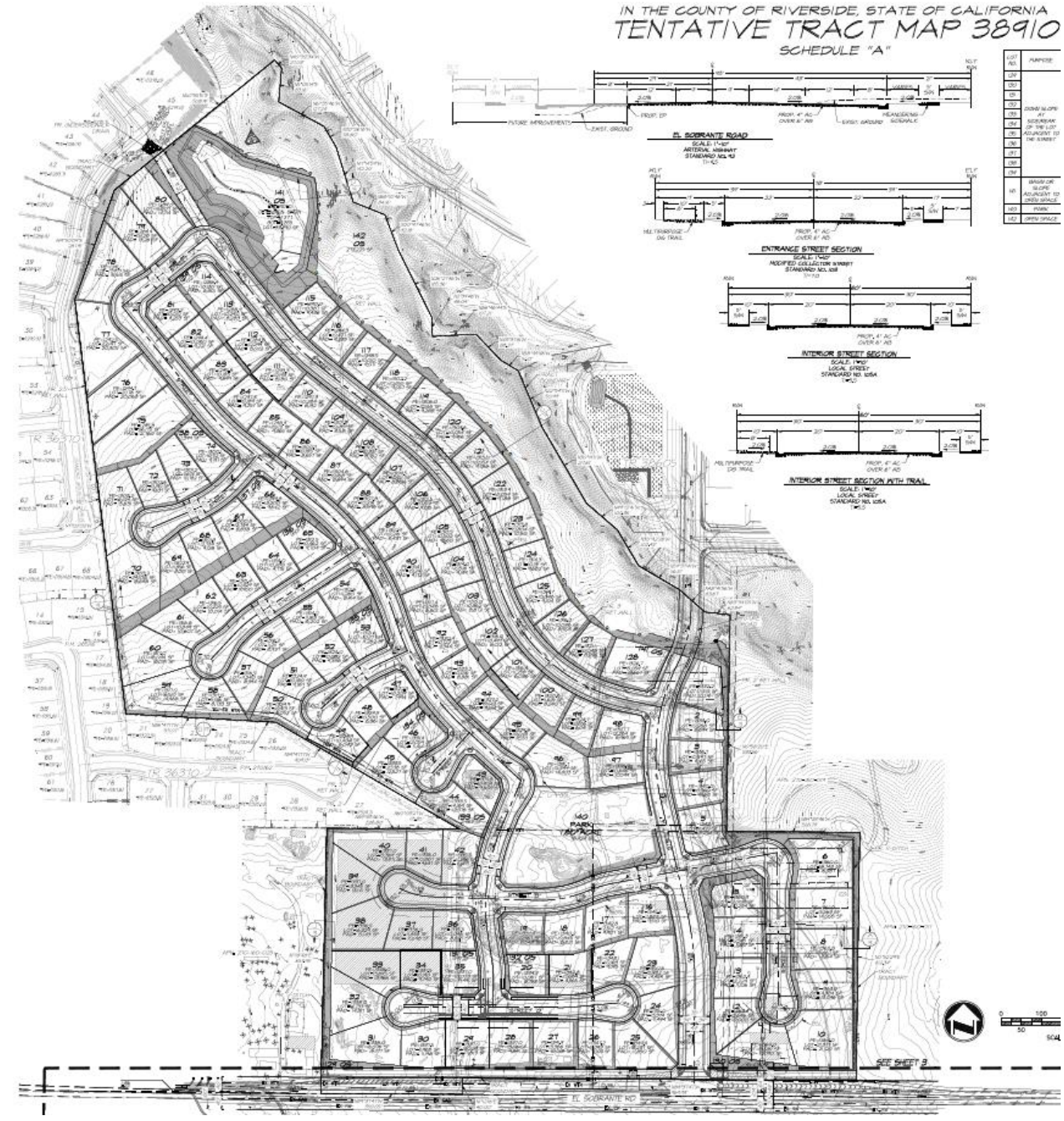
3. The exterior door shall be constructed of solid core wood that complies with the following requirements:
   3.1. Stiles and rails shall not be less than 1-3/8 inches thick.
   3.2. Panels shall not be less than 1-1/4 inches thick, except for the exterior perimeter of the panel that shall be permitted to taper to a tongue not less than 3/8 inch thick.
4. The exterior door assembly shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252 or,
5. The exterior surface or cladding shall be tested to meet the performance requirements of Section 707A.3.1 when tested in accordance with ASTM E2707 or,
6. The exterior surface or cladding shall be tested to meet the performance requirements of SFM Standard 12-7A-1.

26. Fire access tunnels shall have two hour rated walls consisting of two layers of 5/8" Type 'X' gypsum wallboard panels on each side of the studs. The EZ Taping Systems "Fire Tape" product or equivalent should be used as an alternative to convention joint tape when:
    1. Two or more layers of listed Type 'X' gypsum wallboard are applied vertically with joints staggered and joints of the face board are":
       a. Tightly butted and taped with EZ Taping Systems "Fire Tape" or equivalent product or
       b. Finished with joint compound of EZ Taping Systems "Fire Tape" or equivalent product if the gap between gypsum wallboard panels are visible at the joint.
    2. Two or more layers of USG "Sheetrock" Fire code C gypsum wallboard are applied (horizontally or vertically).
    3. Gypsum panels shall be attached with Type S drywall screws, placed 8" oc to vertical edges and 12" oc to top and bottom runners and intermediate studs.
    4. Fire Tape shall be nominal 2" wide and applied on the vertical joints at studs.

** FAHJ – Fire Authority Having Jurisdiction
SFM – State Fire Marshal
NFPA – National Fire Protection Association

APPENDIX 'F'

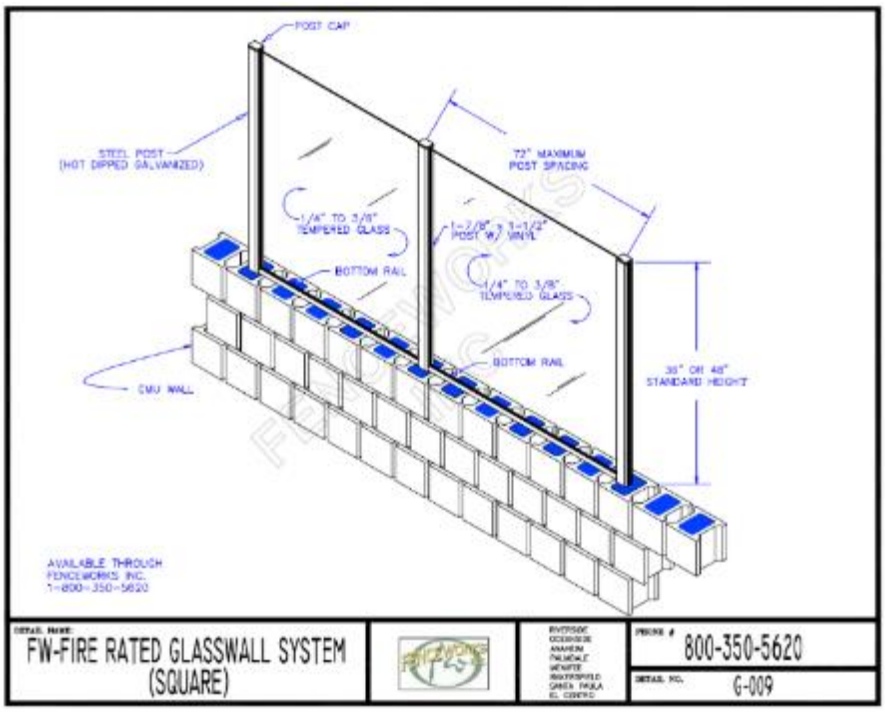
SITE PLAN – HIGHLAND GROVE 2



Note: The western side of the Project is currently under development or has been previously developed. For general visualization of the development's layout only.

APPENDIX 'G'

EXAMPLE OF A VIEW WALL



Note: There are many fence builders that can building fire deflection view walls. ***FIRE*WISE2000, LLC** does not endorse any business. The designs shown above is consistant with this plan.

APPENDIX 'H'

Additional Information

Below is additional information to assist the homeowner and HOA in reducing the potential of a fire starting, dealing with power outages and health and safety concerns.

Maintenance Equipment
When performing landscape maintenance such as mowing or using a chainsaw, be especially careful as a spark can start a fire. The use of battery-operated equipment is less likely to cause a problem. Modern battery technology includes a heat sensor inside the electric motor and when it gets hot it flips a switch killing the motor until it has had a chance to cool down. This feature lessens the likelihood of a fire. Metal mowing equipment should be avoided as a rapidly rotating metal blade could strike a rock creating a spark which could on very dry days start a fire. String trimmers are preferred to metal as they are much less likely to start a fire.

When mowing, choose the cooler morning hours before 10 am and avoid windy and dry conditions. Gasoline powered equipment such as tractors, chainsaws, weed eaters, and mowers are required to have a spark arrester. Do not overfill fuel tanks. Gasoline expands by volume approximately 1 percent for every 15-degree temperature change. Should fuel be spilled, wipe away any excess and allow the fumes to dissipate before restarting the engine. Mowing equipment exhaust systems can reach temperatures of over 1,000 degrees during their operation. Do not set or park equipment in dry vegetation.

The HOA shall yearly provide lot owners with information regarding the landscape maintenance on each lot and the wildfire mitigation efforts necessary for community fire safety that are contained within this FPP.

Electricity Required
Southern California Edison (SCE) provides the Project with electricity. To reduce the risk of a fire starting, SCE may elect to implement what is known as a Public Safety Power Shutoff (PSPS). This may occur when there are high winds or a forecast for them and very high or extreme wildland fire danger. Homeowners can sign up for a free PSPS alerts at https://www.scepsps.com/. SCE also provides forecast information concerning potential PSPS shutdowns for the next seven days on their website at https://www.sce.com/wildfire/weather-awareness.

Electricity is required to operate garage doors and the landscape irrigation system. Should a PSPS notification be issued, it is highly recommended that the vehicle that would be used to evacuate be taken out of the garage and parked in the driveway prior to electricity being shut down. To aid in evacuation, the vehicle should face the roadway. During a prolonged electric outage, the landscape irrigation system may have to be operated manually to maintain high moisture levels in all landscape plants.

Homeowner Awareness
Each homeowner shall be aware of the herein described fire protection measures by reviewing this PFPP of the types of non-combustible construction and plant materials that are allowed within their lot

boundary. A copy of this plan shall be provided to each resident during escrow procedures. Of particular importance to homeowners are Section 3.3 and APPENDICES 'A' and 'D' of this plan which provide guidance in the types of plants that are fire resistant and those that are not allowed to be established in landscaped areas and appropriate construction within fuel modification zones. Plant selection is critical as embers often travel over a mile during Santa Ana wind events.

Where the Highland Grove 2 Fire Protection Plan requires specific construction features, these features shall not be changed without the approval of the RCFD. These features are required to maintain reasonable fire safety.

Health and Safety

Homeowners should be aware that smoke is harmful to your health, especially if a person has asthma or chronic obstructive pulmonary disease, including bronchitis and emphysema. People with pre-existing health conditions related to the heart or circulatory systems may want to reclocate to a safe area before official notification to relocate to avoid smoke impacts. It is recommended that people leave the area affected by wildfire smoke if indoor air cannot be kept clean.

Pets can also be effected by exposure to smoke. High levels of smoke may irritate the animals' eyes and respiratory tract. Animals with heart or lung disease are especially at-risk and should be closely watched during periods of poor air quality.

Homeowners and the HOA can monitor local air quality by visiting the following web site: https://www.airnow.gov/?city=Riverside&state=CA&country=USA. This link is directly to Riverside County and is generally updated hourly. It also contains a forecast for the following day. Remember, windblown smoke can travel for miles from its source. The farther a person is away from the source, the less the smoke impact will be.

Evacuation

Evacuation preparation includes changing your clothing to cotton or wool as these are the least flammable. Use a M95 mask to filter smoke and dust. Eye protection is also valuable due to windblown debris.

Many people who perish in wildfires do so in vehicles. One reason is because they wait too long to evacuate, or they think that their vehicle can move faster than a wildfire. However, wildfires have the ability to leapfrog and hopscotch obstacles due to windblown embers. Another reason people die in vehicles is due to the conditions — debris on the road, poor visibility and high evacuee traffic. It is best to evacuate early than to be caught in traffic congestion. If congestion is reported, sheltering in place or staying within your home that is designed to resist wildland fire may be the safest option.

When evacuating, turn your headlights and hazard light on, close or block air vents that would allow smoke into the vehicle. Use recirculated air from the air conditioner to maintain vehicle temperature. If you must stop due to road hazards, try to locate the vehicle next to a concrete wall or beneath an underpass to act as a barrier from flames. Always keep the engine running. Do not exit any vehicle until the fire has passed.

APPENDIX 'I'

Evacuation Checklist – What to Take

The following is a recommended list of items to take should a person or family expect that they could be evacuated due to a wildfire. It was adapted from numerous United States Forest Service, Bureau of Land Management and Cooperative Extension publications.

1. **Outside the Home:**
   - Move all flammable outdoor furniture or other combustibles away from the home, either place them inside the home, garage or throw it into a pool.
   - Turn off natural gas at the meter or propane gas at the tank, remove BBQ propane tank, take it with you or store it in a secure place such as the garage or away from your house.
   - Turn on outdoor lighting so in darkness, emergency responders will know where the home is located.
   - Close all exterior vents, doors, and windows.
   - Leave exterior doors and gates unlocked to allow emergency responder access.
   - Fill trash cans and buckets with water and place them where emergency responders can find them, preferably in a well-lit area.
   - Connect garden hoses to exterior faucets and attach nozzles if available.
   - If there is time, wet down landscaping to provide additional moisture, especially wet down flammable mulches.

1. **Inside the House:**
   - Close the Fireplace damper.
   - Close all windows and exterior vents, close all interior and exterior doors including the garage door, remove flammable curtains from windows.
   - Close fire-resistant drapes, shutters, and blinds.
   - Close and lock any cat or doggie doors that lead to the outside.
   - Move fabric covered furniture away from windows and toward the center of the room.
   - Leave a light on in each room.
   - Close all interior doors as you leave.

2. **Preparation of Family, Pets, and Livestock:**
   - Round up your pets: get them secured and ready to go into the car with no way of escape before they are loaded into the car (this is especially important with cats).
   - Have pet carriers, leashes, food bowls, food, litter boxes, litter, and other pet needs ready to go & ready to be loaded into a car.

- Make a prior arrangement to contact a neighbor or friend who might be available to help you in an evacuation situation with loading or driving a second or third vehicle, or to help with large animals such as horses, penned animals etc.
- Evacuate all family members that are not essential to preparing the house for wildfire if possible.
- Notify your emergency contact person of your plans.
- Draft an e-mail, send to friends and family about your intentions.
- Plan several evacuation routes from your home and follow local emergency personnel's directions.
- Designate a safe meeting place and contact person.
- Notify the local Humane Society or other organizations for assistance with larger animals if needed.
- Evacuate pets and livestock, do not set them loose.
- Load containers with drinking water and food.
- Take a first aid kit.

3. **What to Wear:**
   - Wear only cotton or wool clothes, including a long sleeve shirt, pants and or jacket, a hat and boots or close toed shoes.
   - Carry gloves, a cotton handkerchief to cover your face and goggles to protect your eyes.
   - Keep your battery powered cell phone, flashlight, and portable radio with you at all times.

4. **To Go Bag Items:**
   - Important files, back-up disks, plug-in USB virtual drive, small compact file box ready to go. Include such things as homeowner's policy, auto policies, life & investment files, bank records etc. (or store in a fireproof safe or fireproof vault).
   - Include a backup battery powered flashlight, portable radio, and extra batteries.
   - Cell phone charger
   - Address books for both snail mail and email that include your doctor(s) contact information.
   - Prescription medications.
   - Sufficient clothing for 3-5 days in him and her bags.
   - Personal toiletries including deodorant, disposable shavers, extra toothbrushes, shampoo & shaving cream, toothpaste, and feminine supplies to last 3-5 days.
   - Computer backup files.
   - Family heirlooms, photo albums and videos

- Inventory of home contents (consider making a video inventory now, prior to an emergency).
- ATM, credit, and debit cards.
- Medications such as ibuprofen, aspirin, and antihistamines
- Prescription glasses
- Social security cards
- Passport's
- Driver's licenses
- Take important documents such as birth certificates, health insurance cards, marriage certificates, home deed and insurance policies and power of attorney and will.
- Take masks that will reduce exposure to both disease and the inhalation of flying ash.
- Take all household & car keys, wallet, and handbag
- A container of sanitary wipes.

5. **Vehicle Preparation:**
   - Place your vehicle on the driveway facing the street.
   - Ensure that the vehicle has at least 1/2 tank of fuel in your vehicle at all times.
   - Roll up the car windows and close the moon roof.
   - Close the garage door but leave it unlocked.
   - If you do not drive, make other arrangements for transportation in advance.

6. **Other Useful Items (If time is available):**
   - Take cameras & expensive jewelry and important electronic devices.
   - If you have enough room, consider a few items from your camping or picnic supplies.
   - Pillows & light blankets (in case you might have to sleep outside while evacuated).
   - Take special or valuable items (make your own list).

K-2: Fuel Modification Exhibit

THIS PAGE INTENTIONALLY LEFT BLANK

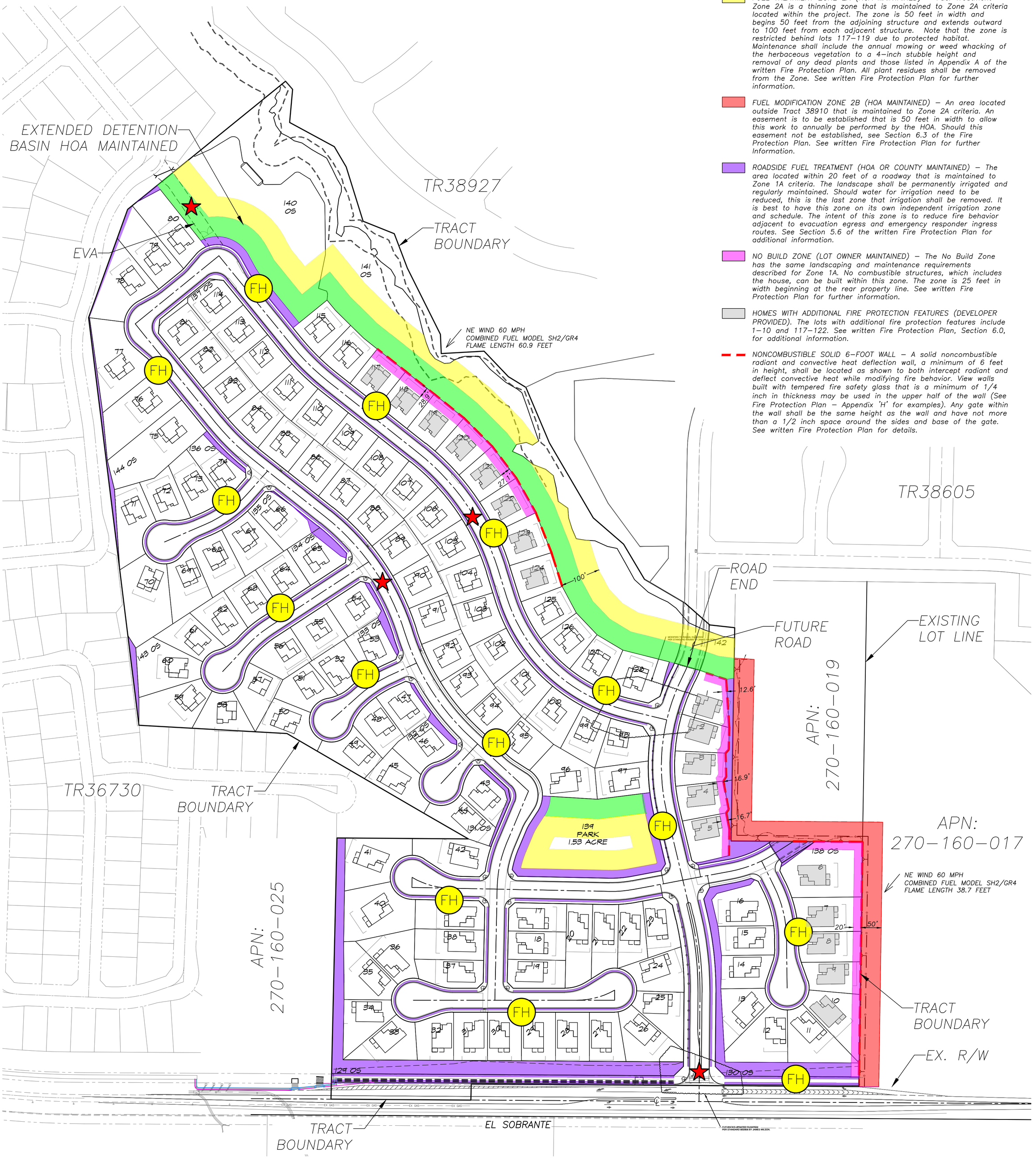
FUEL MODIFICATION PLAN
HIGHLAND GROVE 2 – TR38910

Certified By

Melvin A Johnson, Owner Date: 10/4/2024
Revised 6/24/2025
Certified CEQA Wildland Fire Consultant
FIREWISE2000, LLC
PO Box 339
Lower Lake, CA 95457
Telephone: (760) 745-3947
info@firewise2000.com

This Exhibit is found to be compliant with the Highland Grove 2 Fire Protection Plan dated: 10/4/2024, Revised 6/24/2025

SYMBOL	DESCRIPTION
★	*Emergency/Fire Access Way Entrance*
FH	*The FH (Fire Hydrant) symbol shown for reference only. Each fire hydrant is to be installed per the Riverside County Fire Department Ordinance 1053)*



LEGEND

NOT SHOWN — *FUEL MODIFICATION 0 (LOT OWNER MAINTAINED) – A zone that is cleared of all existing plants and combustible materials that is 5 feet in width beginning at the outer wall of each structure, attached deck or stairway. The lot owner is responsible for their individual lot. No combustible material or plants are allowed in this zone at any time. See written Fire Protection Plan for additional information.*

NO COLOR — *FUEL MODIFICATION ZONE 1A (LOT OWNER MAINTAINED) – An irrigated zone beginning at the outer edge of Zone 0 that extends to the lot boundary that is maintained by the lot owner to Zone 1A criteria. Zone 1A will be cleared of all existing native vegetation and replanted with irrigated drought tolerant and fire resistant lawns, ground covers, low growing shrubs and a few fire resistant trees. Each mature tree canopy shall be 10 feet or more from the adjacent structure. Remove and replace any dead or dying plant material monthly. No combustible mulch shall be placed in Zone 1A. It may include hardscape features such as concrete sidewalks, rock, pavers, artificial turf, swimming pools and similar features. Avoid all plants listed on the Prohibited Plant List found in Appendix A of the Fire Protection Plan. See written Fire Protection Plan for further information.*

FUEL MODIFICATION ZONE 1B (HOA MAINTAINED) – Zone 1B is an irrigated zone that is located within 50 feet of a structure in a common area managed and maintained by the HOA. Zone 1B also includes manufactured slopes maintained to Zone 1A criteria regardless of the its location (see written Fire Protection Plan for further information).

FUEL TREATMENT ZONE 2A (HOA MAINTAINED) – Fuel Treatment Zone 2A is a thinning zone that is maintained to Zone 2A criteria located within the project. The zone is 50 feet in width and begins 50 feet from the adjoining structure and extends outward to 100 feet from each adjacent structure. Note that the zone is restricted behind lots 117–119 due to protected habitat. Maintenance shall include the annual mowing or weed whacking of the herbaceous vegetation to a 4–inch stubble height and removal of any dead plants and those listed in Appendix A of the written Fire Protection Plan. All plant residues shall be removed from the Zone. See written Fire Protection Plan for further information.

FUEL MODIFICATION ZONE 2B (HOA MAINTAINED) – An area located outside Tract 38910 that is maintained to Zone 2A criteria. An easement is to be established that is 50 feet in width to allow this work to annually be performed by the HOA. Should this easement not be established, see Section 6.3 of the Fire Protection Plan. See written Fire Protection Plan for further Information.

ROADSIDE FUEL TREATMENT (HOA OR COUNTY MAINTAINED) – The area located within 20 feet of a roadway that is maintained to Zone 1A criteria. The landscape shall be permanently irrigated and regularly maintained. Should water for irrigation need to be reduced, this is the last zone that irrigation shall be removed. It is best to have this zone on its own independent irrigation zone and schedule. The intent of this zone is to reduce fire behavior adjacent to evacuation egress and emergency responder ingress routes. See Section 5.6 of the written Fire Protection Plan for additional information.

NO BUILD ZONE (LOT OWNER MAINTAINED) – The No Build Zone has the same landscaping and maintenance requirements described for Zone 1A. No combustible structures, which includes the house, can be built within this zone. The zone is 25 feet in width beginning at the rear property line. See written Fire Protection Plan for further information.

HOMES WITH ADDITIONAL FIRE PROTECTION FEATURES (DEVELOPER PROVIDED). The lots with additional fire protection features include 1–10 and 117–122. See written Fire Protection Plan, Section 6.0, for additional information.

NONCOMBUSTIBLE SOLID 6–FOOT WALL – A solid noncombustible radiant and convective heat deflection wall, a minimum of 6 feet in height, shall be located as shown to both intercept radiant and deflect convective heat while modifying fire behavior. View walls built with tempered fire safety glass that is a minimum of 1/4 inch in thickness may be used in the upper half of the wall (See Fire Protection Plan – Appendix 'H' for examples). Any gate within the wall shall be the same height as the wall and have not more than a 1/2 inch space around the sides and base of the gate. See written Fire Protection Plan for details.

Know what's below. Call before you dig.

MARK	BY	DATE	REVISIONS

ENGINEER

PLANS PREPARED BY:
adkan ENGINEERS
Civil Engineering · Surveying · Planning
6879 Airport Drive, Riverside, CA 92504
Tel:(951) 688–0241 · Fax:(951) 688–0599

SCALE: 0 120 60 240
SCALE: 1" = 120'

DATE: AUGUST 9, 2024

TENTATIVE TRACT MAP NO. 38910
COUNTY OF RIVERSIDE
HIGHLAND GROVE II
FUEL MODIFICATION PLAN

FOR: | W.O. | COUNTY FILE NO.

SHEET NO. FM–1
_ OF _ SHTS

PLOT DATE: 6/24/2025

U:\Projects\Pulte\10528–HG2\Exhibit\Fuel Mod Exhibit\10528 – Fuel Mod Exhibit.dwg

THIS PAGE INTENTIONALLY LEFT BLANK